Australian Government

Department of Sustainability, Environment, Water, Population and Communities

DEED OF VARIATION

Deed of Variation to Services for the design and implementation of an ecological monitoring protocol to measure change in the condition and extent of the Environmental Stewardship Box Gum Grassy Woodland investment sites

Commonwealth of Australia as represented by the Department of Sustainability, Environment, Water, Population and Communities ABN 34 190 894 983 (**Department**)

The Australian National University, an institution pursuant to the *Australian National University Act 1991* (Cth)
ABN 52 234 063 906
(**Service Provider**)

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Details

Parties

1. Commonwealth of Australia as represented by the **Department of Sustainability, Environment, Water, Population and Communities** ABN 34 190 894 983 of John Gorton Building, Environment Entrance, King Edward Terrace, Parkes ACT 2600, Australia (**Department**).

2. The **Australian National University**, an institution pursuant to the *Australian National University Act 1991* (Cth), of Acton in the Australian Capital Territory, 0200, Australia, as represented by the Fenner School of Environment and Society ABN 52 234 063 906 (**Service Provider**).

Recitals

A. The Department and the Service Provider are parties to a services agreement for the design and implementation of an ecological monitoring protocol to measure change in the condition and extent of the Environmental Stewardship Box Gum Grassy Woodland investment sites dated 23 September 2009 (**Original Agreement**).

B. The parties varied the Original Agreement on 23 December 2009, relating to the start date and details of the Environmental Liaison Officer position and removal of surveying activities for arboreal marsupials (**First Variation**).

C. The parties varied the Original Agreement on 10 September 2010, relating to the number of control sites (**Second Variation**).

D. The parties varied the Original Agreement on 25 July 2012, relating to greater clarity to the nature and timing of deliverables and milestone payments (**Third Variation**).

E. The Department and the Service Provider have agreed to amend the terms of the Original Agreement referred to in Recital A, as amended by the First, Second and Third Variations (together the **Agreement**) in accordance with this deed.

Agreed terms

1. Defined terms and interpretation

1.1 Defined terms

In this deed, except where the context otherwise requires, defined terms have the same meaning as given to them in the Agreement.

1.2 Interpretation

In this deed, except where the context otherwise requires:

(a) the singular includes the plural and vice versa, and a gender includes other genders;

(b) another grammatical form of a defined word or expression has a corresponding meaning;

(c) a reference to a clause, paragraph, schedule or attachment is to a clause or paragraph of, or schedule or attachment to, this deed, and a reference to this deed includes any schedule or attachment;

(d) a reference to a document or instrument includes the document or instrument as novated, altered, supplemented or replaced from time to time;

(e) a reference to AUD, A$, $A, dollar or $ is to Australian currency;

(f) a reference to time is to the local time in Canberra, Australia;

(g) a reference to a party is to a party to this deed, and a reference to a party to a document includes the party's executors, administrators, successors and permitted assigns and substitutes;

(h) a reference to a person includes a natural person, partnership, body corporate, association, governmental or local authority or agency or other entity;

(i) headings are for ease of reference only and do not affect interpretation;

(j) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;

(k) a word or expression defined in the *Corporations Act 2001* (Cth) has the meaning given to it in the *Corporations Act 2001* (Cth);

(l) the meaning of general words is not limited by specific examples introduced by **including**, **for example** or similar expressions;

(m) any agreement, representation, warranty or indemnity by two or more parties (including where two or more persons are included in the same defined term) binds them jointly and severally;

(n) any agreement, representation, warranty or indemnity in favour of two or more parties (including where two or more persons are included in the same defined term) is for the benefit of them jointly and severally; and

(o) a rule of construction does not apply to the disadvantage of a party because the party was responsible for the preparation of this deed or any part of it.

2. Variation to Agreement

With effect from the date of this deed, the Agreement is varied by:

(a) inserting all clauses and words that are underlined; and

(b) deleting all clauses and words that are crossed through,

in the copy of the Agreement that forms Attachment A to this deed.

3. Payment acknowledgement

The parties acknowledge that the amount of $ 1,906,043 (GST inclusive) has already been paid to the Service Provider as part of the Fees payable under the Agreement.

4. Continued force and effect of Agreement

The Agreement continues in full force and effect, as amended by this deed.

5. Miscellaneous

5.1 Counterparts

This deed may be executed in counterparts. All executed counterparts constitute one document.

5.2 Governing law and jurisdiction

This deed is governed by the law of the Australian Capital Territory and each party irrevocably submits to the non-exclusive jurisdiction of the courts of the Australian Capital Territory.

Execution page

Executed as a deed

SIGNED SEALED AND DELIVERED for and on behalf of the Commonwealth of Australia as represented by the **Department of Sustainability, Environment, Water, Population and Communities** by a duly authorised representative

Claire Howlett
Name of authorised representative (print)

Signature of authorised representative

26 June 2013
Date

s22
Name of witness (print)

s22
Signature of witness

26 June 2013
Date

SIGNED SEALED AND DELIVERED for and on behalf of **The Australian National University, an institution pursuant to the Australian National University Act 1991 (Cth) ABN 52 234 063 906** by a duly authorised representative who warrants that they have the authority to sign this deed on behalf of the Australian National University

in the presence of:

Karen Jackson
Name of authorised representative (print)

Signature of authorised representative

25 JUNE 2013
Date

Melanie Martin
Name of witness (print)

Signature of witness

25 June 2013
Date

ATTACHMENT A

Attachment A to Deed of Variation

Service Agreement for the design and implementation of an ecological monitoring protocol to measure change in the condition and extent of the Environmental Stewardship Box Gum Grassy Woodland investment sites

AGREEMENT

BETWEEN

COMMONWEALTH OF AUSTRALIA, as represented by and acting through the Department of Sustainability, Environment, Water, Population and Communities ABN 34 190 894 983

AND

THE AUSTRALIAN NATIONAL UNIVERSITY, an institution pursuant to the *Australian National University Act* 1991 (Cth), of Acton, in the Australian Capital Territory, 0200, Australia, as represented by the Fenner School of Environment and Society ABN 52 234 063 906

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in relation to Services for the design and implementation of an ecological monitoring protocol to measure change in the condition and extent of the Environmental Stewardship Box Gum Grassy Woodland investment sites

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TABLE OF CLAUSES

THE SCHEDULE

(A) Proposal and Quotation (see Purpose)
(B) 'Services' (see clauses 1.1 and 2.1)
(C) Required Contract Material (see clauses 1.1 and 2.1)
(D) Standards and Best Practice (see clause 2.1)
(E) Commencement and Time-frame (see clause 1.7 and 2.1)
(F) Fees (see clauses 3.1 & 20.5)
(G) Allowances and Costs (see clause 3.1)
(H) Facilities and Assistance (see clause 3.1)
(I) Invoice Procedures (see clause 3.3)
(J) 'Specified Personnel' (see clauses1.1 and 6)
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(L) Material to be Provided by Commonwealth (see clause 8.1)
(M) Use of Commonwealth Material (see clause 8.3)
(N) Existing Material (see clause 9.2)
(O) Dealings with Copies (see clause 10.5)
(P) Insurance (see clause 18.1)
(Q) Commonwealth's Address for Notices (see clause 25.1)
(R) Service Provider's Address for Notices (see clause 26.1)
(S) Confidential Information (see clauses 1.1 and 11)
(T) Privacy Directions, Guidelines, Determinations and Recommendations (see clause 12)
(U) Moral Rights (see clause 26)
(V) Security Requirements (see clauses 27 to 31)

THIS AGREEMENT is made on 23 September 2009

PARTIES

COMMONWEALTH OF AUSTRALIA ('the Commonwealth') for the purposes of this Agreement represented by and acting through the Department of Sustainability, Environment, Water, Population and Communities ABN 34 190 894 983 ('the Department')

AND

THE AUSTRALIAN NATIONAL UNIVERSITY, (ABN 52 234 063 906), an institution pursuant to the *Australian National University Act* 1991 (Cth), of Acton, in the Australian Capital Territory, 0200, Australia, as represented by the Fenner School of Environment and Society ('the Service Provider')

PURPOSE

A The Department requires the provision of the Services specified in the Schedule

B The Department requires the provision of the Services specified in the Schedule to inform outcomes and targets sought by the Biodiversity and Natural Icons priority area under Caring for our Country

C The Service Provider has fully informed itself on all aspects of the work required to be performed and has submitted the proposal and quotation referred to in Item A of the Schedule [*Proposal and Quotation*]

D The Commonwealth has agreed to engage the Service Provider to provide the Services upon the terms and conditions contained in this Agreement

OPERATIVE PART

1. INTERPRETATION

1.1 In this Agreement, unless the contrary intention appears:

ABN	has the same meaning as it has in section 41 of the *A New Tax System (Australian Business Number) Act 1999* (Cth);
Agreement	means this document and includes any schedules or annexures;
Business Day	in relation to the doing of any action in a place, means a weekday other than a public holiday in that place;
Commencement Date	means the date on which this Agreement is made, unless otherwise specified in Item E *[Commencement and Timeframe]*;
Commonwealth Material	means any Material: (a) provided by the Commonwealth to the Service Provider for the purposes of this Agreement; or (b) derived at any time from the Material referred to in paragraph (a);

Confidential Information	means: (a) the information described in Item S of the Schedule; and (b) the information that is agreed between the Parties after the Date of this Agreement as constituting Confidential Information for the purposes of this Agreement.
Conflict	means any matter, circumstance, interest or activity affecting the Service Provider which may or may appear to impair the ability of the Service Provider to provide the Services diligently and independently;
Contract Material	means all Material: (a) created for the purposes of this Agreement; (b) provided or required to be provided to the Department as part of the Services; or (c) derived at any time from the Material referred to in paragraphs (a) or (b);
End Date	means the later of the Initial End Date and the final day of any extension of the Term of this Deed under clause 2.2;
Extension Date	means the latest date to which this Deed may be extended by the Department as specified in Item E [*Commencement and Timeframe*] of the Schedule;
Department	includes the Department of Sustainability, Environment, Water, Population and Communities and any other department or agency of the Commonwealth which may from time to time be responsible for the administration of this Agreement;
Initial End Date	means that date specified in Item E [*Commencement and Timeframe*] of the Schedule;
Instalment	means an instalment of fees payable under clause 3 in relation to the satisfactory performance of part of the Services;

Intellectual Property	includes all copyright (including rights in relation to phonograms and broadcasts), all rights in relation to inventions (including patent rights), plant varieties, registered and unregistered trademarks (including service marks), designs, and circuit layouts, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields but does not include Moral Rights, the rights of performers or rights in relation to Confidential Information;
Material	means the subject matter of any category of Intellectual Property rights;
Moral Rights	includes the following rights of an author of copyright Material: (a) the right of attribution of authorship; (b) the right of integrity of authorship; and (c) the right not to have authorship falsely attributed;
Official Information	means any information developed, received or collected by or on behalf of the Commonwealth of Australia through its agencies and contracted providers;
Official Resources	includes: (a) Official Information; (b) people who work for or with the Department; and (c) assets belonging to (even if in the possession of contracted providers) or in the possession of the Department;
Personal Information	has the same meaning as the term 'personal information' in the *Privacy Act 1988* (Cth), that is: information or an opinion (including information or an opinion forming part of a database), whether true or not, and whether recorded in a material form or not, about a natural person whose identity is apparent, or can reasonably be ascertained, from the information or opinion;
Party	means a party to this Agreement;
Personnel	means a Party's officers, employees, agents, contractor staff or professional advisers engaged in the performance or management of this Agreement;

Project Officer	means the person specified by name or position in Item K [*Project Officer*] or any substitute notified in writing to the Service Provider;
Security Classified Information	means Official Information that, if compromised, could have adverse consequences for the Department; and
Security Incident	means a security breach, violation, contact or approach from those seeking unauthorised access to Official Resources.
Services	means the services described in Item B [*Services*] and includes the provision to the Department of the Material specified in Item C [*Required Contract Material*];
Service Provider	Means the party who undertakes to provide the Services in accordance with this Agreement;
Specified Personnel	means the Service Provider's Personnel specified in Item J [*Specified Personnel*] who are Personnel required to perform all or part of the work described in Item J [*Specified Personnel*]; and
writing	means any representation of words, figures or symbols capable of being rendered in a visible form.

1.2 In this Agreement, unless the contrary intention appears:

(a) words importing a gender include any other gender;

(b) words in the singular include the plural and words in the plural include the singular;

(c) clause headings are inserted for convenient reference only and have no effect in limiting or extending the language of provisions to which they refer;

(d) words importing persons include a partnership and a body whether corporate or otherwise;

(e) all references to dollars are to Australian dollars;

(f) reference to any legislation or legislative provision includes any statutory modification, substitution or re-enactment of such legislation or legislative provision;

(g) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form in respect of that word or phrase has a corresponding meaning;

(h) reference to an Item is to an Item in the Schedule;

(i) the Schedule and any attachments form part of this Agreement;

(j) where any conflict arises between the terms and conditions contained in the clauses of this Agreement and any part of the Schedule (and attachments if any), the terms and conditions of the clauses prevail;

(k) where any conflict arises between any part of the Schedule and any part of an attachment, the Schedule prevails; and

(l) reference to the Schedule (or an attachment) is a reference to the Schedule (or an attachment) to this Agreement, including as amended or replaced from time to time by agreement in writing between the Parties.

1.3 This Agreement records the entire agreement between the Parties in relation to its subject matter.

1.4 No variation of this Agreement is binding unless it is agreed in writing between the Parties.

1.5 Any reading down or severance of a particular provision does not affect the other provisions of this Agreement.

1.6 This Agreement shall be construed in accordance with the laws of the Australian Capital Territory.

1.7 The terms of this Agreement apply on or from the Commencement Date.

1.8 A provision of this Agreement shall not be construed to the disadvantage of a Party solely on the basis that it proposed that provision.

2. PROVISION OF SERVICES

2.1 The Service Provider agrees to:

(a) perform the Services to a high standard and in accordance with relevant best practice, including any Commonwealth and industry standards and guidelines specified in Item D [*Standards and Best Practice*];

(b) comply with the time frame for the performance of the Services specified in Item E [*Commencement and Time-frame*]; and

(c) liaise with the Project Officer, provide any information the Project Officer may reasonably require and comply with any reasonable request made by the Project Officer.

2.2 The Department may extend the Term of this Agreement for a further period ending not later than the Extension Date by notice in writing delivered to the Service Provider not less than 30 days before the Initial End Date. Any extension will be on the same terms and conditions, and cover the same Services, as set out in this Agreement.

3. FEES, ALLOWANCES & ASSISTANCE

3.1 The Commonwealth agrees to:

(a) pay the fees specified in Item F [*Fees*] in the Instalments (if any) and in the manner specified in Item F [*Fees*];

(b) pay the allowances and meet the costs specified in Item G [*Allowances and Costs*]; and

(c) provide the facilities and assistance specified in Item H [*Facilities and Assistance*].

3.2 The Commonwealth will be entitled, in addition and without prejudice to any other right it may have, to delay payment or reduce the amount of any Instalment, fees or allowance until the Service Provider has completed to the satisfaction of the Department that part of the Services to which the Instalment, fees or allowance relates.

3.3 The Service Provider agrees to submit invoices for payment, and any supporting documentation required by the Department, in the manner specified in Item I [*Invoice Procedures*].

4. TAXES, DUTIES AND GOVERNMENT CHARGES

4.1 Except as provided by this clause, all taxes, duties and government charges imposed or levied in Australia or overseas in connection with the performance of this Agreement shall be borne by the Service Provider.

4.2 In this clause 4, the following terms have the meanings respectively given to them in the *A New Tax System (Goods and Services Tax) Act 1999* ('the GST Act'):

consideration

GST

input tax credit

supply

taxable supply; and

tax invoice.

4.3 The Service Provider warrants that it has an ABN that it has correctly quoted to the Department.

4.4 The Department is registered in accordance with the GST Act and will notify the Service Provider of any change in its GST registration status immediately after it is notified of any such change. The Service Provider must notify the Department in writing of any change to the Service Provider's ABN or GST registration status immediately after it is notified of any such change.

4.5 Unless otherwise indicated in Item F [*Fees*], all consideration payable under this Agreement includes GST for supplies provided by the Service Provider to the Commonwealth in accordance with this Agreement that are taxable supplies within the meaning of the GST Act.

4.6 A Party ('supplier') that makes a taxable supply under this Agreement must provide the other Party ('recipient') with a valid tax invoice before the recipient is required to make any payment under this Agreement relating to the taxable supply.

4.7 No Party may claim from the other Party an amount for which the first Party may claim an input tax credit.

5. SUBCONTRACTORS

5.1 The Service Provider agrees not to subcontract the performance of any part of the Services without prior approval in writing from the Department.

5.2 The Department may impose any terms and conditions it considers appropriate when giving its approval under clause 5.1.

5.3 The Department may revoke its approval of a subcontractor on any reasonable ground.

5.4 The Service Provider will ensure that any subcontract for the performance of any part of the Services contains provisions equivalent to clauses 11, 12, 16 and 20 of this Agreement.

6. PERSONNEL AND SPECIFIED PERSONNEL

6.1 The Service Provider agrees that the Specified Personnel will perform work in relation to the Services in accordance with this Agreement.

6.2 Where Specified Personnel are unable to perform any of the work specified in Item J *[Specified Personnel]*, the Service Provider must notify the Department immediately.

6.3 The Department may, in consultation with the Service Provider, request the Service Provider to remove Personnel (including Specified Personnel) from work in relation to the Services.

6.4 Where clauses 6.2 and 6.3 apply, the Department may request the Service Provider to provide replacement Personnel (including Specified Personnel) acceptable to the Commonwealth at no additional cost and at the earliest opportunity.

6.5 If the Service Provider does not comply with any request made under clause 6.4 the Commonwealth may terminate this Agreement in accordance with the provisions of clause 21 [*Termination for Default*].

7. RESPONSIBILITY OF SERVICE PROVIDER

7.1 The Service Provider is fully responsible for the performance of the Services and for ensuring compliance with the requirements of this Agreement, and will not be relieved of that responsibility because of any:

(a) involvement by the Commonwealth, not including the assistance referred to in Item H, in the performance of the Services;

(b) payment made to the Service Provider on account of the Services;

(c) subcontracting of the Services; or

(d) acceptance by the Department of replacement Personnel (including Specified Personnel).

7.2 In carrying out the Services, the Service Provider agrees to liaise, provide information and comply with directions of the Project Officer as reasonably required from time to time.

8. COMMONWEALTH MATERIAL

8.1 The Commonwealth agrees to provide Material to the Service Provider as specified in Item L [*Material to be Provided by Commonwealth*].

8.2 The Commonwealth grants to (or will procure on behalf of) the Service Provider a royalty-free, non-exclusive licence to use, reproduce and adapt the Commonwealth Material for the purposes of this Agreement.

8.3 The Service Provider agrees to ensure that all Commonwealth Material is used strictly in accordance with any conditions or restrictions set out in Item M [*Use of Commonwealth Material*], and any direction by the Department.

9. INTELLECTUAL PROPERTY IN CONTRACT MATERIAL

9.1 Intellectual Property in all Contract Material vests or will vest in the Commonwealth.

9.2 The Commonwealth grants to the Service Provider a permanent, irrevocable, royalty-free, world-wide, non-exclusive licence (including a right of sublicence) to use, reproduce, communicate and adapt the Contract Material for non-commercial research and education purposes, including not-for-profit sponsored research in collaboration with third parties. For the avoidance of doubt, non-commercial research and education purposes includes, but is not limited to, use of the Contract Material by students enrolled by the Service Provider for preparation of theses.

9.3 The Service Provider may publish the Contract Material, or material derived from the Service Provider's use of the Contract Material, provided that the Service Provider obtains the written approval of the Commonwealth prior to such publication. In obtaining approval from the Commonwealth:

(a) the Service Provider will supply the Commonwealth with a copy of the proposed publication at least thirty (30) days prior to submission for publication;

(b) the Commonwealth will, within forty-five (45) days, review the proposed publication and provide written notification advising:

(i) approval of the publication; or

(ii) advice on proposed revision to the proposed publications: or

(iii) identification of elements of the publication to be withheld for a defined period of time;

(c) the Service Provider acknowledges the support of the Commonwealth;

(d) the Commonwealth may not unreasonably withhold publication.

9.4 If the Commonwealth does not provide written advice in accordance with 9.3b within forty-five (45) days of receiving the proposed publication, the Service Provider shall proceed with the publication.

9.5 Where intellectual participation in the publication has been made by Commonwealth employees, the Service Provider, will work collaboratively with the Commonwealth in the co-authorship of such publications derived from the

Contract Material. When collaborating on publications, the Commonwealth and the Service Provider will:

(a) identify the purpose, the division of responsibility and resourcing for the publication;

(b) agree milestones and timeframes for the publication; and

(c) identify the proposed audience for the publication.

9.6 For the avoidance of doubt, where agreement on co-authorship of a publication can not be reached, or co-authorship has not been requested by the Commonwealth, the Commonwealth's prior written approval is still required for any publication by the Service Provider, as per the process outlined in clauses 9.3 and 9.4 of this Agreement.

9.7 Clause 9.1 does not affect the ownership of Intellectual Property in any existing Material which is specified in Item N [*Existing Material*], but the Service Provider grants to (or will procure on behalf of) the Commonwealth a permanent, irrevocable, royalty-free, world-wide, non-exclusive licence (including a right of sublicence) to use, reproduce, adapt and exploit any such existing Material in conjunction with the other Contract Material.

9.8 If requested by the Department, the Service Provider agrees to bring into existence, sign, execute or otherwise deal with any document which may be necessary or desirable to give effect to this clause 9.

9.9 The Service Provider warrants that it is entitled, or will be entitled at the relevant time, to deal with the Intellectual Property in the Contract Material in the manner provided for in this clause 9.

9.10 This clause 9 will survive the expiration or termination of this Agreement.

10. DEALINGS WITH COPIES

10.1 This clause 10 applies to any document, device, article or medium ('copies') in which Commonwealth Material, Contract Material or Confidential Information is embodied.

10.2 Property in all copies vests or will vest in the Commonwealth.

10.3 The Service Provider agrees to establish and maintain procedures to secure all copies against loss and unauthorised access, use, modification or disclosure.

10.4 Upon the expiration or termination of this Agreement the Service Provider agrees to deliver to the Department or otherwise deal with all copies as directed

by the Department, subject to any requirement of law binding on the Service Provider in respect of those copies.

10.5 This clause 10 applies subject to any provision to the contrary in Item O [*Dealings with Copies*].

11. DISCLOSURE OF INFORMATION

11.1 Subject to clause 11.5, a Party must not, without the prior written approval of the other Party, disclose, any Confidential Information of that other Party to a third party.

11.2 A Party may impose any conditions or restrictions it considers appropriate when giving its approval under clause 11.1 and the other Party must comply with any such conditions.

11.3 A Party may at any time require the other Party to give, and to arrange for its Personnel to give, undertakings in the form of a Deed, relating to the use and non-disclosure of the first Party's Confidential Information.

11.4 If a Party receives a request under clause 11.3 it must arrange promptly for all such undertakings to be given.

11.5 The obligations on the Parties under this clause 11 will not be taken to have been breached to the extent that the Confidential Information is authorised or required by law to be disclosed. In particular, but without limitation, the obligations in this clause 11 will not be taken to have been breached to the extent that Confidential Information:

(a) is disclosed by a Party to its Personnel solely in order to comply with obligations, or to exercise rights, under this Agreement;

(b) is disclosed to a Party's internal management personnel, solely to enable the effective management of the Services or the auditing of Agreement-related activities;

(c) is disclosed by the Department to the responsible Minister;

(d) is disclosed by a Party in response to a request by a House or Committee of the Parliament of the Commonwealth of Australia;

(e) is shared by the Department within the Department's organisation, or within the Commonwealth, where this serves the legitimate interests of the Commonwealth; or

(f) is in the public domain other than due to a breach of this clause 11.

11.6 Where a Party discloses Confidential Information to another person pursuant to clause 11.5, the disclosing Party must notify the receiving person that the information is confidential.

11.7 In the circumstances referred to in clauses 11.5(a), 11.5(b) and 11.5(e), the disclosing Party agrees not to disclose the information unless the receiving person agrees to keep the information confidential.

11.8 The Parties may agree in writing, after the Commencement Date, that certain additional information is to constitute Confidential Information for the purposes of this Agreement. Any such documentation is incorporated into, and becomes part of, the Agreement on the date by which both Parties signed the documentation.

11.9 Notwithstanding the expiration or termination of this Agreement, the obligations in this clause 11 continue for the period (if any) specified in Item S [*Confidential Information*] or for the period otherwise agreed in writing by the Parties.

11.10 This clause 11 does not detract from any of the Service Provider's obligations under the *Privacy Act 1988* (Cth), or under clause 12, in relation to the protection of Personal Information.

12. PROTECTION OF PERSONAL INFORMATION

12.1 This clause applies only where the Service Provider deals with Personal Information when, and for the purpose of, providing the Services under this Agreement.

12.2 The Service Provider acknowledges that it is a 'contracted service provider' within the meaning of section 6 of the *Privacy Act 1988* (Cth) (the Privacy Act), and agrees in respect of the provision of the Services under this Agreement:

(a) to use or disclose Personal Information obtained during the course of providing the Services under this Agreement, only for the purposes of this Agreement;

(b) not to do any act or engage in any practice that, if done by or engaged in by an agency, would breach an Information Privacy Principle (IPP) contained in section 14 of the Privacy Act;

(c) to carry out and discharge the obligations contained in the IPPs as if it were an agency under the Privacy Act;

(d) to notify individuals whose Personal Information the Service Provider holds, that complaints about acts or practices of the Service Provider may

be investigated by the Privacy Commissioner who has power to award compensation against the Service Provider in appropriate circumstances;

(e) not to use or disclose Personal Information or engage in an act or practice that would breach section 16F (direct marketing), an NPP (particularly NPPs 7 to 10) or an APC, where that section, NPP or APC is applicable to the Service Provider, unless:

(i) in the case of section 16F – the use or disclosure is explicitly required to discharge an obligation under this Agreement; or

(ii) in the case of an NPP or an APC –the activity or practice is engaged in for the purpose of discharging an obligation under this Agreement;

(f) to comply with section 95C of the Privacy Act and disclose in writing to any person who asks, the content of the provisions of this Agreement (if any) that are inconsistent with an NPP or an APC binding a Party to this Agreement;

(g) to immediately notify the Department if the Service Provider becomes aware of a breach or possible breach of any of the obligations contained in, or referred to in, this clause 12, whether by the Service Provider, its Personnel or a subcontractor;

(h) to ensure that any Service Provider Personnel who is required to deal with Personal Information for the purposes of this Agreement is made aware of the obligations of the Service Provider set out in this clause 12; and

(j) to comply with any directions, guidelines, determinations or recommendations referred to or relating to the matters set out in Item T *[Privacy Directions, Guidelines, Determinations and Recommendations]*, to the extent that they are consistent with the requirements of this clause 12.

12.3 The Service Provider must ensure that any subcontract entered into for the purpose of fulfilling its obligations under this Agreement contains provisions to ensure that the subcontractor has the same awareness and obligations as the Service Provider has under this clause, including the requirement in relation to subcontracts.

12.4 The Service Provider agrees to indemnify the Commonwealth in respect of any loss, liability or expense suffered or incurred by the Commonwealth which arises directly or indirectly from a breach of any of the obligations of the Service Provider under this clause 12, or a subcontractor under the subcontract provisions referred to in subclause 12.3.

12.5 In this clause 12, the terms 'agency', 'approved privacy code' (APC), 'Information Privacy Principles (IPPs), and 'National Privacy Principles' (NPPs) have the same meaning as they have in section 6 of the Privacy Act.

12.6 The provisions of this clause 12 survive termination or expiration of this Agreement.

13. COMPLIANCE WITH OTHER LAWS

13.1 The Service Provider agrees, in carrying out this Agreement, to comply with all relevant legislation of the Commonwealth or of any State, Territory or local authority, and in particular:

(a) the *Crimes Act 1914* (Cth);

(b) the *Racial Discrimination Act 1975* (Cth);

(c) the *Sex Discrimination Act 1984* (Cth);

(d) the *Disability Discrimination Act 1992* (Cth); and

(e) the *Equal Opportunity for Women in the Workplace Act 1992* (Cth).

14. CONFLICT OF INTEREST

14.1 The Service Provider warrants that, to the best of its knowledge after making diligent inquiry, at the Commencement Date no Conflict exists or is likely to arise in the performance of the Services.

14.2 If, during the performance of the Services a Conflict arises, or appears likely to arise, the Service Provider agrees to:

(a) notify the Department immediately in writing;

(b) make full disclosure of all relevant information relating to the Conflict; and

(c) take such steps as the Commonwealth may reasonably require to resolve or otherwise deal with the Conflict.

14.3 If the Service Provider does not notify the Department or is unable or unwilling to resolve or deal with the Conflict as required, the Commonwealth may terminate this Agreement in accordance with the provisions of clause 21 [*Termination for Default*].

14.4 The Service Provider agrees that it will not, and will use its best endeavours to ensure that its Personnel and subcontractors do not, engage in any activity or obtain any interest during the course of this Agreement that is likely to create a Conflict.

15. CONDUCT AT COMMONWEALTH PREMISES

15.1 The Service Provider agrees that when using the Commonwealth's premises or facilities for the purposes of the Services, it will comply with all reasonable directions and procedures relating to occupational health, safety and security in operation at those premises or in regard to those facilities (including the Commonwealth's smoke-free work-place policy) whether specifically drawn to the attention of the Service Provider or as might reasonably be inferred from the circumstances.

16. ACCESS TO SERVICE PROVIDER'S PREMISES

16.1 The Service Provider agrees to give to the Department, or to any persons authorised in writing by the Department, reasonable access to premises occupied by the Service Provider where the Services are being performed, and permit those persons to inspect and take copies of any Material relevant to the Services.

16.2 The rights referred to in clause 16.1 are subject to:

(a) the Department providing reasonable prior notice;

(b) the Service Provider's reasonable security procedures; and

(c) if appropriate, execution of a deed of confidentiality relating to non-disclosure of the Service Provider's Confidential Information.

16.3 Without in any way affecting the statutory powers of the Auditor-General under the *Auditor-General Act 1997* (Cth), and subject to the provisions of that Act, the Auditor-General is a person authorised for the purposes of this clause 16.

16.4 This clause 16 will survive the expiration or termination of this Agreement.

17. INDEMNITY

17.1 The Service Provider indemnifies the Commonwealth from and against any:

(a) costs or liability incurred by the Commonwealth;

(b) loss of or damage to property of the Commonwealth; or

(c) loss or expense incurred by the Commonwealth in dealing with any claim against it, including legal costs and expenses on a solicitor/own client basis and the cost of time spent, resources used or disbursements paid by the Commonwealth,

arising from either:

(d) a breach by the Service Provider of this Agreement; or

(e) an act or omission involving fault on the part of the Service Provider or its Personnel in connection with this Agreement.

17.2 The Service Provider's liability to indemnify the Commonwealth under clause 17.1 will be reduced proportionately to the extent that any act or omission involving fault on the part of the Commonwealth contributed to the relevant cost, liability, damage, loss or expense.

17.3 The right of the Commonwealth to be indemnified under this clause 17 is in addition to, and not exclusive of, any other right, power or remedy provided by law, but the Commonwealth is not entitled to be compensated in excess of the amount of the relevant cost, liability, damage, loss or expense.

17.4 In this clause 17:

(a) "Commonwealth" includes officers, employees and agents of the Commonwealth; and

(b) "fault" means any negligent or unlawful act or omission or wilful misconduct.

17.5 This clause 17 will survive the expiration or termination of this Agreement.

18. INSURANCE

18.1 The Service Provider agrees, for so long as any obligations remain in connection with this Agreement (including those that survive the expiration or termination of this Agreement):

(a) to effect and maintain the insurance specified in Item P [*Insurance*];

and

(b) upon request, to provide proof of insurance acceptable to the Department.

19. DISPUTE RESOLUTION

19.1 The Parties agree that any dispute arising during the course of this Agreement will be dealt with as follows:

(a) first, the Party claiming that there is a dispute will send to the other Party a notice setting out the nature of the dispute;

(b) secondly, the Parties will have 10 Business Days after the sending of the notice referred to in paragraph (a), to either:

(i) resolve the dispute by direct negotiation;

(ii) submit the dispute to an independent third person who may have the authority to direct some form of resolution; or

(iii) submit the dispute to mediation or some other form of alternative dispute resolution procedure; and

(c) lastly, if:

(i) there is no resolution or agreement; or

(ii) there is a submission to an independent third person, mediation or some other form of alternative dispute resolution procedure, but there is no resolution within 15 Business Days of the submission, or such extended time as the Parties may agree in writing before the expiration of the 15 Business Days,

then, either Party may commence legal proceedings.

19.2 Despite the existence of a dispute, the Service Provider must (unless requested in writing by the Department not to do so) continue to perform the Services.

19.3 This clause 19 does not apply to:

(a) action by either Party under or purportedly under clause 21 [*Termination For Default*], or

(b) action by the Commonwealth under or purportedly under clause 3.2 [*Fees, Allowances & Assistance*], or clause 20 [*Termination and Reduction for Convenience*].

nor does it preclude either Party from commencing legal proceedings for urgent interlocutory relief.

19.4 Each Party will bear its own costs of complying with this clause 19, and the Parties must equally bear the cost of any third person appointed by, or on behalf

of, the Parties for the purpose of resolving a dispute in accordance with clause 19.1.

20. TERMINATION AND REDUCTION FOR CONVENIENCE

20.1 The Commonwealth may immediately terminate this Agreement or reduce the scope of the Services by giving written notice to the Service Provider.

20.2 Upon receipt of a notice of termination or reduction referred to in clause 20.1 the Service Provider agrees to:

(a) stop or reduce work as specified in the notice;

(b) take all available steps to minimise loss resulting from that termination or reduction and to protect Commonwealth Material (including any Commonwealth Confidential Information) and Contract Material; and

(c) continue work on any part of the Services not affected by the notice.

20.3 Where there has been a termination under clause 20.1, the Commonwealth will be liable only for:

(a) the fees, allowances and assistance referred to in clause 3 [*Fees, Allowances & Assistance*] to the extent that those payments relate to services rendered before the effective date of termination; and

(b) reasonable costs incurred by the Service Provider and directly attributable to the termination.

20.4 Where there has been a reduction in the scope of the Services, the Commonwealth will be liable for:

(a) the fees, allowances, and assistance referred to in clause 3 [*Fees, Allowances & Assistance*] abated in accordance with the reduction in the scope of the Services; and

(b) reasonable and unavoidable costs incurred by the Service Provider and directly attributable to the reduction in the scope of Services.

20.5 The Commonwealth will not be liable to pay compensation under clauses 20.3(b) or 20.4(b) in an amount which would, in addition to any amounts paid or due, or becoming due, to the Service Provider under this Agreement, together exceed the fees set out in Item F [*Fees*].

20.6 The Service Provider will not be entitled to compensation for loss of prospective profits.

21. TERMINATION FOR DEFAULT

21.1 Where a Party fails to satisfy any of its obligations under this Agreement, the other Party, if it considers that the failure is:

(a) not capable of remedy, may by written notice terminate this Agreement immediately;

(b) capable of remedy, may by written notice require that the failure be remedied within the time specified in the notice and, if not remedied within that time, may terminate this Agreement immediately by giving a second notice.

21.2 The Commonwealth may also, by notice terminate this Agreement immediately (but without prejudice to any prior right of action or remedy which either Party has or may have) if the Service Provider:

(a) being a corporation, comes under one of the forms of external administration referred to in chapter 5 of the *Corporations Act 2001*, or an order has been made for the purpose of placing the corporation under external administration; or

(b) being an individual, becomes bankrupt or enters into a scheme of arrangement with creditors.

22. NEGATION OF EMPLOYMENT, PARTNERSHIP AND AGENCY

22.1 The Service Provider agrees not to represent itself, and to use its best endeavours to ensure that its Personnel do not represent themselves, as being an officer, employee, partner or agent of the Commonwealth, or as otherwise able to bind or represent the Commonwealth.

22.2 The Service Provider is not by virtue of this Agreement an officer, employee, partner or agent of the Commonwealth, nor does the Service Provider have any power or authority to bind or represent the Commonwealth.

23. WAIVER

23.1 If a Party does not exercise (or delays in exercising) any of its rights, that failure or delay does not operate as a waiver of those rights.

23.2 A single or partial exercise by a Party of any of its rights does not prevent the further exercise of any right by that Party.

23.3 In this clause 23, 'rights' means rights or remedies provided by this Agreement or at law.

24. ASSIGNMENT AND NOVATION

24.1 The Service Provider cannot assign its obligations, and agrees not to assign its rights, under this Agreement without, in either case, prior approval in writing from the Department.

24.2 The Service Provider agrees not to consult with any other person for the purposes of entering into an arrangement that will require novation of the Agreement without first consulting the Department.

24.3 The Department will not withhold approval of an assignment to a wholly owned subsidiary of the Service Provider if:

(a) the proposed assignee is sufficiently capitalised to meet all of the Service Provider's obligations under the Agreement, including indemnities;

(b) Specified Personnel continue to provide the Services, subject to the terms of this Agreement;

(c) the Service Provider guarantees the performance of this Agreement by the assignee and any liability on the part of the assignee arising under this Agreement;

(d) the proposed assignee fully complies with all criteria applied to the Service Provider as a tenderer for provision of the Services; and

(e) the Service Provider provides to the Department all information reasonably required to determine compliance under clause 24.3(d).

25. NOTICES

25.1 Any notice, request or other communication to be given under this Agreement must be in writing and dealt with as follows:

(a) if given by the Service Provider to the Department – marked for the attention of the Project Officer at the address indicated in Item Q [*Commonwealth's Address for Notices*] or as otherwise notified by the Department; or

(b) if given by the Department to the Service Provider– signed by the Project Officer and marked with the address indicated in Item R [*Service Provider's Address for Notices*] or as otherwise notified by the Service Provider.

25.2 Any notice, request or other communication is to be delivered by hand, sent by pre-paid post or transmitted electronically.

25.3 A notice, request or other communication will be deemed to be received:

(a) if delivered by hand, upon delivery;

(b) if sent by pre-paid ordinary post within Australia, upon the expiration of 2 Business Days after the date on which it was sent; and

(c) if transmitted electronically, upon receipt by the sender of an acknowledgment that the communication has been properly transmitted to the recipient.

25.4 A notice received after 5pm or on a day that is not a Business Day is deemed to be given on the next Business Day.

26. MORAL RIGHTS

26.1 For the purposes of this clause 26, 'Permitted Acts' means any of the following classes or types of acts or omissions;

(a) using, reproducing, adapting or exploiting all or any part of the Contract Material, with or without attribution of authorship;

(b) supplementing the Contract Material with any other Material;

(c) using the Contract Material in a different context to that originally envisaged; and

(d) the acts or omissions specifically set out in Item U *[Moral Rights]*,

but does not include false attribution of authorship.

26.2 Where the Service Provider is a natural person and the author of the Contract Material, he or she consents to the performance of the Permitted Acts by the Commonwealth or any person claiming under or through the Commonwealth.

26.3 If clause 26.2 does not apply, the Service Provider agrees to make known to the author, prior to the author commencing work, the uses to which the Contract Material is likely to be put by the Commonwealth.

26.4 The Service Provider acknowledges that its attention has been drawn to the Department's general policies and practices regarding moral rights as described in Item U *[Moral Rights]*.

27. GENERAL SECURITY OBLIGATIONS

27.1 The Service Provider agrees to ensure that its Personnel comply with:

(a) all relevant security requirements specified in the Commonwealth Protective Security Manual 2005;

(b) the security requirements specified in Item V of the Schedule; and

(c) any variations or additions to these security requirements that the Department (in its absolute discretion) notifies the Service Provider in writing, from the date specified in the notice (or 7 days after it receives the notice if no date is specified).

27.2 If the Service Provider can substantiate that changes to the security requirements pursuant to clause 27.1 (c) have cost implications for it, the Service Provider may apply to the Department for a variation in the fees payable as specified in Item F.

27.3 The Service Provider acknowledges that in performing the Agreement, it may become subject to certain statutory provisions relating to security and security issues, and agrees to ensure that its Personnel (including Specified Personnel) are aware of, and comply, with those statutory provisions.

28. PERSONNEL SECURITY

28.1 The Service Provider agrees to obtain prior written authorisation from the Department for any of its Personnel who may be required to:

(a) enter secure areas in the Department's building or places;

(b) work with the Department's Personnel for extended periods;

(c) have access to Security Classified Information, or valuable assets; or

(d) hold a particular kind of security clearance that the Department notifies to the Service Provider.

28.2 The Service Provider agrees to ensure that all of the Personnel that it proposes to use are:

(a) are of good fame and character;

(b) are properly qualified for the tasks they are to perform; and

(c) will act in all circumstances in a fit and proper manner while they are carrying out work under the contract.

28.3 The Service Provider agrees to provide any information the Department reasonably requests to enable the Department to investigate whether particular Personnel of the Service Provider should be authorised.

28.4 The Department may require that particular Personnel of the Service Provider hold a particular level of Commonwealth security clearance.

28.5 The Department agrees that it will not unreasonably withhold authorisation.

28.6 The Department agrees to notify the Service Provider of:

(a) the Personnel of the Service Provider who have been granted authorisation ('Authorised Persons');

(b) the type and level of Commonwealth security clearance (if any) given to each Authorised Person; and

(c) the period during which the authorisation is effective; and

(d) the Personnel of the Service Provider who have not been granted authorisation.

28.7 The Service Provider agrees to acknowledge receipt of any notice provided under clause 28.6 by signing and returning a copy of the notice to the Department.

28.8 The Service Provider must promptly notify the Department of any change in an Authorised Person's circumstances that, in the Service Provider's reasonable opinion, is likely to affect the Department's authorisation of that person.

28.9 The Department may, at any time, on reasonable grounds, without any liability whatsoever, withdraw, limit or suspend its authorisation of a particular person, and in such event must notify the Service Provider accordingly.

28.10 In the event referred to in clause 28.9, the Service Provider agrees, upon request, to propose and make available another person for authorisation by the Department under this clause within a reasonable time and without inconvenience or cost to the Department.

28.11 The Service Provider must ensure that its Personnel undertake the training specified by the Department in Item V.

29. INFORMATION SECURITY

29.1 The Service Provider agrees not to permit any of its Personnel to have any access to Security Classified Information unless:

(a) the relevant person has been cleared to the appropriate security level;

(b) the Department has given written authority under clause 28;

(c) the relevant person has undergone the training specified in Item V relating to access and use of Security Classified Information.

29.2 The Service Provider agrees to inform the Department immediately if it becomes aware that any unauthorised person has had access to Security Classified Information.

29.3 The Service Provider agrees not to perform the Services outside Australia, or transfer Security Classified Information outside Australia, without the Department's prior written approval.

30. PHYSICAL SECURITY

30.1 The Service Provider may only access the Department's premises if it:

(a) has the Department's written authorisation; and

(b) complies with the Department's requirements set out in this contract or otherwise notified by the Department.

30.2 The Service Provider must ensure that its Personnel safeguard any keys or passes or other Material detailing access arrangements that are provided to the Service Provider for the purposes of this Agreement.

30.3 The Service Provider agrees to protect any Official Resources it possesses or controls to the same extent as if it were the Department, including ensuring that unauthorised persons cannot access any Official Information.

31. SECURITY REPORTS

31.1 The Service Provider agrees to notify the Department immediately if it becomes aware that a Security Incident has occurred.

31.2 The Service Provider agrees to supply written security reports to the Department in a form and at the times specified in Item V including the following information:

(a) all Security Incidents, including steps taken by the Service Provider to address these;

(b) any perceived security problems;

(c) where appropriate, recommendations for security improvements;

(d) proposed and actual changes of its Personnel; and

(e) any other information which the Department reasonably requires.

THE SCHEDULE

A. Proposal and Quotation (see Purpose)

The purpose of the Services is for the design and implementation of an ecological monitoring protocol capable of identifying change in the condition and extent of White Box, Yellow Box and Blakely's Red Gum grassy woodland and derived grassland sites across the range of the ecological community, as a result of land manager participation in the Caring for our Country - Environmental Stewardship Box Gum Grassy Woodland Project (BGGW Project).

There are three parts to the Services to be provided. The first part will involve developing the survey design; the second part will involve implementing the survey design over the period of Agreement commencement from September 2009 to June 2013; and the third part will involve implementing the survey design over the period of July 2013 to the end of this Agreement.

The range of services include:

Part One

i) the development of a statistically robust ecological monitoring survey design that measures changes in condition ~~of all~~ across BGGW investment sites from the Lachlan Murrumbidgee Project and the Large High Quality Sites Project up to a total of 150 investment sites. As a secondary requirement, the survey design should be able to demonstrate the efficacy of management actions in improving biodiversity on investment sites.

Part Two

ii) a baseline survey of all BGGW investment sites with no less than 70 per cent having matched control sites. Baseline surveys of all BGGW investment sites will be established and completed over spring 2009.

iii) a repeat survey of all BGGW investment sites to be completed within the four year Agreement period until June 2013. This includes repeating the baseline survey (including matched control sites) and repeating experimental treatments that examine the effects of management actions in contributing to changes in condition of BGGW, using survey design developed.

iv) providing ongoing advice on the efficacy of management actions and the effectiveness of them in achieving positive condition change.

v) collecting, recording and analysing survey data and providing secure storage for this information.

vi) work with land managers, regional NRM bodies and other relevant entities as required for the purposes of program implementation.

vii) submit survey and baseline reports to the Department.

Part Three

viii) identify (in a Continued Project Implementation Report) which monitoring sites, established under Part Two of the project, will be subject to continued monitoring (Continued Monitoring Sites) in accordance with the developed survey design.

ix) develop a methodology (in a Continued Project Implementation Report) that is to be used to assess the efficacy of management actions in improving biodiversity on the threatened ecological communities targeted under the Multiple Ecological Communities (MEC) funding rounds of the Environmental Stewardship Program (ESP).

x) conduct a minimum of one repeat survey for all of the Continued Monitoring Sites with the vast majority of sites having at least two repeat surveys. This includes repeating the baseline survey (including matched control sites) and repeating experimental treatments that examine the effects of management actions in contributing to changes in condition of BGGW, using survey design developed.

xi) implement other activities identified and agreed to in the Continued Project Implementation Report.

xii) provide ongoing advice on the efficacy of management actions and their effectiveness in achieving positive condition change.

xiii) collect, record and analyse survey data and provide secure storage for this information.

xiv) work with land managers, regional NRM bodies and other relevant entities as required for the purposes of program implementation.

~~viii)~~xv) submit survey reports to the Department.

The Service Provider prepared and submitted the proposal and quotation at **Attachment A** in response to a formal Request for Quote (RFQ 0809-1511) by the Department on 19 March 2009 for the provision of the services for the Design and Implementation of an Ecological Monitoring Protocol to Measure Change in the Condition and Extent of the Environmental Stewardship Box Gum Grassy Woodland Investment Sites.

B. 'Services' (see clauses 1.1 and 2.1)

The services to be delivered by the Service Provider are those for the Design and Implementation of an Ecological Monitoring Protocol to Measure the Condition of sites managed under the Environmental Stewardship Program Box Gum Grassy Woodland Project. The purpose of the Services is referred to in Item A.

~~There are two parts to the Services to be provided. The first part will involve developing the survey design and the second part will involve implementing the survey design over the life of the Agreement.~~

Details of the Services to be provided by the Service Provider are as follows:

1. Part One: Survey Design

1.1 In consultation with the Department, the Service Provider will develop a statistically robust ecological monitoring survey design protocol that is capable of showing changes in the condition of all BGGW investment sites managed under the BGGW Lachlan Murrumbidgee Project and Large High Quality Sites Project.

1.2 The primary investment focus for the survey design is the development of a statistically robust and replicated monitoring methodology that is capable of detecting condition change on BGGW investment sites over time against baseline measurements of vegetation, reptiles and birds.

1.3 The secondary investment focus for the survey design is the development of an experimental survey methodology that examines the effectiveness of management actions in deriving condition change on BGGW investment sites.

1.4 The Service Provider will prioritise investment in developing and implementing the robust and replicated monitoring program that addresses detecting condition change on BGGW investment sites over the experimental survey. However, the Department recognises the additional value provided by the experimental survey in quantifying outcomes sought by Environmental Stewardship. The Service Provider has the option to seek additional R&D funds to build any further experimental work around this monitoring program.

1.5 The survey design protocol must incorporate the following elements:

i. **Stratification of sites:** The survey design must outline how sites will be stratified to achieve statistically robust results in the investment regions targeted by the BGGW Projects.

ii. **Frequency of sampling:** The survey design must outline the number of sites and frequency of sampling over the life of the Agreement and how it might be extended over the life of the BGGW Projects (15 years). The minimum requirement for sampling frequency is the completion of the baseline survey and one repeat survey (including matched controls) on all investment sites. This requirement also applies to the experimental survey.

iii. **Baseline and repeat surveys:** The survey design must outline the methodology for baseline and repeat surveys. The purpose of this survey is to detect condition change on investment sites against a baseline over time. The methodology must incorporate the requirement for baseline and repeat surveys being completed on all BGGW investment sites, with no less than 70 per cent of all investment sites to have a matched control. The selection of matched control sites must be spread proportionately across the biogeographical range of investment sites to ensure a representative sample is established.

iv. **Experimental survey:** The survey design must outline the methodology for the experimental survey. The experiment will be conducted on a subset of 20-30 investment sites in the Murrumbidgee catchment region only. Each investment site will have four separate treatments, comprising of one Environmental Stewardship site, one matched control site, one treatment site with all management actions implemented minus one and a second treatment site with all management actions implement minus one other management action. The purpose of the experimental survey is to examine the effectiveness of management actions in driving condition change on a subset of BGGW investment sites.

v. **Condition variables:** The condition variables of vegetation, reptiles and birds will be measured at each investment site. The survey design must outline the methodology for measuring these variables and explain why particular species and faunal groups have been chosen.

vi. **Statistical analysis:** The survey design must outline the statistical method(s) for analysing results. (NB. the Department acknowledges that the statistical analysis may vary depending on survey data results).

vii. **Data collection and storage:** The survey design must outline how data will be collected, stored and verified. All templates and procedures used to collect, store and verify data must be provided as attachments to the survey design.

1.6 The Service Provider will develop, and clear through the Department, a survey design protocol that is consistent with the Department's requirements and the design principles given above. The Service Provider will comply with the timeframe for the development of the survey design as provided in Item E.

1.7 In a separate Annexure to the survey design protocol, the Service Provider must outline how the survey design might be applied more broadly for use in other ecological communities targeted by Environmental Stewardship. Examples of other ecological communities that could include (but not limited to) targeted under Environmental Stewardship include swamps, grasslands, woodlands, Brigalow, and semi-evergreen vine thickets.

2. Parts Two and Three: Implementation of the Survey Design

The Service Provider will undertake the following activities to implement the survey design. Any changes or deviations to agreed survey design will occur in agreement with the Department.

2.1 Identify and establish baseline survey sites, matched control sites and experimental treatments sites within the Lachlan Murrumbidgee Project and Large High Quality Sites Project investment regions.

2.2 Undertake vegetation surveys, reptile and bird surveys at all sites incorporated in the ecological survey.

2.3 All sites incorporated in the ecological survey will receive a baseline survey (with no less than 70 per cent to have matched controls) and at least one repeat survey over the four year Agreement.

2.4 The Service Provider will collect, store, analyse and interpret survey data through the following data management approach:

i field data will be recorded using paper sheets or PDA, whichever is deemed appropriate by the Service Provider.

ii Use Microsoft Access database to store and manage data.

iii Develop or use existing standard operating procedures for data collection, recording, storage and verification to ensure consistent, timely and accurate data management. Provide procedures at time of survey design.

iv Collect spatial data in Geocentric Datum of Australia 1994 (GDA 94) format.

2.5 The Service Provider will advise the Department on the efficacy of management intervention in improving biodiversity on contracted sites. The Service Provider will allow up to 10 days per year to provide ongoing advice, including on:

i The efficacy of management actions undertaken by land managers and the comparative efficacy of required and optional management actions in improving woodland condition.

ii Potentially more effective management actions (where appropriate).

2.6 The Service Provider will work with land managers, regional NRM bodies and other relevant stakeholders in implementing the survey design.

2.7 The Service Provider will be required to develop and provide reports to the satisfaction of the Department. These reports are outlined below:

i. A Baseline Survey Report. The report will set out the results of the baseline surveys conducted on all sampled sites (i.e. BGGW investment sites,

matched control sites, and experimental treatment sites). The baseline survey report will address the survey results for vegetation and faunal surveys (i.e. reptiles and birds). The report will contain (but not limited to):

- Executive Summary
- Introduction
- Methods
- Maps (location of sampling sites)
- Results (statistical data analysis)
- Discussion
- Conclusions and Recommendations

ii. An Interim Report. The report will set out where, when and how the monitoring activities are to be, or have been, accomplished in the given year. For Part Three of this Agreement, the Interim Report will also include detail on activities agreed to in the Continued Project Implementation Report. The report will contain (but not limited to):

- Executive Summary
- Introduction
- Methods
- Discussion (of activities planned or undertaken for the given financial year)
- Maps (location of sampling sites)

iii. An Annual Report. The report will outline the results of annual monitoring and the management associated with project delivery for that given year. The report will contain (but not be limited to):

- Executive Summary
- Overview of field surveys for the year (including methods, results, data analysis, and maps)
- Overview of project budget and project delivery (including any issues encountered, conclusions and recommendations).

iv. Final Project Report for Part Two. The report will bring together and analyse the results of the preceding four years of survey activity. The report will contain (but not limited to):

- Executive Summary
- Introduction
- Analysis of all survey results for:

Vegetation

Birds

Reptiles

- Impact of the suite of management actions on these results
- Impact of different grazing regimes on the above parameters
- Analysis of costs and benefits of implementing the monitoring protocols including recommendations for efficiencies
- Summary of species identified during surveys.

v. Continued Project Implementation Report. The report will specify a methodology that is to be used to assess the efficacy of management actions in improving biodiversity on the threatened ecological communities targeted under the Multiple Ecological Communities (MEC) funding rounds of the Environmental Stewardship Program (ESP). The report will contain (but not limited to):

- Executive Summary
- Introduction
- Discussion
  - identifying the Continued Monitoring Sites (including the rationale for selection)
  - plan of implementation for continued monitoring including the frequency of site visits and how monitoring activities will align with the survey design
  - detail on a methodology to assess the efficacy of ESP funded management actions in improving biodiversity across the MEC funding rounds of ESP.
- Maps (location of Continued Monitoring Sites as well as all monitoring sites established under Part Two)

vi. Final Project Report for Part Three. The report will bring together and analyse the results of the preceding eight years of survey activity (for activities conducted in Part Two and Part Three of this Agreement). In making assessments and recommendations, the report should utilise data from all survey results obtained from activities under this Agreement as well as from other BGGW data held by ANU. The report will contain (but not limited to):

- Executive Summary
- Introduction
- Analysis of all survey results for:

  - Vegetation

- Birds

- Reptiles

- Impact of the suite of management actions on these results
- Impact of different grazing regimes on the above parameters
- A discussion on the efficacy of ESP funded management actions in improving biodiversity across the MEC funding rounds of ESP.
- Analysis of costs and benefits of implementing the monitoring protocols including recommendations for efficiencies
- Summary of species identified during surveys.

~~v.~~vii. Other Ad Hoc Reports and Advice. As requested by the Department. This ad hoc reporting and advice will relate to requests from the Department, sometimes at short notice, on matters concerning the implementation of the ecological monitoring project. As such, the Service Provider must have ready access to data and survey results at any given time.

C. Required Contract Material (see clauses 1.1 and 2.1)

The Contract Material required to be produced and delivered as part of the Services include:

1. Survey design reports.
2. Baseline Survey Report.
3. Interim Reports
4. Annual Reports.
5. Final Project Report for Part Two
6. Continued Project Implementation Report

~~5.~~7.Final Project Report for Part Three

~~6.~~8.Ad hoc reports and advice as requested by the Department.

~~7.~~9.Copy of all data collected in performing the provision of Services under this Agreement.

D. Standards and Best Practice (see clause 2.1)

The Service Provider must meet the following standards in delivering the Services:

The Commonwealth Style Manual, AGPS, Canberra (latest edition)

Privacy Advisory Committee, *Outsourcing and Privacy: Advice for Commonwealth agencies considering contracting out (outsourcing) information technology and other functions*, Privacy Commissioner, August, 1994 (a stand-alone document which can also be found in: Privacy Commissioner, *Federal Privacy Handbook: A Guide to Federal Privacy Law and Practice*, Redfern Legal Centre Publishing, Sydney, Release 4, January 1995)

Australian Standards for Document Management (AS ISO 15489)

MAB/MIAC: *Ethical Standards and Values in the Australian Public Service,* 1996

E. Commencement and Time-frame (see clauses 1.7 and 2.1)

Commencement Date

This Agreement commences on the day on which it is executed.

Timeframe

The Services for Ppart Oone of the Project shall be undertaken in accordance with the timeframe set out in Table 1. The Services for Ppart Ttwo of the Project shall be undertaken in accordance with the timeframe set out in Table 2. The Services for Part Three of the Project shall be undertaken in accordance with the timeframe set out in Table 3.

TABLE 1

	MILESTONE	CONTRACT MATERIAL	MILESTONE DATE
1	Draft Survey Design Report	Survey Design Report	30 November 2009
2	Final Survey Design Report (including all standard operating procedures and templates).	Survey Design Report	20 December 2009

TABLE 2

	MILESTONE	CONTRACT MATERIAL	MILESTONE DATE
2009/10 Financial Year			
LACHLAN MURRUMBIDGEE			
1	Identify and establish monitoring sites and complete baseline surveys of vegetation.		30 March 2010
2	Draft Baseline Survey Report	Baseline Survey Report	15 March 2010
3	**Final baseline survey report approved by Department**	**Baseline Survey report**	**30 April 2010**
LARGE HIGH QUALITY SITES			
4	Identify and establish monitoring sites in the Northern NSW investment region (Border Rivers/Gwydir, Central West and Namoi) and Southern Qld investment region (Border Rivers Maranoa-Balonne, Condamine and South East Qld).	Annual Survey Report (results of site establishment to be reported through the Annual report)	30 August 2010
5	**Annual Survey Report received and approved by Department.**	**Annual Survey Report**	**1 June 2010**
2010/11 Financial Year			
LACHLAN MURRUMBIDGEE			
6	Complete baseline surveys of birds.	Baseline Survey Report	30 November 2010
7	Complete baseline surveys of reptiles.	Baseline Survey Report	20 December 2010
LARGE HIGH QUALITY SITES			
8	Complete baseline surveys of vegetation in Northern NSW and Southern Qld investment regions.	Baseline Survey Report	30 November 2010
9	Complete baseline Surveys of birds	Baseline Survey Report	30 November 2010
10	Complete baseline Surveys of reptiles.	Baseline Survey Report	30 November 2010
11	Draft Baseline Survey Report	Baseline Survey Report	20 December 2010
12	**Final Baseline Survey Report approved by Department**	**Baseline Survey Report**	**30 January 2011**
13	**Annual Project Report received and approved by Department.**	**Annual Project Report**	**1 June 2011**
2011/12 Financial Year			

	MILESTONE	CONTRACT MATERIAL	MILESTONE DATE
14	Provision of an Interim Report that sets out the approach to repeating the baseline vegetation survey methodology in grazing research sites followed by investment sites in Lachlan Murrumbidgee and Large High Quality Sites	Interim Report	January 2012
15	Delivery of Interim report on vegetation monitoring completed on Lachlan Murrumbidgee and large high quality investment sites	Interim Report	15 May 2012
2516	**Annual Project Report received.**	**Annual Project Report**	**30 June 2012**
2012/13 Financial Year			
17	Provision of interim report setting out the approach to repeating the baseline survey methodology for birds and reptiles in the Lachlan Murrumbidgee and Large High Quality investment sites.	Interim Report	1 November 2012
~~21~~**18**	**Final Project Report received and approved by Department.**	**Final Project Report**	**1 May 2013**

TABLE 3

	MILESTONE	CONTRACT MATERIAL	MILESTONE DATE
2013/14 Financial Year			
19	Continued Project Implementation Report received by the Department	Continued Project Implementation Report	25 July 2013
20	Interim Report received	Interim Report	16 December 2013
21	**Annual Project Report received**	**Annual Project Report**	**1 June 2014**
2014/15 Financial Year			
22	Interim Report received	Interim Report	15 December 2014
23	**Annual Project Report received**	**Annual Project Report**	**1 June 2015**
2015/16 Financial Year			
24	Interim Report received	Interim Report	15 December 2015
25	**Annual Project Report received**	**Annual Project Report**	**1 June 2016**
2016/17 Financial Year			
26	Interim Report received	Interim Report	15 December 2016
27	**Final Project Report for Part Three Received**	**Final Project Report for Part Three**	**1 June 2017**

F. Fees (see clauses 3.1 & 20.5)

All costs are GST INCLUSIVE

Part one of the project

The fee for Services for Ppart Oone of the project is $50,000 payable in the following instalments:

$25,000 following the delivery of the draft Survey Design Report

$25,000 following delivery of the final Survey Design Report

The due date for payment is 30 days after the delivery of a correctly rendered invoice to the Department.

Part Ttwo of the project

The total fee for Services for Ppart Ttwo of the project is $1,988,227. This amount will be divided between financial years in accordance with the following schedule:

Financial Year	**Total Fee Payable**
2009/10 (Year 1)	$497,793
2010/11 (Year 2)	$491,579
2011/12 (Year 3)	$499,730
2012/13 (Year 4)	$499,125
Total	**$1,988,227**

Year 1

The fee for Services for year one of $497,793 is payable by the following instalments:

- $200,000 following signing the Agreement to allow the Service Provider to commence work on identifying and establishing monitoring sites in the Lachlan, Murrumbidgee, and northern NSW and southern Qld investment regions.
- $130,000 following delivery of the final Baseline Survey Report of vegetation on monitoring sites in the Lachlan and Murrumbidgee investment regions.
- $167,793 following delivery of the Annual Project Report.

Year 2

The fee for Services for year two of $491,579 is payable by the following instalments:

- $250,000 on the commencement of baseline surveys of vegetation on monitoring sites in the northern NSW and southern Qld investment regions.
- $100,000 following delivery of the final Baseline Survey Report of vegetation on monitoring sites in the northern NSW and southern Qld investment regions and of birds and reptiles in all investment regions.
- $141,579 following delivery of the Annual Project Report.

Year 3

The fee for Services for year three of $499,730 is payable by the following instalments:

- $300,000 on acceptance by the Department of an interim report leading to the commencement of repeat surveys of vegetation on investment sites in the Lachlan and Murrumbidgee and large high quality investment sites.
- $199,730 following delivery of the Interim Survey Report.

Year 4

The fee for Services for year four of $499,125 is payable by the following instalments:

- $300,000 on acceptance by the Department of an interim report leading to the commencement of repeat surveys of birds on investment sites in the Lachlan Murrumbidgee and northern NSW and southern Qld large high quality investment sites.
- $199,125 following delivery of the Final Project Report for Part Two and acceptance by the Department.

The due date for payment is 30 days after the delivery of a correctly rendered invoice to the Department.

Part Three of the project

The total fee for Services for Part Three of the project is $1,100,000. This amount will be divided between financial years in accordance with the following schedule:

Financial Year	Total Fee Payable
2013/14	$275,000

2014/15	$275,000
2015/16	$275,000
2016/17	$275,000
Total	**$1,100,000**

2013/14

The fee for Services for the 2013/14 financial year of $275,000 is payable by the following instalments:

- $50,000 following approval by the Department of the Continued Project Implementation Report.
- $115,000 following approval by the Department of the Interim Report
- $110,000 following approval by the Department of the Annual Project Report.

2014/15

The fee for Services for the 2014/15 financial year of $275,000 is payable by the following instalments:

- $165,000 following approval by the Department of the Interim Report
- $110,000 following approval by the Department of the Annual Project Report.

2015/16

The fee for Services for the 2015/16 financial year of $275,000 is payable by the following instalments:

- $165,000 following approval by the Department of the Interim Report
- $110,000 following approval by the Department of the Annual Project Report.

2016/17

The fee for Services for the 2016/17 financial year of $275,000 is payable by the following instalments:

- $165,000 following approval by the Department of the Interim Report
- $110,000 following approval by the Department of the Final Project Report for Part Three.

G. Allowances and Costs (see clause 3.1)

The Department will not pay any additional allowances and costs associated with the provision of the Services.

H. Facilities and Assistance (see clause 3.1)

The Commonwealth will provide the following staff resources in relation to the provision of Services:

- One full time equivalent Ecological Liaison Officer (ELO) position for a term of 12 months, commencing no later than the 18 January 2010. The selection of the ELO will be agreed to by the ANU lead investigator (Professor David Lindenmayer), the Commonwealth and Environmental Stewardship Program Service Provider. The purpose of the ELO is to provide a link between the ANU Specified Personnel and Environmental Stewardship land managers, and the ESP Service Provider.

  The ELO will - as a first order priority – facilitate the implementation of the monitoring project over a 12 month period by scheduling and organising field visits. As a second order priority the ELO will be available to support ANU field staff, and will be available to the ESP Service Provider to provide additional support to Environmental Stewardship land managers as appropriate.

- Notwithstanding the provision of the ELO, the ANU will be solely responsible for conducting field survey and monitoring activities, and progress in these activities will not be conditional on the availability of the ELO.

- The ELO will be resourced by the Commonwealth and will have access to a 4WD to ensure the ELO can travel in the field if or when required (for up to 40,000km). Costs associated with the ELO's time in the field will also be supplied by the Commonwealth (including fuel, meals and accommodation).

Further Commonwealth assistance may include but is not limited to: working collaboratively on the co-authorship of research publications (see clause 9), and – if available at the discretion of the Commonwealth - undertaking field research activities and other aspects associated with implementing the project.

I. Invoice Procedures (see clause 3.3)

Correctly addressed invoices must be forwarded by the Service Provider including the following information:

(a) title of Services;

(b) name of Project Officer;

(c) fees invoiced as per Item F;

(d) contract number or purchase order number;

The due date for payment by the Commonwealth is 30 days after delivery of a correctly rendered invoice.

J. 'Specified Personnel' (see clauses 1.1 and 6)

The Service Provider agrees that:

a) the work of overall Project Manager will be undertaken by David Lindenmayer;

b) all additional staff are required to have the appropriate knowledge and skills for their roles. ~~the work of Data Analysis and Verification will be undertaken by Ross Cunningham, Jeff Wood and Emma Knight;~~

~~c) the work of Data Management and Reporting will be undertaken by Rebecca Montague-Drake and David Lindenmayer;~~

~~d) the work of Database Support will be undertaken by Rebecca Montague-Drake (part-time);~~

~~e) the work of field work logistics will be undertaken by the following personnel:~~

~~Field work officer (vegetation and fauna) Damian Michael;~~

~~Field work officer (vegetation and fauna) Mason Crane;~~

~~Field work officer (vegetation and fauna) Rebecca Montague-Drake (part-time);~~

~~Field work officer (vegetation and fauna) yet to be appointed;~~

~~Field work officer (vegetation and fauna) yet to be appointed.~~

~~Additional people will also be appointed with appropriate field skills after signing of the contract.~~

K. 'Project Officer' (see clauses 1.1 and 2.1)

The Project Officer shall be the person for the time-being holding, occupying or performing the duties of Program Officer, Environmental Stewardship Program ~~currently~~ s22 ~~]~~ available ~~on telephone number 02 627~~ s22 ~~or~~ via contact details ~~the address and facsimile number~~ set out in Item Q [Commonwealth's Address for Notices].

L. Material to be Provided by Commonwealth (see clause 8.1)

Material provided to the Service Provider by the Commonwealth will include:

- Any Materials deemed necessary by the Service Provider to complete the work outlined in this Agreement, subject to approval by the Department and where privacy and other legislative requirements permit. This will include data relating to land managers and that contained in land management contracts, to be delivered to the Service Provider on the signing of the contract.

M. Use of Commonwealth Material (see clause 8.3)

The Service Provider may use all Commonwealth Material provided for the purposes of the Services. Use of the material for purposes other than the Services identified in this Agreement requires the prior written agreement by the Department.

N. Existing Material (see clause 9.2)

Intellectual property relating to the Service Provider's database as it existed prior to the commencement of this Agreement.

Specify any pre-existing Material for which Intellectual Property is ***not*** to vest in the Commonwealth. This would arise typically in relation to Material owned by the Service Provider, although it may also arise in relation to Material owned by a third party. The Service Provider must grant or procure the grant to the Commonwealth of a licence to use the Material. in the terms set out in clause 9.2.

Be careful when there is a time lapse between commencement of the work and the date of the Agreement to ensure that Material produced in that period is not pre-existing Material, in respect of which the Intellectual Property does not vest in the Commonwealth.

O. Dealings with Copies (see clause 10.5)

The Service Provider may retain copies of the Contract Material provided that the Material is used in accordance with the licence granted at clause 9.

P. Insurance (see clause 18.1)

The Service Provider shall maintain:

- Workers compensation insurance for an amount required by the relevant State or Territory legislation; and
- public liability insurance for an amount of not less than 10 million dollars; and
- professional indemnity insurance for an amount of not less than 5 million dollars.

Q. Commonwealth's Address for Notices (see clause 25.1)

Project Officer: Director
Postal Address: Environmental Stewardship Program
~~————~~Biodiversity ~~Conservation~~ Policy Branch
~~————~~Biodiversity Conservation ~~Land and Coasts~~ Division
~~————————————~~Department of Sustainability,
Environment, Water, Population and Communities
~~————————————————~~GPO Box 787
~~————~~CANBERRA ACT 2601

Email: EnviroStewardship@environment.gov.au
Telephone: 1800 607 115
Facsimile: 02 6274 1332

R. Service Provider's Address for Notices (see clause 25.1)

Contact : ~~Karen Jackson~~Melonie Martin
Postal Address: Research Management Office - Robertson Hub
ANU College of Medicine, Biology & Environment
ANU College of Physical Science & Mathematical Sciences

~~Room 411, Oliphant Building (60)~~
RN Robertson Building (46), Biology Place
Australian National University
Acton ACT 0200
Email: melonie.martin~~karen.jackson~~@anu.edu.au
Telephone: 02 6125 0342~~9320~~
Facsimile: 02 6125 9510

S. Confidential Information (see clauses 1.1 and 11.10)

Confidential information includes the following:

Commonwealth's Confidential Information

- Personal information on land managers.
- Information on the design, weightings and other commercially valuable elements of the BGGW Conservation Value Measure.
- Information and data used in the formulation of land manager bids including, data derived from the Conservation Value Measure, mapping, management plans and land manger contracts.

If required, the Service Provider's employees, sub-contractors and agents must complete a Deed of Confidentiality in a form provided by the Department.

Service Provider's Confidential Information

T. Privacy Directions, Guidelines, Determinations and Recommendations (see clause 12.2)

Confidential information must be treated as Commercial in Confidence and must be appropriately stored and secured at all times.

U. Moral Rights (see clause 26)

None specified.

In addition to those set out in clause 26, the following are 'Permitted Acts' for the purposes of clause 26:

(a) incorporating the Contract Material (excluding the material mentioned in sub items C5 and C6) into a website or as part of a multi-media training program;

(b) disseminating the Contract Material (excluding the material mentioned in sub items C5 and C6) for Commonwealth purposes.

Insert any Departmental Policy on Moral Rights to which you wish to draw the Service Provider's attention.

V. Security Requirements (see clauses 27 - 31)

FOI 180106
Document 2

From: Procurement Helpdesk - DotE
To: s22
Cc: Procurement Helpdesk - DotE; s22
Subject: RE: Attn: s22 [SEC=UNCLASSIFIED]
Date: Tuesday, 10 January 2017 2:58:14 PM

Hi s22

Thank you for your enquiry. I hope you had an enjoyable break over the Christmas period.

I have read through the contract and contract variation provided and have the following to note:

- The contract commenced on 23 September 2009
- The original contract had deliverables through to 1 June 2013, although no actual end date has been specified in the contract.
- The contract was varied on 26 June 2013 and has provided additional deliverables through to 1 June 2017. The new end date in the Procure to Pay system is 30 June 2017.
- Clause 2.2 of the Contract and Variation states: *"The Department may extend the Term of this Agreement for a further period ending not later than the Extension Date by notice in writing delivered to the Service Provider not less than 30 days before the Initial End Date."* However, there has not been an extension end date included in Item E of The Schedule.

We note from your email of 5 December that you are requesting some advice from the Procurement Team on whether another extension period is suitable at this point in time. As the contract will have been in place for nearly 8 years and considering the market may have matured over that time, the Procurement Team strongly suggest that the Department re-test the market for these services. We would be happy to meet and discuss details and timelines on the best approach.

Please feel free to call to discuss or make a time when we can meet.

Thanks, s22

Corporate Procurement Team | Framework, Procurement & Grants
Financial Services Branch | Corporate Strategies Division

_____

Department of the Environment and Energy
PO Box 787, CANBERRA, ACT 2601
T: 02 6275 9600| E: Procurement.Helpdesk@environment.gov.au | Environment.gov.au

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From: s22
Sent: Tuesday, 20 December 2016 3:39 PM
To: Procurement Helpdesk - DotE <Procurement.Helpdesk@environment.gov.au>; DotE_PROCUREMENT_HLPDSK@myservicegov.datacom.com.au
Subject: FW: Attn: s22 [SEC=UNCLASSIFIED]

HI there,

We are seeking advice as to whether this contract can be extended with new funds or whether we need to go to market again. Our Executive has a view that in order to withstand public scrutiny and improve the quality of delivery, that it probably needs to go to market. However the

service provider insists it can be renewed without going through that process.

The last variation / extension was made on the below mentioned extension, but we do not hold the same view (that there is an absence of others who can provide the technical services).

We would be grateful for formal written advice on this.

Best wishes,

s22

From: s22
Sent: Monday, 5 December 2016 3:21 PM
To: Procurement Helpdesk - DotE <Procurement.Helpdesk@environment.gov.au>
Subject: FW: Attn: s22 [SEC=UNCLASSIFIED]

Hi there s22

Sorry for not getting back to you. The PRN associated with this contract is 0809-1511. I note that the previous variation was allowed without going to tender based on a 10.3.dIIi exception (due to an absence of competition for technical reasons). I don't think this view would be shared by my current branch head (and being quite technical myself, and managing the contract and knowing the level of technical capability (and its availability more generally) I do find this surprising.

Anyway, it would be good to get official advice on this.

Cheers,

s22

From: s22
Sent: Tuesday, 22 November 2016 3:42 PM
To: Procurement Helpdesk - DotE <Procurement.Helpdesk@environment.gov.au>
Subject: FW: Attn: s22 [SEC=UNCLASSIFIED]

As discussed

From: s22
Sent: Tuesday, 22 November 2016 3:41 PM
To: Procurement Helpdesk - DotE <Procurement.Helpdesk@environment.gov.au>
Subject: Attn: s22 [SEC=UNCLASSIFIED]

HI s22

Here is the contract as discussed.

Cheers, s22

s22
Monitoring and Reporting
Biodiversity Conservation Division
Department of the Environment and Energy
GPO Box 787, ACT, 2601
Location: Level 3, Nishi Building, 25 Edinburgh Avenue, ACT, 2601
Phone: 02 6275 s22

FOI 180106
Document 3

DEPARTMENT OF THE ENVIRONMENT AND ENERGY s22

-This is the final cleared version. JE 23/8

PDR: MB17-000431

Copy to:

Secretary
Mr Papps
Mr Cahill
Ms Campbell
Ms Brunero

Chief of Staff

s22

To: Minister Josh Frydenberg (for information)

ENVIRONMENTAL STEWARDSHIP PROGRAM – BACKGROUND AND CURRENT MANAGEMENT APPROACH

Timing: 8 September

Recommendation/s:

1. That you note the information about the Environmental Stewardship Program.

Noted / Please discuss

Signatory: Date:

Comments:

Clearing Officer: Sent 23/08/2017	Steve Costello	Assistant Secretary Program Delivery/BCD	Ph: 02 6159 7308 Mob: s22
Contact Officer:	s22	A/g Director, Monitoring and Reporting	Ph: 02 6275 s22 Mob: s22

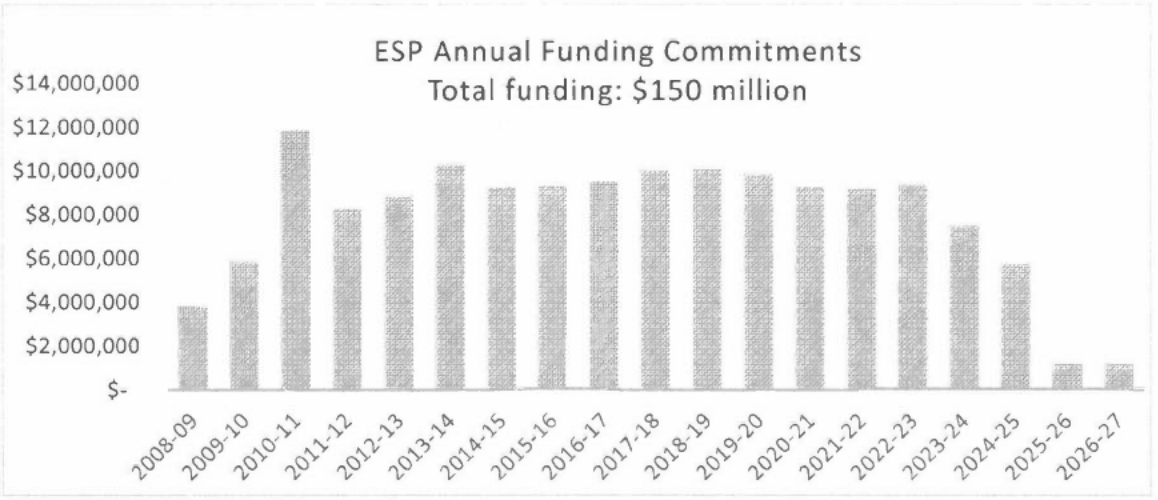
Key Points:

1. Established in 2008, the Environmental Stewardship Program (ESP) provides long-term support to private landholders to manage Environment Protection and Biodiversity Conservation (EPBC) Act listed threatened ecological communities across New South Wales, Queensland and South Australia.

2. The threatened ecological communities targeted by ESP have been heavily cleared or degraded and are found mostly on privately-owned land. ESP grantees receive annual payments to support improvements to grazing practices, weed and pest management and other restoration activities.

3. ESP has contracted 288 landholders to manage 52,123 hectares for a period of up to 15 years.

4. The ESP program is a component of the National Landcare Program (NLP), but it has a separate appropriation to the Natural Heritage Trust. The Australian Government has committed $150 million of direct funding to ESP grantees up to 2026/27 ($9.9m in 2017-18), as per the following table:



5. There are no further funding rounds for the ESP as future funding is already committed to long-term contracts with landholders.

6. The environmental outcomes of ESP are currently assessed through an ecological monitoring and evaluation project.

7. The Australian National University (ANU) was contracted by the Department from 2009/10 to 2016/17 to undertake this work. Approximately 60% of the ESP sites in NSW and QLD (133 of the 219 properties) have been part of this monitoring project. The contract with ANU ceased on 30 June 2017.

8. In accordance with Commonwealth Procurement Rules, an Open Tender process commenced in June 2017 to identify a suitably qualified service provider for a further six years of ecological monitoring. The budget for the monitoring contract is $1.3 million over six years.

9. The Department is currently finalising tender assessment to identify the best value for money bid.

Sensitivities and Handling

10. Professor David Lindenmayer (ANU) has previously raised concern with the Department regarding this Open Tender process. He is particularly concerned that the Department did not automatically renew and extend the existing contract with ANU.

11. Competitive tendering is required under Commonwealth Procurement Rules for procurements with a value over $80,000. There are very limited grounds for an exemption. This procurement does not qualify for any exemption under Commonwealth Procurement Rules.

12. The Department will provide further briefing once the tender assessment has been finalised.

Consultation: NIL

To: Kylie Jonasson, First Assistant Secretary, Biodiversity Conservation Division (for approval)

Through: Steve Costello, Assistant Secretary, Program Delivery Branch, BCD

Cc: Emma Campbell, Biodiversity Policy Branch

SECTION 23 (3) APPROVAL FOR THE ENVIRONMENTAL STEWARDSHIP PROGRAM ECOLOGICAL MONITORING PROJECT

Timing: May 17th, 2017 to enable Request for Tender documentation to be released in the week of May 22nd, 2017

Recommendation/s:

1. That you approve the allocation of $1,200,000 (GST exclusive) from the Environmental Stewardship Program appropriation in order to procure Environmental Stewardship Program Ecological Monitoring and Evaluation services for six years from 2017/18 to 2022/23.

Kylie Jonasson  **Date:** 16/5/17

Comments:

Clearing Officer: Sent 15/5/2017	Steve Costello 	Assistant Secretary Program Delivery Branch	Ph: 02 6159 7308
Contact Officer	s22	Monitoring and Reporting Section	Ph: 02 6275 s22

Key Points

1. This brief seeks PGPA Act subsection 23(3) approval for the allocation of $1,200,000 (GST Exclusive) procurement of *Environmental Stewardship Program Ecological Monitoring and Evaluation Services* over a six year period from July 2017 to June 2023 in New South Wales (NSW) and Queensland (QLD).

2. Ecological monitoring of this program is required to:

   - assess whether the ecological objectives of the program are being met
   - support adaptive management of ESP sites through ensuring that management actions continue to address local and contemporary environmental conditions and challenges, and are suitable to manage risk (such as fire risk)

3. Approximately $195,000 to $223,000 per annum is available for the proposed monitoring from the Environmental Stewardship Program budget as indicated in the following table:

ESP Appropriation	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Current commitment level ($ millions)	9.722	9.781	9.509	8.967	9.18	9.043
Available ($ millions)	0.195	0.2	0.204	0.212	0.217	0.223

4. An Open Tender will be conducted to identify a suitably qualified service provider for a further six years of ecological monitoring.

5. On your approval of this proposal, an electronic PGPA Act subsection 23(3) approval request will be directed to you through the Procure to Pay system.

6. The spending proposal is within the scope of your delegation.

Background

7. The Australian Government has invested approximately $147.2 million over 20 years in the Environmental Stewardship Program (ESP). It is the Australian Government's largest, long-term investment in environmental management of *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* listed threatened ecological communities on private land.

8. The program maintains 219 contracts with private landholders in New South Wales and Queensland to manage approximately 40,000 hectares of three *EPBC Act* listed threatened ecological communities.

9. The Australian National University (ANU) was employed by the Department from 2008/09 to 2016/17 to undertake ecological monitoring on approximately 60% of the ESP sites in NSW and QLD (133 of the 219 properties).

10. The total value of the contract with the ANU was approximately $2.9 million. The contract value was reduced from $500,000 to $250,000 per annum in 2013. This has resulted in a reduction of the frequency of monitoring, but only a small reduction in the total number of sites monitored by the ANU, with no overall negative consequence reported for the validity of monitoring findings.

11. Tenderers will be requested to provide information on how to scale their monitoring and evaluation efforts to ensure the Department is able to negotiate an approach that will fit within the funding scope of $195,000 to $223,000 per annum.

Sensitivities and Handling

12. The Department has elected to test the market again for this contract. The incumbent service provider, the Australian National University has contacted the Department to express concern regarding the Department's decision not to opt to extend the existing contract.

13. The reasons for not extending the existing contract are:

    a. This procurement does not qualify for an exemption under Commonwealth Procurement Rules

    b. There is an opportunity to drive improvements in the standard of service provision and the efficiency of the current monitoring and evaluation approach

    c. The current contract is inadequate to ensure quality service provision

Australian Government
Department of the Environment and Energy

ENVIRONMENTAL STEWARDSHIP PROGRAM ECOLOGICAL MONITORING AND EVALUATION SERVICES PROCUREMENT PLAN

Procurement Title:

Environmental Stewardship Program Ecological Monitoring and Evaluation Services

Project Officer: s22

Division: Biodiversity Conservation Division

Estimated Cost (incl GST): $1.32 million

Risk Classification: Medium

Procurement Method: Open Tender

OTHER ATTACHMENTS

Tender Assessment Panel (TAP) CHAIR'S ENDORSEMENT

TAP Chair's Name: **Phone no:**

Chair's signature: date ___/___/___

.....

This procurement plan is to be used in conjunction with the Agency's Tender Evaluation Report template.

Where procurements are assessed as high risk, the procurement plan is to be approved by a Section 23(3) Delegate.

TABLE OF CONTENTS

PROCUREMENT SUMMARY

1. PROCUREMENT SCOPE

The Environmental Stewardship Program (ESP) is the Australian Government's largest, long-term investment in environmental management of nationally threatened ecological communities on private land (approximately $147.2 million over 20 years).

The Australian Government currently maintains 219 contracts with private land owners to manage two threatened ecological communities listed under *The Environment Protection and Biodiversity Conservation Act 1999* in New South Wales and Queensland. The two nationally listed threatened ecological communities targeted by ESP are *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Grassy Woodland) and *Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland* (Natural Grasslands).

Conservation management actions funded under ESP can include:

- conservation grazing
- stock exclusion
- cessation of cultivation / fertilisation
- retention of environmental features such as bush rock, standing and fallen timber
- restoration of native vegetation species indigenous to the listed threatened ecological communities
- feral animal management
- management of native herbivores
- biomass control measures (through mechanical means or fire)
- fire regime management

The Department of the Environment and Energy has a requirement for ecological monitoring and evaluation of the environmental condition of contracted ESP properties in New South Wales and Queensland. The monitoring and evaluation will assess the effectiveness of management actions in achieving improvements in the ecological condition of threatened ecological community remnants on ESP sites. The ecological monitoring will also support adaptive management on contracted ESP properties through ensuring that management actions contracted through the program address local and contemporary environmental conditions and challenges. The services will also include some additional outreach and communications activities.

(a) The Department of the Environment and Energy will contract ecological monitoring and evaluation services from 2017/18 to 2022/23.

(b) In summary, the services and deliverables being procured will be comprised of the following core components:

(i) Finalisation of:
  i. a Project Plan
  ii. a Monitoring and Evaluation Plan
(ii) On-ground ecological monitoring services
(iii) Evaluation and reporting
(iv) Communications and outreach activities
(v) Data management and knowledge transfer
(vi) Project management and administration

(c) Note, the Australian Government may contract ecological monitoring services on *up to* 219 ESP properties depending on the sampling methodologies proposed. There may be multiple monitoring sites on any single ESP property, including controls. To date, the Australian Government has funded monitoring on approximately 60% of the 219 ESP properties over the past eight years.

Note, we are requesting Tenderers provide a scalable approach to enable negotiation to adjust scope and costs.

(d) The Department's requirements are set out in detail in Schedule 1 in the Request for Tender

Procurement objectives
The objective of the procurement is to identify a service provider who can provide the most efficient and robust approach to ecological monitoring and analysis across a wide geographic area. The service provider must also evidence experience in engagement within rural communities.

Tender requirements
Tenderers will be requested to provide a response comprised of the following key components:

1. A costed proposal that outlines a proposal for monitoring and evaluation of up to 219 ESP sites in NSW and Queensland. This will include proposed sampling and statistical methods, stratification approaches, on-ground monitoring protocol(s), data management strategies. Note, the monitoring and evaluation approach may consider both vegetation and faunal responses to ESP management
2. A proposal for communications and outreach activities
3. Evidence of organisational and staff capabilities (e.g. domain knowledge, project management and logistics planning experience)
4. Evidence of organisational capacity (e.g. staff time allocations, capital capacities / level of preparedness to provide the services)

Services and Deliverables
The services and deliverables being procured will include:

1. PROJECT PLANNING AND MANAGEMENT (Project design)
   Development and implementation of a project plan that contains standard project planning information, such as GANTT charts, staff resourcing allocations and costings. This will also include a plan for communications and outreach activities.

2. A MONITORING AND EVALUATION PLAN (Technical Design)
   Development of a monitoring and evaluation (M&E) plan that outlines the following:
   a. The rationale and logic for monitoring and evaluation, with reference to the conceptual benchmarks and models of change developed for ESP and associated management actions [note, this information will be supplied to Tenderers]
   b. Indicators used for monitoring
   c. Timing of monitoring and monitoring locations
   d. The analytical methods relative to key criteria outlined in #3 below, including stratification and statistical methods
   e. Any additional proposed monitoring, such as specific faunal monitoring
   f. The on-ground monitoring protocols to be applied
   g. Any proposed approaches for generating continuity with the existing data set*
   h. A data management strategy which includes consideration of data collection methods, metadata descriptions data storage, data processing and quality control
   i. A proposed reporting schedule, including the timing and content of reporting

*The ecological monitoring and analysis may occur according to an already developed methodology. However, the Department requests recommendations for dataset harmonisation or how the Tenderer will approach continuity if an alternative method is proposed through the RFT.

Note, we are requesting Tenderers provide a scalable approach to enable negotiation to adjust scope and costs.

*The ecological monitoring and analysis may occur according to an already developed methodology provided to Tenderers. However, the Department may request recommendations for dataset harmonisation or how the Tenderer will approach continuity if an alternative method is proposed through the RFT.

3. ON-GROUND ECOLOGICAL MONITORING OF ESP SITES
   Ecological monitoring services on up to 219 ESP properties depending on the sampling methodologies proposed. There may be multiple monitoring sites on any single ESP property, including controls. We are requesting Tenderers propose a scalable approach.

4. EVALUATION AND OUTCOMES REPORTING
   Provision of evaluation reports according to the M&E Plan. Tenderers should propose a reporting schedule relative to the M&E Plan. The reports must include:
   a. assessment of the effectiveness of management actions according to the stratification approach (as outlined in the M&E plan) – note, this may include assessment of specific management actions or an aggregated suite of actions on single ESP properties
   b. aggregated results across ESP properties according to proposed stratifications
   c. aggregated results relative to the conceptual models initially used to make investment decisions
   d. data visualisations and mapping of results

   The successful Tenderer will be able to draw on a pre-existing data set for the first eight years ecological monitoring undertaken through the program to provide further contextualisation for analysis and reporting, including to enable reference to baseline ecological condition on ESP sites. A subset of this data will be made available to Tenderers on request. Threatened species data has been redacted from this data set.

5. DATA TRANSFER
   Annual provision of the ecological monitoring data set in a manner which meets the Departmental formats and standards as set out in RFT documentation.

6. ADVICE TO THE DEPARTMENT
   The successful Tenderer will be expected to allocate a number of days per annum for provision of advice to the Department on any adaptive management requirements they deem necessary to ensure ESP continues to meet its objectives, particularly during periods of exceptional climatic conditions or to manage other exceptional circumstances (such as post-fire management regimes).

7. COMMUNICATIONS AND OUTREACH ACTIVITIES
   This could include:
   a. Field days and / or workshops within the Environmental Stewardship community and / or NRM community
   b. Presentations to the department / [other]
   c. Other publicity and outreach activities

8. PROJECT PROGRESS REPORTING

Annual progress reports, which include detailed expenditure reports and documentation of all project activity.

9. PROGRESS MEETINGS WITH THE DEPARTMENT
   Regular meetings with the Department's project officers.

Complementary or Linked Research Projects
In addition, Tenderers may nominate to link the ESP ecological monitoring and evaluation to other research projects to optimise the value of the data collected through ESP monitoring. This could be through associated PhDs, or other major research programs.

Meeting requirements
The successful service provider will be expected to attend:

i. an inception meeting in Canberra
ii. regular progress meetings at least twice a year
iii. verbal updates via telephone on a quarterly basis

2. Background

Ecological monitoring of the Environmental Stewardship Program has been occurring since 2009/10.The current service provider has had their contract renewed once in 2013. However, eight years into this service provision and the Department has determined that in the interests of public accountability it is important to test the market again.

3. Estimated Value

The total estimated value of the proposed procurement is $1,320,000 GST inclusive ($1,200,000 GST exclusive).

4. Business Case

The Environmental Stewardship Program is the Australian Government's largest, long-term investment in environmental management of nationally threatened ecological communities on private land (approximately $147.2 million over 20 years).

Ecological monitoring of this program is required to:

- assess whether the ecological objectives of the program are being met
- support adaptive management, as the majority of ESP contracts have a duration of 15 years and management requirements may change based on local environmental conditions

The data already collected through this program forms one of the largest, long-term consistent ecological condition data sets on conservation managed lands in Australia. A further six years of monitoring will increase the value of this dataset.

The evidence-base developed through this monitoring can inform the design of future private land conservation initiatives and provide justification for the value of funding private and conservation. In addition, the data collected through ecological monitoring of this program can be used to improve threatened species distribution mapping, be incorporated into national environmental condition maps and state of the environment reporting, as well as deployed in natural resource management prioritisation.

Because the ecological monitoring data for ESP can be repurposed, the total economic value of the data collected through this project may exceed the costs associated with this project.

The estimated total cost of ecological monitoring of the Environmental Stewardship Program is outlined in the following table. It is estimated at 3.4% of the total program expenditure. This includes estimates of all potential future monitoring components.

NSW / QLD monitoring to 2017/18 (8 yrs)	$	2,906,043
Estimated NSW / QLD monitoring to 2022/23 (6 yrs)	$	1,650,000
Estimated South Australian monitoring component to 2026/27 (10 yrs)	$	400,000
Total estimated monitoring expenditure	**$**	**4,956,043**
Percentage of total ESP budget - $147.2 million (approx)		**3.4%**

5. Market Analysis

The Department has a good pre-existing understanding of the market for this work. There are relatively few service providers capable of delivering the specific ecological monitoring and research services required for the Environmental Stewardship Program (because of the scale of this program). However, competition between service providers is likely to be strong, as there are relatively few opportunities for long-term research contracts.

Pricing structures are likely to be impacted by Tenderer organisations' existing infrastructure, assets, administrative / governance arrangements and linkages with other projects that will allow them to leverage other investments.

6. Stakeholder Expectations

There is likely to be an expectation from contracted Environmental Stewards that ecological monitoring of the program will continue.

The National Farmers Federation and scientists across Australia who were involved in program design also have an interest in how the program has performed relative to its environmental objectives.

Across all government agencies and within the research community, there will be an expectation that data collected through the ESP ecological monitoring work will be reusable, publicly accessible and collected under national and internal industry best practices standards.

Demand

Our estimation is that there will be a relatively small number of suppliers capable of delivering these services. Service providers may either be limited by technical capacity and / or geographic accessibility.

Subcontracting and consortium arrangements may also be considered.

7. Procurement Methodology

The following procurement methodology has been selected for this procurement.

OPEN TENDER

An **open tender** is a procurement procedure in which a request for tender is published inviting all businesses that satisfy the conditions for participation to submit tenders

8. Industry Briefing

There are no industry briefings planned for this RFT.

Industry Feedback Arrangements

Queries for this tender will be handled through the ESPmonitoring@environment.gov.au email and responses will be supplied through AusTender to all potential Tenderers.

9. Contract Period/Pricing

The initial contract period will be for six years from July 31, 2017 through to June 30, 2023.

The total estimated expected maximum value of the proposed procurement (including GST) is $1,320,000.

The expenditure (GST inclusive) is proposed as follows:

Financial Year	Amount
2017-2018	$220,000
2018-2019	$220,000
2019-2020	$220,000
2020-2021	$220,000
2021-2022	$220,000
2022-2023	$220,000
Total Estimated Expected Maximum Value	**$1,320,000**

The procurement will be funded from the Environmental Stewardship appropriation (Company Code: 0120).

Pricing
The Australian Government does not expect to allocate more than $220,000 (GST inclusive) per year for the provision of the services.

The Tenderers will be requested to provide information on daily rates for staff (and individual staff costs). However, this financial information is to enable assessments of value for money and potential negotiations. The pricing will be structured according to milestones and the above costs incorporated into the milestone payments.

10. Risk Management

Consistent with the Department's Secretary's Instructions (SI) 1.1 Accountability for Managing Risk, a risk assessment must be undertaken for all new procurements where the estimated value is greater than $10,000 (GST inclusive).

A risk assessment has been conducted for this procurement. It has been rated as High Risk due to risks associated with potential external stakeholder expectations and response to the tender evaluation outcomes. If these risks are managed then the residual risk is medium.

A risk assessment is provided at Attachment A.

11. Probity Plan

See Attachment B

12. Procurement Timetable

(These dates are "indicative" only and may be subject to change).

	Description	Date
a)	Advertise Request for Tender on AusTender	Week beginning 22 May 2017
b)	Close Request for Tender	26 June 2017
c)	Distribute submissions to Tender Assessment Panel for evaluation	27 June 2017
d)	Evaluation of submissions, including interviews and discussions with referees, where necessary	27 June, 2017 to 14 July, 2017
e)	Notify preferred Tenderer and advise of any points for negotiation	21 July, 2017
f)	Execute contract with successful Tenderer	31 July, 2017
g)	Unsuccessful Tenderers notified	4 August, 2017
h)	Debrief unsuccessful Tenderers (if required)	31 August, 2017

13. Authorisation

TAP Signatures

The undersigned members of the Tender Assessment Panel (TAP) agree with the requirements and obligations of this Procurement Plan and attachments.

.....	.....	.....
(insert name)	(insert name)	(insert name)
...../...../20.....	...../...../20....	...../...../20....

EVALUATION PLAN

a. Aim

This Evaluation Plan details the Tender Assessment Panel (TAP) and their responsibilities, the evaluation methodology and evaluation criteria by which offers received will be evaluated.

b. The Tender Assessment Panel (TAP)

The TAP detailed below has been formed to evaluate the responses for the above project. All members of the TAP are aware of their responsibilities, the need to demonstrate impartiality and equity to all Tenderers.

TAP Members

The Evaluation Team will comprise

Position	Name	Title	Agency
Chairperson	Steve Costello	Assistant Secretary, BCD	DoEE
Member	Nicola Webb	Policy Officer	DoEE
Member	Neil Riches	Assistant Director	DoEE
Member	Trudy O'Connor	Policy Officer	DoEE
Probity Adviser	Procurement Section	xx	DEPARTMENT

Members of the Evaluation Team are personally appointed and should not be withdrawn or replaced without the approval of the relevant Assistant Secretary responsible for the procurement.

c. Tender Assessment Panel (TAP) Responsibilities

General

A TAP must be established for any procurement conducted where a Request for Tender will be published on AusTender or, where the size, risk and complexity of the procurement warrants a more robust planning process.

The Department does not specify there be a minimum number of individuals to form a TAP, however a minimum of three members (including the Chair) is recommended. Members of the TAP are personally appointed and should not be withdrawn or replaced without approval of the relevant Assistant Secretary responsible for the procurement.

Each panel member must complete a TAP Conflict of Interest Declaration (Attachment C). All Conflict of Interest Declarations must be kept on file and conflicts monitored, managed and updated as required throughout the evaluation.

All documents and proceedings of the tender are to be secured when not in use by members of the TAP. The disclosure of information contained in responses may prejudice the commercial interests of the Tenderers concerned and the bargaining position of the Commonwealth during subsequent contract negotiations.

All members of the TAP are to be cognisant of their public duty and APS values, in particular, must be able to demonstrate impartiality and equitable treatment of all Tenderers. The TAP will undertake a review of tenders in accordance with this Procurement Plan.

Members of the TAP may submit a minority report, on any aspect of the process, for consideration by the Chairperson of the TAP.

Role of the Project Officer
The Project Officer is the point of contact between the Tenderers and the TAP and anyone otherwise interested in the procurement process in relation to comments, responses or the seeking of more information with respect to the procurement process.

In giving information or otherwise communicating with a Tenderer, the Project Officer must ensure that it does not benefit or disadvantage any Tenderer in any of its communications.

The Project Officer must clear all communication through the Procurement Section who will act as Probity Advisors.

The TAP Members must:

a) conduct all contact with Tenderers on issues relating to the tender, during the tender process; and
b) ensure that all communications with Tenderers and non-Tenderers is undertaken in accordance with probity procedures in relation to communication.

Role of TAP Members
The procurement process must be undertaken in a manner whereby all involved in the procurement process, and particularly those involved in the evaluation and selection processes:

a) act within the limitations of prescribed policies, rules and guidelines;
b) apply rules consistently but not inflexibly;
c) comply with express conditions set out in the Tender documents; and
d) make decisions that are free from external influences.

The TAP will be responsible for:

a) maintaining probity;
b) evaluating the responses in accordance with the criteria and methodology;
c) documenting the evaluation process;
d) preparing an Evaluation Report;
e) seek Chief Executive or Delegate approval to proceed with a contract with the preferred Tenderer; and
f) debriefing unsuccessful Tenderers.

Role of the TAP Chairperson
The TAP Chairperson must:

a) ensure all members are aware of their obligations as outlined in the procurement plan;
b) preside over all TAP meetings and correspondence; and

c) ensure that all communications with Tenderers and non-Tenderers is undertaken in accordance with probity procedures in relation to communication.

d)

External Adviser

It is permissible for an external expert(s) to be brought in to assist with the evaluation of a technical part of the Tenderer's submission. The external expert(s) must sign both a TAP Conflict of Interest Declaration (Attachment C) and Deed of Confidentiality Requirements (Attachment D).

Specialist Advice and Support

The Evaluation Team may, as required, utilise specialist advice to assist in the evaluation process. The areas of experience may include:

a) technical analysis
b) financial assessment;
c) probity; and
d) legal issues.

d. Evaluation Process

(a) Tenders will be assessed on the basis of value for money through the application of the Evaluation Criteria. Value for money is a comprehensive assessment that takes into account both price and the value represented by the assessment of capability and capacity, in the context of the risk profile presented by each tender.

(b) The following outcomes are sought from the successful service provider:

i. Delivery of robust, reusable and accessible ecological monitoring data

ii. Delivery of peer reviewed evaluation

iii. Outreach and communication to build on-ground capability within the Environmental Stewardship Community

iv. Maintenance of the integrity of the contractual relationship the Australian Government maintains with Environmental Stewards

v. Effective partnership building with Environmental Stewards and others within the Natural Resource Management and agricultural communities

vi. Public communication of the outcomes of monitoring and evaluation to support the value of the program

vii. Robust advice which supports Australian Government contract managers and Environmental Stewards to adaptively manage ESP sites

(c) The Evaluation Criteria are set out in the following table:

No.	Evaluation Criteria	Weighting
1.	**Design** (a) the appropriateness and effectiveness of the proposed monitoring and evaluation approach (30%) (b) the appropriateness and effectiveness of the proposed communications and outreach activities (5%) (c) value add through potential linkages with other research projects (5%)	**40%**
2.	**Capability** The skills and capability of the Tenderer, and their staff to provide the goods or services in accordance with the Statement of Requirement.	**30%**
3.	**Capacity** The capacity of the Tenderer to provide the goods or services in accordance with the Statement of Requirement.	**30%**
4.	**Price** All costs, fees, allowances and charges associated with the implementation and completion of contract obligations	**unweighted**
5.	**Risk** Any risks inherent in the tender. For example: • any actual or perceived conflict of interest • level of compliance with this RFT (including the Draft Form of Contract) • adequacy of insurance proposed by the Tenderer • past performance of Tenderer in delivering Australian Government environmental management or monitoring contracts (where relevant)	**unweighted**

The evaluation process has several discrete stages.

The individual stages are as follows:

1. Scrutiny of completeness and compliancy

Submissions that do not provide sufficient information or do not comply with the RFT requirements including satisfying the "Conditions for participation" may be excluded from further consideration at this point.

2. Total technical score evaluation

The first stage of the evaluation is to conduct a comparative evaluation of all compliant tenders for the Design, Capability and Capacity criteria based on the table above.

The outcome of this evaluation will result in a list of Tenderers where the first one listed has the highest score out of 100 and the last one has the lowest score.

The technical score will be derived using the following approach:

1. Assessment of the technical worth of tenders. This will include assessment of:

   the design appropriateness and effectiveness of the proposed monitoring and evaluation approach (Attachment 4 – Proposed Monitoring and Evaluation Approach)

   the appropriateness and effectiveness of proposed communications and outreach activities (Attachment 5 – Proposed Communications and Outreach Activities).

   the Tenderer's capability (Attachment 6 – Capability)

   the Tenderer's capacity (Attachment 7 – Capacity)

2. Financial assessment of tendered prices; and

3. Assessment of best value for money by a comparison of technical worth as against tendered prices and risks associated with tenders, to determine best value for money

   Assessment of risk

   (a) Determination of the proposals level of risk (low, medium or high) based on:

      (i) Any actual or perceived conflict of interest;

      (ii) Level of compliance with this RFT (Including the Draft Form of Contract); and

      (iii) Adequacy of insurance proposed by the Tenderer.

3. Evaluation of overall value for money

Once steps 1-3 are completed a determination of the proposal/s that offers the best value for money is undertaken by the TAP. This may include a preferred Tenderer or a short listing of suitable Tenderers for further negotiation. For short-listed tenders, inspection of facilities, interviewing of key personnel and the gathering of reference information from previous clients may be undertaken.

Non-compliance with the Draft Form of Contract

Non-compliance with the Draft Form of Contract may be referred to negotiations between the parties. All proposed variations proposed by the Tenderer to the Draft Conditions of Contract must be referred to the General Counsel Branch for advice and/or approval.

e. Evaluation Report

The Evaluation Team will prepare the following information for inclusion with the Tender Evaluation Report. This report includes:

(a) background to the process;
(b) the evaluation process, including comments and scores against each criteria;
(c) the order of preference of tenders;
(d) value for money;
(e) proposed methods for management of risks;

(f) identification of any issues which should be resolved by negotiation; and

(g) recommendations to the approving Section 23(1) delegate.

ATTACHMENT A – RISK ASSESSMENT

Department of the Environment and Energy - RISK ASSESSMENT TEMPLATE (Note this is an A3 size page)

Part 1: Activity Identification and Context Analysis

Activity Name	Procurement of ecological monitoring and research services for the Environmental Stewardship Program.			**Outcome**	Outcome 1: Conserve, protect and sustainably manage Australia s biodiversity, ecosystems, environment and heritage through research, information management, supporting natural resource management, establishing and managing Commonwealth protected areas, and reducing and regulating the use of pollutants and hazardous substances.
Type of activity	Project			**Division**	Biodiversity Conservation Division
Date of risk analysis	12/04/2017	**Duration of risk analysis**	2017	**Decision Maker**	Steve Costello **Signature**
Activity Objective and main outcomes	The procurement will identify the most suitable supplier for ecological monitoring services for the Environmental Stewardship Program. The desired outcome is to identify a supplier who delivers the most effective and efficient monitoring approach to enable assessment of the Australian Government's investment in the Environmental Stewardship Program.			**Key Stakeholders**	Contracted Environmental Stewards; The Minister of Environment and Energy; Departmental Executive; science and natural resource management communities; staff contracted through the current contract with the Australian National University for these services.
External Environment Context	Ecological monitoring of the Environmental Stewardship Program has been occuring through an exisitng contract with the Australian National University. s47C There will therefore be a high level of scrunity associated with the evalution of this tender.				

Part 2: Risk Assessment

IDENTIFICATION					ANALYSIS				TREATMENT						
Risk	**Risk Owner**	**Impact**	**Sources of the risk**	**Category**	**Existing controls**	**Risk Rating**			**Risk Response Strategy**	**Proposed risk treatments**	**Due Date**	**Responsible Officer**	**Residual Risk (risk rating after treatment)**		
						Consequence	**Likelihood**	**Rating**					**Consequence**	**Likelihood**	**Rating**
s47C	Steve Costello	Reputational damage to Minister, Portfolio and Department	Stakeholder demands	External Stakeholders	Close involvement with Department's legal section, including engagement of specialist legal support where needed Active monitoring of emerging risks and issues	Moderate	Highly Likely	**High**	Accept	Once the outcomes of the tender evlaution are clear and if the current service provider is not successful, develop a management strategy for this risk. This will include management of Ministerial briefing, any notifications to contracted Environmental Stewards, and media communications required.	July 7, 2017	Fiona Dickson	Moderate	Likely	**Medium**
	Steve Costello	Reputational damage to Minister, Portfolio and Department	Stakeholder demands	External Stakeholders	Close involvement with Department's legal section, including engagement of specialist legal support where needed Active monitoring of emerging risks and issues Tender Evaluation Panel is comprised of personnel with no perceived or actual conflict of interest	Minor	Possible	**Low - No additional treatments required**							**#N/A**

Moderate	Highly Likely	Medium
Pre Treatment Risk		

Moderate	Possible	Low
Post Treatment Risk		

ATTACHMENT B - PROBITY PLAN

1. Probity

The definition of probity encompasses uprightness, honesty, and proper and ethical conduct.

The ability to demonstrate impartiality is integral to the probity of any procurement process. Probity requires that the process must be seen to be equitable to all parties participating in the procurement process.

In the context of Government procurement, probity is about transparency and accountability. Financial management and value for money are the core principles for achieving probity within all procurement processes.

2. Ethical Principles

The principles underpinning ethics and probity in Australian Government Procurement are:

a. Officials must act ethically, in accordance with the APS Values (set out in section 10 of the *Public Service Act 1999*) and Code of Conduct (set out in section 13 of the *Public Service Act 1999*), at all times in undertaking procurement.

b. Officials must not make improper use of their position.

c. Officials should avoid placing themselves in a position where there is the potential for claims of bias.

d. Officials must not accept hospitality, gifts or benefits from any potential suppliers.

e. Agencies must not seek to benefit from supplier practices that may be dishonest, unethical or unsafe.

f. All Tenderers must be treated equitably. This means that all Tenderers must be treated fairly - it does not necessarily mean that they are treated equally.

g. Conflicts of interest must be managed appropriately.

h. Probity and conflict of interest requirements should be applied with appropriate and proportionate measures informed by sound risk management principles.

i. Value for money outcomes are best served by effective probity measures that do not exclude suppliers from consideration for inconsequential reasons.

j. Confidential information must be treated appropriately during and after a procurement process.

k. External probity specialists should only be appointed where justified by the nature of the procurement.

3. Probity Protocols

The Probity Protocols will assist members of the TAP in ensuring the principles outlined in the Buying for the Australian Government policy are upheld during the procurement process.

4. Confidentiality of Information

All personnel involved in the procurement process must be aware that the protection of confidential information and commercially sensitive information (including material received from Tenderers and TAP evaluation documents) is integral to ensuring the probity of the procurement process.

Departmental officers, agents and consultants must comply with the confidentiality and privacy provisions of the:

1. *Public Service Act 1999*; and
2. *Privacy Act 1988*.

Over and above the responsibilities required by these Acts, Departmental officers, agents and consultants must be conscious of and respect the need to protect confidential and commercially sensitive information.

Procedures for the receipt and storage of documentation should be implemented. The key is to ensure that consistent and defensible arrangements are adopted so as to minimise the risk of any security or confidentiality breach.

The disclosure of information contained in responses may prejudice the commercial interests of the companies concerned and the bargaining position of the territory during subsequent contract negotiations.

5. Handling of Documents

Maintaining the highest levels of confidentiality is essential to ensuring the probity and fair dealing within the purchasing process.

Confidentiality is essential at all stages of the process and information should be provided to people outside the TAP only on a 'need to know' basis. The number of persons given access or having access to the information should be kept to an absolute minimum.

Any requests for information regarding the offers and the evaluation should be addressed to the Chairperson of the TAP.

It is fundamental to the probity of the procurement process that any documents given to the Tenderers during the procurement process are consistent and sufficiently comprehensive to permit all Tenderers to be able to make an informed decision about whether to submit a response.

You should at all times observe strict compliance with your broader employment and/or contractual confidentiality obligations. Contractors and consultants may be required to execute a Confidentiality Undertaking using the Deed at Attachment D. Once signed, this should be forwarded to the Project Officer.

6. Conflicts of Interest

TAP members are required to disclose any actual or apparent conflict of interest and take steps to avoid that conflict. The responsibility lies with each TAP member to promptly identify and disclose to the chairperson any actual, perceived or potential

conflicts of interest involving themselves, their immediate family or any other relevant relationship.

All disclosures of conflicts should be fully documented.

CURRENT INCUMBENTS

The Tender Assessment Panel will be not have any pre-existing contact with current incumbents.

AGREEMENTS/UNDERTAKINGS

Where consultants (including Agency Agents) are engaged to provide specialist advice or undertake part of the evaluation of tenders they will be required to sign a Confidentiality Agreement and declare any conflicts of interest.

All Agency officers are required to declare any conflicts of interest.

7. Communication with Tenderers

All communication with organisations external to the TAP are to be approved by the Project Officer and the Procurement Section.

All contact with Tenderers, for example requesting additional information or holding formal interviews, is to be conducted with prior approval of the Project Officer and the Procurement Section.

During the open stage of an approach to market a potential supplier may ask a question regarding the tender. All questions and answers **must** be made available to all potential suppliers. This is to prevent the possibility of advantaging any particular prospective supplier over another.

Any addendums to RFT's must be lodged on AusTender and appropriate consideration should be given as to whether the addendum would require an extension to the closing date of the procurement.

The agency will not answer questions received within 3 business days of the tender closing date for approaches that will be advertised for at least 25 days.

Note: Whilst ensuring probity is maintained during the process, it is equally important to build successful relationships with suppliers with timely and prompt responses, answering all questions directly and offering and accepting feedback during the process.

8. Recording Communication

All communication with Tenderers should be in writing and sent to the Project Officer via ESPMonitoring@environment.gov.au

All communications with Tenderers are to be documented and retained on file. Such communications shall not be revealed except in accordance with this Procurement Plan

or the Conditions, i.e. the Conditions or Tender, published in the relevant procurement process documentation.

9. Business Meetings/Social Functions

You should exercise caution in discussions with Tenderers or potential Tenderers, and you should not discuss any matter relating to the procurement process at all.

Where any party in an unrelated business meeting, conference or social situation seeks to raise issues in respect of current or future aspects of the procurement process, you should indicate that it is not appropriate to discuss such matters and advise the enquirer to contact the Project Officer.

10. Gifts, Hospitality and Other Benefits

You must not seek or receive any gifts, hospitality or any other benefits from any Tenderer of prospective Tenderer. You should immediately inform the Project Officer if offers of gifts, hospitality or other benefits are made. This is to ensure that no perceived or real compromise or conflict of interest exists.

11. Offers of Employment

If you are approached regarding the possibility of employment during the procurement process, you have an obligation to notify the Project Officer. This is so that the TAP can manage the perceptions and overall probity of the procurement process.

ATTACHMENT C – CONFLICT OF INTEREST DECLARATION TEMPLATE

I, *[insert full name]*

of *[insert business address]*

Declare that to the best of my knowledge, I do not have :

1. any financial interest in the *[name subject in issue e.g. Tenderers for XYZ contract]* ("the Subject")
2. any relatives or friends with a financial interest in the Subject
3. Any personal bias or inclination which would in any way affect my decisions in relation to the Subject
4. Any personal obligation, allegiance or loyalty which would in any way affect my decisions in relation to the Subject

(a 'conflict'), except as set out below :

1.
2.
3.
4.
5.
6.
7.
8.
9.

I undertake to make a further declaration detailing any conflict, potential conflict or apparent conflict which may arise during the contract period. Should any conflict appear to compromise me, I agree to abstain from any related decision.

Signed :

Dated :

ATTACHMENT D– DEED OF CONFIDENTIALITY TEMPLATE

DEED OF CONFIDENTIALITY

BY THIS DEED DATED THE ..... day of 20

BETWEEN

Commonwealth of Australia represented by the Department of Environment and Energy, PO Box 621, Canberra, ACT 2601 ABN 34 190 894 983 ("the Commonwealth")

AND

[*Insert name and address for service of Confidant*] ("the Confidant")

RECITALS:

A. The Confidant is employed by [*insert full name of company, ACN number, registered business address*];

B. In the course of the Confidant conducting the [*insert description of Services*] (whether directly or indirectly), the Confidant may become aware of information belonging to or in the possession of the Commonwealth that is confidential.

C. Improper use or disclosure of that information would severely damage the Commonwealth's ability to perform its governmental functions.

D. The Commonwealth requires, and the Confidant agrees, that it is necessary to take all reasonable steps (including the execution of this Deed) to ensure that the Commonwealth's Confidential Information is kept confidential and that the Confidant performs those Services faithfully and without any conflicting interest.

AGREED COVENANTS:

1. RECITALS

The Parties acknowledge the truth and accuracy of the Recitals in every particular.

2. INTERPRETATION

2.1 **Definitions**

In the interpretation of this Deed unless the contrary intention appears or the context otherwise requires or admits the following expressions shall have the following meanings:

"**Confidential Information**" means information that:

(a) is by its nature confidential;

(b) is designated by the Commonwealth as confidential; or

(c) the Confidant knows or ought to know is confidential;
and includes:-

(d) information comprised in or relating to any Intellectual Property Rights of the Commonwealth;

(e) information relating to the financial position of the Commonwealth and in particular includes information relating to the assets or liabilities of the Commonwealth and any other matter that does or may affect the financial position or reputation of the Commonwealth;

(f) information relating to the internal management and structure of the Commonwealth, or the personnel, policies and strategies of the Commonwealth;

(g) information supplied to the confidant or information associated with the Services and any information of the Commonwealth to which the Confidant has access other than information referred to paragraphs (d), (e) and (f) that has any actual or potential commercial value to the Commonwealth or to the person or corporation which supplied that information;

(h) any information relating to the policies, strategies, practices and procedures of the Commonwealth;

(i) any information in the Confidant's possession relating to the Australian Public Service Commonwealth's clients or suppliers, and like information;

but does not include information which:

(j) is or becomes public knowledge other than by breach of the Deed;

(k) is in the possession of the receiving party without restriction in relation to disclosure before the date of receipt from the disclosing party;

(l) has been independently developed or acquired by the receiving party; or

(m) is in respect of ideas, concepts know-how, techniques or methodologies where disclosure is permitted under the Deed;

"**Intellectual Property Rights**" includes copyright, trade mark, design, patent, semiconductor or circuit board layout rights, trade, business or company names, confidential or other proprietary rights, or any rights to registration of such rights, whether created before or after the date of this Deed and whether created in Australia or elsewhere;

"**notice**" means notice in writing given in accordance with this Deed;

"Services" means the Environmental Stewardship Program ecological monitoring and evaluation services

"**writing**" means any mode of representing or reproducing words, figures, drawings or symbols in a visible form delivered, posted or transmitted electronically.

2.2 **General**

Unless the contrary intention appears:

(a) monetary references are references to Australia currency;

(b) the clause and subclause headings are for convenient reference only and have no effect in limiting or extending the language of the provisions to which they refer;

(c) a cross reference to a clause number is a reference to all its subclauses;

(d) words in the singular number include the plural and vice versa;

(e) words importing a gender include any other gender;

(f) a reference to a person includes a partnership and a body whether corporate or otherwise;

(g) a reference to a clause or subclause is a reference to a clause or subclause of this Deed; and

(h) where a word or phrase is given a particular meaning, other parts of speech and grammatical forms of that word or phrase have corresponding meanings.

3. NON DISCLOSURE

3.1 The Confidant must not disclose the Confidential Information to any person without the prior written consent of the Commonwealth.

3.2 The Commonwealth may grant or withhold its consent at its discretion.

3.3 If the Commonwealth grants its consent, it may impose conditions on that consent. In particular, but without limiting the generality of the preceding sentence, the Commonwealth may require that the Confidant procure the execution of a Deed substantially in these terms by the person to whom the Confidant proposes to disclose the Confidential Information.

3.4 If the Commonwealth grants consent subject to conditions, the Confidant must comply with those conditions.

3.5 The obligations of the Confidant under this Deed shall not be taken to have been breached where the Confidential Information is legally required to be disclosed.

4. RESTRICTION ON USE

4.1 The Confidant will use the Confidential Information only for the purpose of its dealings with the Commonwealth (whether directly or indirectly).

5. POWERS OF THE COMMONWEALTH

Production of Documents

5.1 The Commonwealth may demand (without needing to reduce the demand to writing) the delivery up to the Commonwealth of all documents in the possession or control of the Confidant containing the Confidential Information.

5.2 The Confidant must immediately comply with a demand under this clause 5.

5.3 If the Commonwealth makes a demand under this clause 5, and the Confidant has placed or is aware that documents containing the Confidential Information are beyond his or her possession or control, then the Confidant must provide full particulars of the whereabouts of the documents containing the Confidential Information, and the identity of the person in whose custody or control they lie and an authority to obtain the documents.

5.4 In this clause 5, "documents" includes any form of storage of information, whether visible to the eye or not.

Legal Proceedings

5.5 The Confidant acknowledges that the Commonwealth may take legal proceedings against the Confidant or third parties if there is any actual, threatened or suspected breach of this Deed, including proceedings for an injunction to restrain such breach.

6. SURVIVAL

6.1 This Deed will survive the termination, suspension or completion of the Services.

1. CONFLICT OF INTEREST

1. The Confidant warrants that before entering into this Deed it has disclosed to the Commonwealth all the past, current and anticipated interests of the Confidant which may conflict with or restrict the Confidant in performing Services to the Commonwealth fairly and independently.

2. The Confidant shall not during the course of this Deed engage in any activity or obtain any interest likely to conflict with or restrict the Confidant in providing Services to the Commonwealth fairly and independently and shall immediately disclose to the Commonwealth such activity or interest.

8. WAIVER

8.1 No waiver by the Commonwealth of one breach of any obligation or provision herein contained or implied shall operate as a waiver of another breach of the same or of any other obligation or provision herein contained or implied.

9. REMEDIES CUMULATIVE

9.1 The rights and remedies provided under this Deed are cumulative and not exclusive of any rights or remedies provided by law or any other such right or remedy.

10. VARIATIONS AND AMENDMENTS

10.1 No term or provision of this Deed may be amended or varied unless such amendment or variation is reduced to writing and signed by the parties in the same manner as this instrument.

11. APPLICABLE LAW

11.1 This Deed shall be governed and construed in all respects in accordance with the law of Australian Capital Territory.

12. NOTICES

12.1 A notice or other communication which may be given to or served on the Confidant under this Deed shall be deemed to have been duly given or served if it is in writing signed by the Commonwealth and is either delivered by hand, posted or a copy transmitted electronically to the Confidant at any registered office of the Confidant or posted to the Confidant's address set out herein or such other address as may be notified in writing to the Commonwealth from time to time.

12.2 A notice or other communication which may be given to or served on the Commonwealth under the Deed shall be deemed to have been duly given or served if it is in writing, signed by or on behalf of the Confidant and is either delivered by hand, posted or a copy transmitted electronically to the Commonwealth at the address set out herein or such other address as may be notified in writing to the Confidant from time to time.

12.3 A notice sent by post shall be deemed to have been given at the time when, in due course of transmission, it would have been delivered at the address to which it is sent.

12.4 A notice sent by facsimile transmission or transmitted electronically shall be deemed to have been given when the machine on which the notice is sent reports in writing that the notice has been transmitted satisfactorily.

Executed as a Deed

SIGNED SEALED AND DELIVERED)
)
by .....) .....
[*insert name of Commonwealth representative*]) (signature of Commonwealth representative)
)
in the capacity as .....)
[insert Position])
)
in the presence of .....)
[*insert name of Witness*])
)
)
.....
(signature of Witness))

SIGNED SEALED AND DELIVERED)
)
by .....)
[*insert name of Confidant*]) .....
) (signature of Confidant)
in the presence of .....)
[*insert name of Witness*])
)
)
.....
(signature of Witness))

FOI 180106
Document 5

DEPARTMENT OF THE ENVIRONMENT AND ENERGY

PDR:

To: Kylie Jonasson, First Assistant Secretary, Biodiversity Conservation Division (for approval)

Through: Steve Costello, Assistant Secretary, Program Delivery Branch

ESP ECOLOGICAL MONITORING BRIEF-SECTION 23(3) VARIATION-SEPT 2017

Timing: 27 September 2017 - to enable the services agreement to be signed and executed by Friday 29 September 2017.

Recommendation/s:

1. That you approve the allocation of an additional $92,248 (GST exclusive) from the Environmental Stewardship Program appropriation towards the procurement of the Ecological Monitoring and Evaluation Services (2017/18 to 2022/23) for the Environmental Stewardship Program.

Approved / Not approved

Kylie Jonasson, First Assistant Secretary

Date: 27/9/2017

Comments:

Clearing Officer: Sent 27/9/2017	Steve Costello	Assistant Secretary, Program Delivery Branch	Ph: 02 6159 7308 Mob: s22
Contact Officer:	s22	Monitoring and Reporting	Ph: 02 6275 s22 Mob: s22

Key Points:

1. The Department recently conducted an open tender process for the Environmental Stewardship Program (ESP) Ecological Monitoring and Evaluation Services. These services will occur over a six year period, from September 2017 to June 2023.
2. CSIRO has been identified as the preferred supplier and contract negotiations are currently under way. The price quoted by the preferred supplier is higher than the $1,200,000 (GST exclusive) ESP funding originally approved for the monitoring services.
3. This brief seeks PGPA Act subsection 23(3) approval for the allocation of an additional $92,248 (GST exclusive) from the ESP appropriation to go towards the procurement of ESP Ecological Monitoring and Evaluation Services.
4. The additional $92,248 funding is available as follows:
   a. In May 2017, you approved the allocation of $1,200,000 (GST excl.) from the ESP appropriation for the procurement of ESP ecological monitoring services. The total

funding available at that time was $1,251,000 (GST excl.). Approval to use the remaining $51,000 (GST excl.) for ESP monitoring is now sought.

b. An additional $41,248 (GST excl.) has recently become available from the ESP appropriation due to a funding reduction in an ESP landholder contract.

5. If approved, the total funding for this procurement would be $1,292,248, as per the following table:

ESP Appropriation – available funding	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Previous (as at May 2017)	$195,000	$200,000	$204,000	$212,000	$217,000	$223,000	**$1,251,000 ($1,200,000) ***
Revised (as at September 2017)	$202,847	$205,616	$211,161	$218,909	$223,654	$230,062	**$1,292,248**
Difference	$7,847	$5,616	$7,161	$6,909	$6,654	$7,062	**$41,248 ($92,248)**

* $1,200,000 was approved under PGPA Act s23(3) in May 2017.

6. On your approval of the proposed increase in allocation of ESP funds towards this procurement, an electronic PGPA Act subsection 23(3) approval request will be directed to you through the Procure to Pay system.

7. The total spending proposal of $1,292,248 (GST excl.) is within the scope of your delegation.

Consultation: YES

8. The AAA Team has been consulted during development of this brief.

ATTACHMENTS

A: Signed brief: Section 23(3) approval for the ESP ecological monitoring project (approved 16 May 2017)

Home Closed ATM View - 2000002148

Closed ATM View - 2000002148

Environmental Stewardship Program Ecological Monitoring and Evaluation Services

Contact Details

RFT Officer

P: 02 6275 9600

E: ESPMonitoring@environment.gov.au

ATM ID:	2000002148
Agency:	Department of the Environment and Energy
Category:	77100000 - Environmental management
Close Date & Time:	26-Jun-2017 3:00 pm (ACT Local Time) Show close time for other time zones
Publish Date:	29-May-2017
Location:	NSW, QLD
ATM Type:	Request for Tender
APP Reference:	DotEE_16_17_BCD_01
Multi Agency Access:	No
Panel Arrangement:	No

Description: The Department of the Environment and Energy has a requirement for ecological monitoring and evaluation of the environmental condition of contracted Environmental Stewardship Program (ESP) properties in New South Wales and Queensland. The monitoring and evaluation will assess the effectiveness of management actions in achieving improvements in the ecological condition of threatened ecological community remnants on ESP sites. The ecological monitoring will also support adaptive management on contracted ESP properties through ensuring that management actions contracted through the program address local and contemporary environmental conditions and challenges. The services will also include some additional outreach and communications activities.

Conditions for Participation: 1. The Tenderer and any subcontractors proposed in the tender must not be named as not complying with the Workplace Gender Equality Act 2012.
2. The Tenderer must exist as a legal entity at the Closing Time.
3. The Tenderer confirms that in dealing with its employees and independent contractors, the Tenderer has due regard to Commonwealth legislation and policies on the engagement of workers and complies with Commonwealth legislation and policies on the engagement of workers, including the Fair Work Act 2009 (Cth), the Fair Work (Transitional Provisions and Consequential Amendments) Act 2009 (cth) and obligations under relevant occupational health and safety laws.
4. The Tenderer and any subcontractors proposed in the tender are not insolvent, bankrupt, in liquidation, or under administration or receivership
5. The Tenderer, and any party proposed by

	the Tenderer to provide any of the Services, must not at the time of tender be listed as terrorists under section 15 of the Charter of the United Nations Act 1945 (Cth). A consolidated list of such persons, entities and associated assets is maintained by the Department of Foreign Affairs and Trade under the Charter of the United Nations (Dealing with Assets) Regulations 2008 (Cth)
Timeframe for Delivery:	The contract is expected to commence in late July / early August 2017 and conclude on 30 June 2023.
Address for Lodgement:	www.tenders.gov.au

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Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER

RFT Number: 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

Commonwealth of Australia as represented by the Department of the Environment and Energy

ABN 34 190 894 983 (**Department**)

Biodiversity Conservation Division

Any questions regarding this RFT should be addressed to:

ESPMonitoring@environment.gov.au

Lodgement of tenders

Closing Time: **3.00pm**, local time in Canberra on **26 June 2017** (Closing Time)

Tenders must be lodged electronically using AusTender

Tenderers may wish to refer to *Selling to the Australian Government: A guide for business*, available from http://www.finance.gov.au/publications/selling-to-the-australian-government/index.html

Request for Tender

General Information

1. Background to this Request For Tender (RFQ)

The Environmental Stewardship Program (ESP) is the Australian Government's largest, long-term investment in environmental management of nationally threatened ecological communities on private land (approximately $147.2 million over 20 years).

The Australian Government currently maintains 219 contracts with private land owners to manage two threatened ecological communities listed under *The Environment Protection and Biodiversity Conservation Act 1999* in New South Wales and Queensland. The two nationally listed threatened ecological communities targeted by ESP are *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Grassy Woodland) and *Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland* (Natural Grasslands).

Conservation management actions funded under ESP can include:

- conservation grazing
- stock exclusion
- cessation of cultivation / fertilisation
- retention of environmental features such as bush rock, standing and fallen timber
- restoration of native vegetation species indigenous to the listed threatened ecological communities
- feral animal management
- management of native herbivores
- biomass control measures (through mechanical means or fire)
- fire regime management

Further information about the Environmental Stewardship Program and current monitoring can be found on the Department's NRM website. In addition, NRM Knowledge Online contains historical documents, such as the ESP Strategic Framework, Land Manager information booklets for all program rounds and independent reviews of the program.

The Department of the Environment and Energy has a requirement for ecological monitoring and evaluation of the environmental condition of contracted ESP properties in New South Wales and Queensland. The monitoring and evaluation will assess the effectiveness of management actions in achieving improvements in the ecological condition of threatened ecological community remnants on ESP sites. The ecological monitoring will also support adaptive management on contracted ESP properties through ensuring that management actions contracted through the program address local and contemporary environmental conditions and challenges. The services will also include some additional outreach and communications activities.

The evidence-base developed through this monitoring may inform future Natural Resource Management initiatives on private land. In addition, the data collected through ecological monitoring of this program is intended to be used for improved threatened species distribution mapping, incorporation into national environmental condition maps and state of the environment reporting, as well as deployed in natural resource management prioritisation.

The data collected through this program will form one of the largest, long-term consistent ecological condition data sets on conservation managed lands in Australia

Accordingly, the Department invites suitably qualified research institutions and service providers to submit a tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services.

2. Scope of requirement.

(a) The Department of the Environment and Energy wishes to contract ecological monitoring and evaluation services for a six year period from 2017/18 to 2022/23.

(b) In summary, the services and deliverables being procured will be comprised of the following core components:

- (i) Finalisation of:
  - i. a Project Plan
  - ii. a Monitoring and Evaluation Plan
- (ii) On-ground ecological monitoring services
- (iii) Evaluation and reporting
- (iv) Communications and outreach activities
- (v) Advice to the department
- (vi) Progress reporting
- (vii) Progress meetings
- (viii) Project management

(c) Note, the Australian Government may contract ecological monitoring services on up to 219 ESP properties depending on the sampling methodologies and costs proposed. There may be multiple monitoring sites on any single ESP property, including controls. To date, the Australian Government has funded monitoring on approximately 60% of the 219 ESP properties over the past eight years. However, the approach must be scalable.

(d) The geographic spread of ESP sites is provided at *Appendix A*. The Shape file is available at *Appendix B.*

(e) Any contract entered into as a result of this RFT will be based on the Draft Form of Contract. However, the Department may vary the terms and conditions (see clause 26(a)).

(f) The Department's requirements are set out in detail in Schedule 1.

3. About this document

(a) This RFT is made up of:

- (i) the clauses, which set out the conditions applying to the RFT process;
- (ii) Schedule 1, which sets out the Statement of Requirement; and
- (iii) the Attachments, which set out the information Tenderers need to include in their tenders

(b) A checklist is provided in Attachment 1 to assist Tenderers in preparing and submitting their tenders.

(c) The dictionary in clause 30 provides definitions of words and phrases used in this RFT.

(d) Where this RFT provides that the Department 'may' do a thing, it may do so in its absolute discretion.

4. AusTender, the Australian Government Tender System

(a) AusTender is the Australian Government's procurement information system. Access to and use of AusTender is subject to terms and conditions. In participating in this Approach to Market (**ATM**) process, Tenderers must comply with those terms and conditions and any applicable instructions, processes, procedures and recommendations as advised on AusTender at: https://www.tenders.gov.au/?event=public.termsOfUse.

(b) All queries and requests for technical or operational support must be directed to:

AusTender Help Desk
Telephone: 1300 651 698
International: +61 2 6215 1558
Email: tenders@finance.gov.au

The AusTender Help Desk is available between 9am and 5pm ACT Local Time, Monday to Friday (excluding ACT and national public holidays).

5. Further information about this RFT

(a) Tenderers should direct any questions arising during the preparation of a tender or requests for clarification in writing to ESPmonitoring@environment.gov.au

(b) The Department may refuse to answer any question received less than three business days before the Closing Time.

(c) Where appropriate, the Department will circulate questions and answers to all other Tenderers without disclosing the source of the questions or revealing the substance of a proposed tender.

(d) If a Tenderer finds any discrepancy, error or omission in this RFT, it should notify the Department in writing before the Closing Time.

6. Registered Tenderers and Notices

(a) In the event that the Department elects to vary or supplement this RFT or change the conditions of tender, it will make reasonable efforts to inform Tenderers in accordance with this clause.

(b) Tenderers may be informed by notices and other information issued as addenda posted on this RFT page on AusTender.

(c) Tenderers who have registered and downloaded the tender documentation will be notified by AusTender via email of any addendum issuance. It is in the interests of Tenderers to ensure they have correctly recorded their contact details prior to downloading tender documentation. If Tenderers have not recorded their details correctly, they should amend their details and download the tender documentation again.

(d) Tenderers are required to log in to AusTender and collect addenda as notified.

(e) The Commonwealth will accept no responsibility if a Tenderer fails to become aware of any addendum notice which would have been apparent from a visit to the AusTender page for this RFT.

(f) If a Tenderer has obtained tender documentation other than from AusTender, they must visit AusTender, register as a user and download the tender documentation for this RFT.

What Tenderers need to do

7. Tenderer behaviour

(a) Tenderers must not, and must ensure that their officers, employees, agents and advisors do not, in relation to the preparation, lodgement or assessment of tenders:

(i) make false or misleading claims or statements;

(ii) improperly obtain confidential information;

(iii) receive improper assistance;

(iv) engage in collusive tendering, anti-competitive conduct or other similar conduct with any other Tenderer or other person; or

(v) attempt to improperly influence an officer of the Department or approach any Commonwealth officer other than in the manner set out in clause 5(a).

(b) Note that the Department may exclude a tender from consideration if the Tenderer fails to comply with these requirements.

8. Industry briefing

Unless otherwise notified by an addendum (see clause 6), there are no industry briefing sessions for this RFT.

9. Seek own advice

This RFT is not business, investment, legal or tax advice. Tenderers should seek their own independent professional advice in respect of all matters in connection with this RFT.

10. Bear own costs

(a) All expenses and costs incurred by a Tenderer in connection with this RFT, including preparing and lodging a tender, providing the Department with further information, giving presentations, attending interviews and participating in any subsequent negotiations, are the sole responsibility of the Tenderer.

(b) The Department is not liable for any costs or other compensation in relation to the consideration of this RFT, lodgement of any tender or participation in the RFT process by any Tenderers where the Department takes any action permitted under this RFT, including any exercise of the Department's rights under clause 26.

(c) The tender acknowledges that the Department is not liable for any loss, damage, cost or expense incurred by Tenderers or any other person if, for any reason, a

tender or any other material or communication relevant to this RFT is not received on time, is corrupted or altered or otherwise not received as sent, cannot be read or decrypted, or has its security or integrity compromised.

11. Satisfy the Conditions for Participation

(a) To submit a tender, the Tenderer must satisfy the Conditions for Participation (ie mandatory requirements). If a Tenderer does not satisfy the Conditions for Participation, the tender will be excluded from consideration (see clause 16).

(b) The Conditions for Participation are set out in the following table:

No.	Condition for Participation
1.	The Tenderer and any subcontractors proposed in the tender must not be named as not complying with the *Workplace Gender Equality Act 2012.*
2.	The Tenderer must exist as a legal entity at the Closing Time.
3.	The Tenderer confirms that in dealing with its employees and independent contractors, the Tenderer has due regard to Commonwealth legislation and policies on the engagement of workers and complies with Commonwealth legislation and policies on the engagement of workers, including *the Fair Work Act 2009 (Cth), the Fair Work (Transitional Provisions and Consequential Amendments) Act 2009 (cth)* and obligations under relevant occupational health and safety laws.
4.	The Tenderer and any subcontractors proposed in the tender are not insolvent, bankrupt, in liquidation, or under administration or receivership
5.	The Tenderer, and any party proposed by the Tenderer to provide any of the Services, must not at the time of tender be listed as terrorists under section 15 of the *Charter of the United Nations Act 1945* (Cth). A consolidated list of such persons, entities and associated assets is maintained by the Department of Foreign Affairs and Trade under the *Charter of the United Nations (Dealing with Assets) Regulations 2008* (Cth)

11.1 Compliance with the *Workplace Gender Equality Act 2012 (Cth)*

(a) Commonwealth policy prevents the Commonwealth from entering into contracts with suppliers who are non-compliant under the *Workplace Gender Equality Act 2012 (Cth)* (the **WGE Act**). The Draft Contract requires that, in performing any contract, a successful Tenderer must:

(i) comply with its obligations, if any, under the WGE Act; and
(ii) If the Term of the Contract exceeds 18 months, the successful Tenderer must provide a current letter of compliance within 18 months from the Contract Commencement Date and following this, annually to the Contract Manager.

(b) Successful Tenderers should note that if during the term of the Contract, the Supplier becomes non-compliant with the WGE Act, the Supplier must notify the Contract

Manager. For further information about coverage of the WGE Act, contact WGEA on (02) 9432 7000.

(c) Tenderers must indicate as part of the Tenderers response at Attachment 2 – Tenderer Response Form, whether or not the organisation is a 'relevant employer' under the WGE Act and, if applicable, provide a current letter of compliance as part of their Tender submission, or prior to entering into contract.

12. What the tender needs to include

12.1 Satisfy the Minimum Content and Format Requirements

(a) Tenders must satisfy the Minimum Content and Format Requirements (ie mandatory requirements). Subject to clause 12.1(b), if a tender does not satisfy the Minimum Content and Format Requirements, it will be excluded from consideration (see clause 16).

(b) The Minimum Content and Format Requirements are set out in the following table:

No.	Minimum Content and Format Requirement
1.	The Tenderer must complete and sign the Tender Response Form (Attachment 2) in the format provided.
2.	The tender must be written in English
3.	Measurements are expressed in Australian legal units of measure

12.2 Use the Attachments

(a) A tender should include the following documents:

(i) a completed checklist in the form of Attachment 1;

(ii) a completed Tenderer response form in the form of Attachment 2;

(iii) documents including the information required by each other Attachment to this RFT.

If the tender does not include a document addressing the information on insurance as required by Attachment 9, the Tenderer is taken to confirm that it and any subcontractors can meet the proposed insurance requirements set out in Attachment 9.

(b) If the tender does not include a document addressing the information on compliance as required by Attachment 10, the Tenderer is taken to agree with all provisions of the Draft Form of Contract.

(c) If the tender does not include a document addressing the information on confidentiality as required by Attachment 11, the Tenderer is taken to agree that none of the information in its tender is confidential.

12.3 Alternative tenders

(a) A Tenderer must submit a tender that complies with the requirements of this RFT. However, the Tenderer may also submit an alternative tender provided that a compliant tender is also submitted. If a Tenderer submits an alternative tender,

the advantages, disadvantages, limitations and capabilities of the alternative tender should be clearly stated.

12.4 Consortium tenders

(a) A consortium may submit a tender on the basis that one legal entity will take full responsibility. The tender should provide full details of that legal entity, the consortium members and any proposed subcontractors.

13. When to lodge the tender

(a) Tenders must be lodged before the Closing Time.

(b) Any attempt to lodge a tender electronically after the Closing Time will not be permitted by AusTender. Such a tender shall be deemed to be a late tender.

(c) The judgement of the Department as to the time a tender has been lodged will be final. In particular:

(i) For tenders submitted electronically, the time displayed on AusTender is deemed to be the correct time and will be the means by which the Department will determine whether tenders have been lodged by the Closing Time; and

(i) only tender files which have been uploaded in full and lodged with the tender by the Closing Time will be considered.

(d) Any tender lodged after the Closing Time or received at any location (including any Department location) after the Closing Time (other than through AusTender) will be deemed to be a late tender. The Department will not accept a late tender, unless the tender is late solely because of the Department's own mishandling.

(e) The Closing Time can only be extended by the Department issuing an addendum in accordance with clause 6.

14. How to lodge the tender

14.1 Electronic lodgement

(a) Tender responses must be lodged electronically via AusTender before the Closing Time and in accordance with the tender response lodgement procedures set out in this ATM documentation and on AusTender.

14.2 Tender Closing Time and Date

(a) Tender responses must be lodged before the Closing Time.

(b) The Closing Time will also be displayed in the relevant AusTender webpage together with a countdown clock that displays in real time the amount of time left until Closing Time (For more information please see AusTender Terms of Use). For the purposes of determining whether a tender response has been lodged before the Closing Time, the countdown clock will be conclusive.

14.3 Preparing to Lodge a Tender Response – Tender File formats, naming conventions and sizes

(a) The Department will accept tender responses lodged in Microsoft Word 2000 (or above), Microsoft Excel 2000 (or above) or PDF format.

(b) The tender response file name/s:

(i) Should incorporate the Tenderer's company name; and

(ii) Should reflect the various parts of the bid they represent, where the tender response comprises multiple files.

(c) Tender response files **must** not exceed a combined file size of **5** megabytes per upload.

(d) Tender responses must be completely self-contained. Hyperlinks to references can be included if they are to publically accessible websites.

14.4 Scanned or Imaged Material, including Statutory Declarations

(a) In the event that a Tendering Department require clarification of the Tenderer's tender response, the Tenderer may be required to courier or security post the originals of the signature and/or initialled pages to Department at the address specified at Clause 14.5 within five business days of the Closing Time and date specified in Clause 14.2(a).

14.5 Address for the lodgement of supporting material and/or Scanned or Imaged Material, including Statutory Declarations

(a) In the event that a Tenderer is required to provide supporting material in accordance with Clause 14.3(d) or Scanned or Imaged Material, including Statutory Declarations in accordance with Clause 14.4(a) the address for requesting lodgement is:

RFT Officer
ESPMonitoring@environment.gov.au

(b) If a Tenderer intends to lodge supporting material in accordance with Clause 14.3(d) the Tenderer must indicate this intention at Attachment 2 (Tender Response Form).

15. After lodging the tender

15.1 Correcting tenders or providing additional information

(a) If, after lodgement, a Tenderer becomes aware of any discrepancy, error or omission in its tender, it may submit a correction or provide additional information. The correction or additional information must be provided by the Closing Time by lodging it electronically using AusTender.

15.2 Tender validity period

(a) In lodging a tender, the Tenderer acknowledges that its tender remains valid and open for acceptance by the Department for a period of six months from the Closing Time.

15.3 Ownership of tender documents

(a) All tender documents become the property of the Department on lodgement. However, subject to clause 15.3(b), ownership of the intellectual property in the tender documents will remain unchanged.

(b) The Department may use and copy the tender documents as it requires for the purposes of the RFT process, evaluating tenders, negotiating and preparing an agreement, audit requirements and complying with governmental and parliamentary reporting requirements including requests for information by Parliament or Parliamentary Committees.

15.4 Publicity

(a) Tenderers must not furnish any information, make any statement or issue any document or other written or printed material concerning the acceptance of any tender in response to this RFT for publication in any media without the prior written approval of the Department.

Department's evaluation process

16. Step 1 – Screening

(a) The Department will screen all tenders received for completeness, unintentional errors of form, clarity and compliance with this RFT.

(b) The Department will exclude a tender from consideration if:

(i) subject to clause 13, the tender is lodged after the Closing Time;

(ii) the Tenderer does not satisfy the Conditions for Participation;

(iii) subject to clause 12.1, the tender does not satisfy the Minimum Content and Format Requirements;

(iv) the tender includes electronic files that cannot be read or decrypted;

(v) the tender is lodged electronically and is found to contain a virus, worm or other disabling feature; or

(vi) the Department believes the tender potentially contains any virus, malicious code or anything else that might compromise the integrity or security of AusTender and/or the Department's computing environment.

(c) The Department may at any time exclude a tender from consideration if:

(i) the tender is incomplete;

(ii) prices are not clearly and legibly stated;

(iii) the Tenderer or tender does not comply with this RFT;

(iv) the Tenderer is not fully capable of undertaking a contract in the form of the Draft Form of Contract;

(v) the tender is clearly uncompetitive when compared with the other tenders received;

(vi) the tender is rated unsuitable or unsatisfactory against one or more of the Evaluation Criteria; or

(vii) the Tenderer does not substantially comply with the Draft Form of Contract.

17. Step 2 – Evaluating remaining tenders

(a) Tenders will be assessed on the basis of value for money through the application of the Evaluation Criteria. Value for money is a comprehensive assessment that takes into account both price and the value represented by the assessment of capability and capacity, in the context of the risk profile presented by each tender.

(b) The Evaluation Criteria are summarised in the following table:

No.	Evaluation Criteria	Weighting
1.	**Design** a. the appropriateness and effectiveness of the proposed monitoring and evaluation approach (30%) b. the appropriateness and effectiveness of the proposed communications and outreach activities (5%) c. value add through potential linkages with other research projects (5%)	**40%**
2.	**Capability** The skills and capability of the Tenderer, and their staff to provide the goods or services in accordance with the Statement of Requirement. The Tenderer should address the detail as set out in Attachment 6.	**30%**
3.	**Capacity** The capacity of the Tenderer to provide the goods or services in accordance with the Statement of Requirement as set out in Attachment 7.	**30%**
4.	**Price** All costs, fees, allowances and charges associated with the implementation and completion of contract obligations	**unweighted**
5.	**Risk** Any risks inherent in the tender. For example: • any actual or perceived conflict of interest • level of compliance with this RFT (including the Draft Form of Contract) • adequacy of insurance proposed by the Tenderer • past performance of Tenderer in delivering Australian Government environmental management or monitoring contracts (where relevant)	**unweighted**

(c) Tenders will be evaluated using the following approach:

(i) Assessment of the technical worth of tenders. This will include assessment of:

- the design appropriateness and effectiveness of the proposed monitoring and evaluation approach (Attachment 4 – Proposed Monitoring and Evaluation Approach)
- the appropriateness and effectiveness of proposed communications and outreach activities (Attachment 5 – Proposed Communications and Outreach Activities).
- the Tenderer's capability (Attachment 6 – Capability)
- the Tenderer's capacity (Attachment 7 – Capacity)

(ii) Financial assessment of tendered prices; and

(iii) Assessment of best value for money by a comparison of technical worth as against tendered prices and risks associated with tenders, to determine best value for money.

(d) The Department is not obliged to accept the lowest priced tender. Value for money involves assessing various factors over the entire procurement cycle.

18. Additional steps

18.1 Clarification, additional information and corrections

(a) After the Closing Time, the Department may engage in any discussions with, or seek clarification on any matter from, any Tenderer.

(b) The Department may require a Tenderer to submit additional information to allow further consideration of its tender.

(c) If the Department considers that there is an unintentional error of form in a tender, the Department may give the Tenderer an opportunity to correct the error. If the Department gives a Tenderer an opportunity to correct an unintentional error of form, it will give the same opportunity to all Tenderers in the same position.

18.2 Independent enquiries

(a) The Department may make independent enquiries about any of the matters that may be relevant to the evaluation of any tender.

(b) The Department reserves the right to contact Tenderers' referees, or any other person, directly and without notifying Tenderers.

18.3 Short listing

The Department may short list tenders at any time.

18.4 Presentations, interviews, site visits and samples

(a) Some or all Tenderers may be required to give a presentation.

(b) Some or all Tenderers may be required to attend an interview.

(c) The Department may undertake a visit to some or all Tenderers' sites as part of its evaluation process.

(d) Some or all Tenderers may be required to provide samples for inspection or testing by the Department.

(e) The requirements, if any, for Tenderer presentations, interviews, site visits or samples will be notified to the relevant Tenderers by the Department after the Closing Time.

18.5 Security, probity and financial checks

(a) The Department may conduct such security, probity and financial (including credit) checks as it deems necessary on Tenderers, their partners, associates or related entities (including consortium members) or their officers or employees, for the purpose of evaluating tenders or at any other stage of the RFT process. These checks may require individuals to sign forms verifying information relating to that individual and authorising the provision of confidential or personal information.

(b) Tenderers must provide, at their own cost, all reasonable assistance required by the Department in undertaking and conducting the security, probity and financial checks.

(c) The Department reserves the right to request financial statements and other information relevant to determining the financial viability of Tenderers, their partners, associates, or related entities including consortium members.

19. Negotiations with Tenderers

(a) After the Closing Time, the Department may enter into negotiations with any one or more Tenderers.

(b) Without limiting clause 19(a), during the negotiations the Department may engage in detailed discussions with the goal of maximising the benefits to the Department, as measured using the Evaluation Criteria.

(c) Without limiting its other rights under this RFT, if in the Department's view during final negotiations a preferred Tenderer retracts, or attempts to retract, agreements under which material business, financial, technical and legal issues were resolved during negotiations, the Department may reject the preferred Tenderers tender, discontinue negotiations with that Tenderer, re-enter negotiations with other Tenderers (including or excluding the preferred Tenderer), and exercise any other right the Department has under this RFT, at law or otherwise.

20. Execution of formal agreement

(a) Nothing in this RFT, or the submission of any tender in response to it, or any conduct or statement whether before or after the issue of this RFT constitutes a contract, express or implied, with the Department. The Department intends that no contract will be formed unless and until the Department signs a formal contract with a preferred Tenderer.

(b) The Department will require the execution of a formal contract and a preferred Tenderer must, within seven days after being required in writing by the Department to do so, execute such a contract based on the Draft Form of Contract.

(c) If the circumstances of the RFT process give rise to a pre-award contract, contrary to clause 20(a), the Department’s liability for breaching the pre-award contract is limited to expenditure reasonably incurred by the relevant Tenderer in tendering for this project, and does not include liability for any loss of profits or opportunity, or any other losses of the Tenderer.

21. Advice to unsuccessful Tenderers and opportunity for debriefing

(a) After the end of the RFT process, the Department will notify each unsuccessful Tenderer that its tender has not been accepted, and will offer the opportunity for a debriefing (at the time and in the manner the Department reasonably determines).

General conditions

22. Ownership of RFT documents

(a) All documents comprising this RFT remain the property of the Department. Each Tenderer is permitted to use them for the purpose only of compiling a tender and, where relevant, negotiating the terms of an agreement with the Department.

(b) All copyright and other intellectual property rights contained in this RFT are and remain vested in the Department and any third party who has given the Department permission to incorporate them in this RFT.

23. Return or destruction of Department's information

The Department may, at any stage, require all written or electronically stored information (whether confidential or otherwise and without regard to the type of media on which such information was provided to any Tenderer) provided to Tenderers (and all copies of such information made by Tenderers) to be:

(a) returned to the Department – in which case the Tenderer must promptly return all such information to the address identified by the Department; or

(b) destroyed by the Tenderer – in which case the Tenderer must promptly destroy all such information and provide the Department with written certification that the information has been destroyed.

24. Important notices about this RFT

(a) Tenders are made on the basis that each Tenderer acknowledges that:

(i) it has examined the RFT, any documents referred to in it, and any other information made available in writing by the Department to Tenderers for the purpose of participating in the RFT process;

(ii) this RFT is designed to summarise information concerning the Department's requirement only and is not necessarily a comprehensive description of it;

(iii) to the maximum extent permitted by law, neither the Department, nor its employees, advisers or agents will in any way be liable to any person or body for any cost, expense, loss, claim or damage of any nature arising in any way out of or in connection with the statements, opinions, projections, forecasts or other representations, actual or implied, contained in or omitted from this RFT or by reason of any reliance on them by any person or body;

(iv) it has sought and examined all necessary information which is obtainable by making reasonable enquiries relevant to the Department's requirement including the risks and other circumstances which may affect a tender;

(v) in lodging its tender, it did not rely on any express or implied statement, warranty or representation, whether oral, written, or otherwise made by or on behalf of the Department other than as expressly contained in this RFT or an addendum to this RFT issued by the Department;

(vi) it did not use the improper assistance of Department employees;

(vii) it has satisfied itself as to the correctness and sufficiency of its tender; and

(viii) it will comply with the terms and conditions set out in this RFT.

(ix) The Department believes the contents of this RFT to be accurate at the date of this RFT. The accuracy of any statements, opinions, projections, forecasts, representations or other information (Statements) contained in this RFT may change. Where any Statement relates to future matters, no steps have been taken to verify that the Statement is based on reasonable grounds, and, to the maximum extent permitted by law, no representation or warranty, expressed or implied, is made by the Department, or any of its officers, employees, advisers or agents that the Statement is accurate.

25. Disclosure of tender information

25.1 Freedom of information

(a) Tenderers should be aware that the Department is subject to the operation of the Freedom of Information Act 1982 (Cth) (FOI Act), which allows public access to Government documents. If this is of concern, the FOI Act provides avenues for submissions to be made that particular information about the business, commercial or financial affairs of an entity or undertaking should not be disclosed.

25.2 Disclosure of contracts

(a) The Department is subject to a number of specific requirements, which support internal and external scrutiny of its tendering and contracting processes. These include:

(b) the requirement to publish details of its agreements, Commonwealth contracts and standing offers with an estimated liability of $10,000 or more in AusTender;

(c) the requirement to report a list of contracts valued at $100,000 or more and to identify confidentiality requirements in accordance with the Senate Order on Department and Department Contracts; and

(d) the requirement to publish information about certain procurements in Annual Reports.

25.3 Sub-contractors

(a) The Department is required under the Commonwealth Procurement Rules to make available on request by any person the details of any subcontractors engaged by a contractor in the performance of a Commonwealth contract for procurement.

(b) In submitting a response to this RFT, a Tenderer will be confirming that it consents to the public disclosure of the name, ABN and address of, and work to be performed by, a subcontractor, and that all proposed subcontractors have consented to the disclosure of this information, if the Tenderer is selected to enter into a contract with the Department for the provision of the goods or Services described in this RFT.

25.4 Confidentiality

(a) Tenderers may specify information contained in their tender that they consider to be confidential information, and subject to this clause 25.4, the Department will treat such information as confidential, and will only use that information for the purposes of the RFT process.

(b) The Department may, without the need to notify any Tenderer, disclose or allow the disclosure of, at any time, any information provided by Tenderers, including their tenders:

(i) to the Department's advisers or employees solely in order to evaluate or otherwise assess the tender;

(ii) to the Department's internal management personnel for purposes related to the RFT process;

(iii) to the responsible Minister;

(iv) in response to a request by a House or a Committee of the Parliament of the Commonwealth of Australia;

(v) within the Department, or with another Department or agency, where this serves the Commonwealth's legitimate interests;

(vi) where information is authorised or required by law to be disclosed; or

(vii) where the information is in the public domain otherwise than by a Commonwealth disclosure.

(c) Following contract award, clause 25.4(a) will cease to apply to a successful Tenderer. After that time, the Department will only keep information provided by a successful Tenderer confidential where:

(i) the Tenderer requested in the tender that specific information be kept confidential;

(ii) the specific information is by its nature confidential; and

(iii) the Department agrees to that request.

(d) Tenderers should indicate in their response (see Attachment 9) what information they consider should be protected as confidential information following contract award, if selected as successful, and the reasons why they consider that information is confidential. Tenderers should understand that Commonwealth policy is that information should not be subject to an obligation of confidence unless there is a good reason to do so. In this regard, Tenderers should have regard to the Department of Finance's publication "Confidentiality throughout the procurement cycle" (available at http://www.finance.gov.au/procurement/procurement-policy-and-guidance/buying/contract-issues/confidentiality-procurement-cycle/principles.html).

(e) Information that the Department agrees to keep confidential following contract award will be described in the contract entered into with the successful Tenderer.

25.5 The Department's confidential information

(a) Tenderers must not, and must ensure that their employees, agents or subcontractors do not, either directly or indirectly record, divulge or communicate to any person any confidential information concerning the affairs of the Department, the Commonwealth or a third party acquired or obtained in the course of preparing a Tender, or any documents, data or information provided by the Department and which the Department indicates to Tenderers is confidential or which Tenderers know or ought reasonably to know is confidential.

(b) The Department may require that all written information (whether confidential or otherwise and without regard to the type of media on which such information was provided to Tenderers) provided to Tenderers (and all copies of such information made by Tenderers) be:

a. returned to the Department - in which case Tenderers will be required to promptly return all such information to the address identified by the Department; or

b. destroyed by Tenderers - in which case Tenderers will be required to promptly destroy all such information and provide the Department with written certification that the information has been destroyed.

(c) The Department may exclude from further consideration any Tender lodged by a Tenderer who has engaged in any behaviour contrary to clause 7 (Tenderer Behaviour).

25.6 Australian National Audit Office

(a) The attention of Tenderers is drawn to the *Auditor-General Act 1997* (Cth), which provides the Auditor-General or an authorised person with a right to have, at all reasonable times, access to information, documents and records.

(b) Tenderers should obtain, and will be deemed to have obtained, their own advice on the impact of the *Auditor-General Act 1997* (Cth) on their participation in the RFT process.

26. Department's rights

Without limiting its rights at law or otherwise, the Department may:

(a) amend this RFT;

(b) suspend or discontinue the RFT process (including during negotiations), where the Department considers that:

(i) it is in the public interest to do so;

(ii) no tender meets the Minimum Content and Format Requirements;

(iii) no Tenderer meets the Conditions for Participation;

(iv) no Tenderer is fully capable of undertaking a contract in the form of the Draft Form of Contract; or

(v) no tender represents value for money;

(c) before final selection (with or without short listing) enter into negotiations with one or more Tenderers (including parallel negotiations with more than one Tenderer or negotiations with all Tenderers without short listing);

(d) discontinue negotiations with any Tenderer at any time for any reason;

(e) require additional information or clarification from any Tenderer or anyone else;

(f) provide additional information or clarification;

(g) negotiate with any person who is not a Tenderer and enter into a contract with that person on such terms as the Department in its absolute discretion accepts, in circumstances where a limited tender procurement method is permitted by the Commonwealth Procurement Rules;

(h) add to, alter, delete or exclude the Department's technical requirements;

(i) publish or disclose the names of Tenderers (whether successful or unsuccessful);

(j) allow or not allow a related body corporate to take over a tender in substitution for the original Tenderer;

(k) change the structure and timing of the RFT process;

(l) vary or extend any time or date in this RFT at any time and for such period as the Department in its absolute discretion considers appropriate. The Department will issue an addendum notifying any decision to extend.

(m) enter into any contractual arrangements or arrangements which will best meet the Department's needs.

27. Public Statements

(a) Except with the prior written approval of the Department, Tenderers must not make a statement, issue any document or material or provide any other information for publication in any media, concerning Tender evaluation, the acceptance of any Tender, commencement of negotiations, creation of a shortlist, or notification that a Tenderer is the preferred Tenderer.

(b) The Department may exclude a Tender from further consideration if the Tenderer does not comply with this requirement.

28. Relevant laws

(a) The law applying in the Australian Capital Territory applies to this RFT and to the RFT process.

(b) Each Tenderer must comply with all relevant laws and Commonwealth policy in preparing and lodging its tender and taking part in the RFT process including but not limited to:

(i) Division 137.1 of the *Criminal Code* which makes it an offence to knowingly provide false or misleading information to a Commonwealth entity;

(ii) The Freedom of Information Act 1982 (Cth) which gives members of the public rights of access to certain documents of the Commonwealth;

(iii) The Auditor-General Act 1997 (Cth) which allows the Auditor-General to conduct a review or examination, at any time, of any aspect of the operations of Australian Government agencies;

(iv) The Ombudsman Act 1976 (Cth) which authorises the Ombudsman to investigate the administrative actions of Australian Government departments and agencies and to investigate the actions of certain Australian Government contractors;

(v) The Competition and Consumer Act 2010 (Cth) which aims to enhance the welfare of Australians through the promotion of competition and fair trading and provision for consumer protection; and

(vi) The *Privacy Act 1988* (Cth) which aims to ensure that contractors and their subcontractors do not engage in an act or practice that would breach the Australian Privacy Principles.

29. Conflicts of Interest

(a) Tenderers should represent and declare in Attachment 2 (Tenderers Deed) whether, at the time of lodging their Tender, a conflict of interest concerning itself or a related entity exists, or might arise during the term of the Contract or in relation to the Tender.

(b) A conflict of interest means any matter, circumstance, interest, or activity affecting the Tenderer (including the officers, employees, agents and subcontractors of the Tenderer) which may or may appear to impair the ability of the Tenderer to perform the Contract diligently and independently.

(c) A conflict of interest is also taken to exist if any of the circumstances in clauses 29(c)(i) to (iii) exist in relation to:

(i) a body corporate of which the Tenderer (if an individual), or any of its personnel, is an executive officer or beneficial owner (as those terms are defined in the *Australian National Registry of Emission Units Regulations 2011*);

(ii) a trust, other than a trust that is a government superannuation fund established by legislation, of which the Tenderer or any of its personnel is the trustee or beneficiary; or

(iii) a member of the immediate family or household of the Tenderer (if an individual) or of any of its personnel.

(d) If at any time prior to entering into the Contract, an actual or potential conflict of interest concerning itself or a related entity arises or may arise for any Tenderer, that Tenderer should immediately notify the Contact Officer.

(e) If a conflict of interest arises, the Department may:

(i) exclude the Tender from further consideration;

(ii) enter into discussions to seek to resolve the conflict of interest; or

(iii) take any other action it considers appropriate.

30. Dictionary

In this RFT, unless the contrary intention appears:

Closing Time	means the Closing Time specified on the front page of this RFT, as amended by any addendum in accordance with clause 6.
Condition for Participation	means a Condition for Participation set out in clause 11(b).
Department	means the Commonwealth of Australia as represented by the Department of the Environment and Energy.

Draft Form of Contract	means the draft contract provided with this RFT.
Evaluation Criteria	means the Evaluation Criteria set out in clause 17(c).
Minimum Content and Format Requirement	means a Minimum Content and Format Requirement set out in clause 12.1(b).
RFT	means this request for tender, including the Draft Form of Contract.
Statement of Requirement	means the Statement of Requirement as set out in Schedule 1.

Schedule 1 – Statement of requirement

Tenderers are requested to provide a response comprised of the following key components:

No.	Tender information requirement	Evaluation criteria	Attachment
1	A costed proposal, including a draft monitoring and evaluation plan. This will outline the proposed approach to monitoring on up to 219 ESP sites in NSW and Queensland. Note, not all sites need to be monitored. This will include proposed sampling and statistical methods, stratification approaches, on-ground monitoring protocol(s), data management strategies and evaluation and reporting schedules. Note, the monitoring and evaluation approach may consider both vegetation and faunal responses to ESP management. The monitoring approach must be scalable and Tenderers should indicate how costs could be adjusted.	Criteria 1, Design	Attachment 4
2	A proposal for communications and outreach activities	Criteria 1, Design	Attachment 5
3	Evidence of organisational and staff capabilities (e.g. domain knowledge, project management and logistics planning experience)	Criteria 2, Organisational capabilities	Attachment 6
4	Evidence of organisational capacity (e.g. staff time allocations, capital capacities (level of preparedness to provide the services)	Criteria 3, Organisational capacity	Attachment 7

SERVICES AND DELIVERABLES

The services and deliverables being procured will include:

1. PROJECT PLANNING AND MANAGEMENT (Project design)

   Development and implementation of a project plan that contains standard project planning information, such as GANTT charts, staff resourcing allocations and costings. This will also include a plan for communications and outreach activities.

2. A MONITORING AND EVALUATION PLAN (Technical Design)
   Development of a monitoring and evaluation (M&E) plan that outlines the following:

   a. The rationale and logic for monitoring and evaluation, with reference to the investment approach and conceptual benchmarks and models of change developed for ESP provided at *Appendix C* and associated suite of management actions provided at *Appendix D.*
   b. Indicators proposed for monitoring
   c. Timing of monitoring and monitoring locations
   d. The analytical methods relative to key criteria outlined in #4 below, including stratification and statistical methods
   e. Any additional proposed monitoring, such as specific faunal monitoring
   f. The on-ground monitoring protocols to be applied
   g. Any proposed approaches for generating continuity with the existing data set
   h. A data management strategy which includes consideration of data collection methods, metadata descriptions data storage, data processing and quality control
   i. A proposed reporting schedule, including the timing and content of reporting

   The proposed approach should be scalable – this is to enable negotiations, should they be required to finalise the approach and cost.

   The ecological monitoring and analysis may occur according to an already developed methodology provided at *Appendix E*. However, the Department requests recommendations for dataset harmonisation or how the Tenderer will approach continuity if an alternative method is proposed through the RFT. The dataset from the first eight years of monitoring is provided at *Appendix F*.

3. ON-GROUND ECOLOGICAL MONITORING OF ESP SITES
   Ecological monitoring services on up to 219 ESP properties depending on the sampling methodologies proposed. There may be multiple monitoring sites on any single ESP property, including controls. As above, the proposal must be scalable in the event that negotiations are required to adjust the scope and cost.

4. EVALUATION AND OUTCOMES REPORTING
   Provision of evaluation reports according to the M&E Plan. The reports must include:

   a. assessment of the effectiveness of management actions according to the stratification approach (as outlined in the M&E plan) – note, this may include assessment of specific management actions or an aggregated suite of actions on single ESP properties
   b. aggregated results across ESP properties according to proposed stratifications
   c. aggregated results relative to the conceptual models initially used to make investment decisions
   d. data visualisations and mapping of results

   The successful Tenderer will be able to draw on a pre-existing data set for the first eight years ecological monitoring undertaken through the program to provide further contextualisation for analysis and reporting, including to enable reference to baseline

ecological condition on ESP sites. A subset of this data is provided at *Appendix F* documentation. Threatened species data has been redacted from this data set.

5. DATA TRANSFER
   Annual provision of the ecological monitoring data set in a manner which meets the Departmental formats and standards as set out in *Appendix G.*

6. ADVICE TO THE DEPARTMENT
   The successful Tenderer will be expected to indicate how many days per annum they will allocate for provision of advice to the Department on any adaptive management requirements. The purpose of the advice is to ensure ESP continues to meet its objectives, particularly during periods of exceptional climatic conditions or to manage other exceptional circumstances (such as post-fire management regimes).

7. COMMUNICATIONS AND OUTREACH ACTIVITIES
   This could include:

   a. Field days and / or workshops within the Environmental Stewardship community and / or NRM community
   b. Presentations to the Department / [other]
   c. Other publicity and outreach activities

   These will be further defined in the contract based on the Tenderer's response to Attachment 5 (Proposed Communications and Outreach Activities).

8. PROJECT PROGRESS REPORTING
   Annual progress reports, which include detailed expenditure reports and documentation of all project activity.

9. PROGRESS MEETINGS WITH THE DEPARTMENT
   Regular meetings with the Department's project officers.

COMPLEMENTARY OR LINKED RESEARCH

In addition, Tenderers may nominate to link the ESP ecological monitoring and evaluation to other research projects to optimise the value of the data collected through ESP monitoring. This could be through associated PhDs, or other major research programs.

MEETING REQUIREMENTS

The successful service provider will be expected to attend:

i. an inception meeting in Canberra

ii. regular progress meetings at least twice a year

iii. verbal updates via telephone on a quarterly basis

PERFORMANCE STANDARDS AND OUTCOMES

The successful tender will be expected to maintain and deliver, in accordance with the timelines set out in the Services Agreement the following standards and outcomes:

a. publishable reports that are appropriate for communication with a diversity of the Department's stakeholders.

b. robust, reusable and accessible ecological monitoring data according to the data management , format and metadata standards as set out in *Appendix G.*

c. a peer reviewed ecological evaluation of the program prior to the contract end date

d. improvements to land manager capabilities through outreach and communication within the Environmental Stewardship Community

e. effective partnerships with Environmental Stewards and others within the Natural Resource Management and agricultural communities

f. public communication of the outcomes of monitoring and evaluation to support the value of the program

g. robust advice which supports Australian Government contract managers and Environmental Stewards to adaptively manage ESP sites

At all times, the Service Provider will be expected to uphold the integrity of the contractual relationship the Australian Government maintains with Environmental Stewards.

Contract Term

The contract is expected to commence in late July / early August 2017 and conclude on 30 June 2023.

Attachment 1 – Checklist

The following checklist is provided to assist in preparing and submitting a tender. The checklist is a guide only. Tenderers should satisfy themselves that they have met all conditions in this RFT, and should not rely on the checklist for this purpose. The Tenderer should complete and submit this checklist with its tender.

	Action	Reference	Completed Y/N
	Before submitting a tender		
1.	Read the RFT including the Schedule and Attachments	-	
2.	Confirm the Tenderer satisfies the Conditions for Participation	Clause 11	
3.	Note the Closing Time	front page	
4.	Note the permitted method for lodging a tender	Clause 14	
5.	Note the Department's evaluation process	Clauses 16, 17 and 18	
6.	Consider seeking independent professional advice	Clause 9	
7.	Check that all addenda have been received	Clause 6	
	Submitting a tender		
8.	Complete the Tenderer response form	Attachment 2	
9.	Prepare the document addressing the Conditions for Participation	Attachment 3	
10.	Prepare the monitoring and evaluation proposal	Attachment 4	
11.	Prepare the communications and outreach activities proposal	Attachment 5	
12.	Prepare the document on the Tenderer's capability	Attachment 6	
13.	Prepare the document on the Tenderer's capacity	Attachment 7	
14.	Prepare the document on price	Attachment 8	
15.	Prepare the document on insurance. If the tender does not include this, the Tenderer is taken to that confirm it and any subcontractors can meet the Department's proposed insurance requirements	Attachment 9, clause 12.2(b)	
16.	Complete the compliance statement. If the tender does not include this, the Tenderer is taken to agree with all provisions of the Draft Form of Contract	Attachment 10, clause 12.2(c)	

	Action	Reference	Completed Y/N
17.	Prepare the document on confidentiality. If the tender does not include this, the Tenderer is taken to agree that none of the information in its tender is confidential	Attachment 11, clause 12.2(d)	
18.	Prepare a copy of the tender for your records	-	
19.	Ensure the tender: • is free from anything that might reasonably affect useability, security or operations of AusTender or the Department's computing environment • does not contain macros, script or executable code • complies with the file type, format, naming conventions and size limitations	Clause 14	
20.	Submit the tender, including this Attachment 1	-	

Attachment 2 – Tenderer Response Form

The Tenderer should complete and submit this Tenderer Response Form with its tender.

1. RFT No. 2000002148

2. Tenderer name

If a company	Company name	
	ACN	
If a partnership	Trading name (if any)	
	Full name of partners	
If a sole trader	Trading name	
	Full name of sole trader	
If any other type of organisation	Name of organisation	
	Type of organisation	

3. ABN

4. Trust status

If the Tenderer is a trustee and is tendering as trustee of the trust

Name of trust	

Note that the Draft Form of Contract requires a Tenderer who is a trustee to warrant that it enters into the contract personally and in its capacity as trustee.

5. Contact for liaison and notices

Name	
Postal Address	
Telephone	
Facsimile	
Email	

6. Small to medium enterprise

Is the tender a small to medium enterprise (ie an entity employing fewer than 20 full time equivalents)?	Y/N
Is the tender a small business (ie an enterprise that employs less than the full time equivalent of 20 persons on the day that the written contract under which the payment is to be made in entered into.	Y/N

7. Electronic payment

Is the Tenderer willing and able to accept electronic payment?	Y/N

8. Supporting Material (Clause 14.3(d))

Will supporting material that is not directly related to this ATM be provided?	Y/N

9. Conflicts of interest

The Tenderer confirms that there are no circumstances or relationships which constitute or may constitute a conflict or potential conflict of interest in relation to this RFT or the Tenderer's obligations under any contract resulting from this RFT other than:

The Tenderer undertakes to advise the Department in writing of any additional actual or potential conflicts of interest immediately after becoming aware of it.

10. *Workplace Gender Equality Act 2012 (Cth)*

Under Australian Government procurement policy, you are obliged to indicate whether or not your organisation is covered by the Workplace Gender Equality Act 2012 (Cth) (the **WGE Act**). Your organisation is covered by the WGE Act if it is a 'relevant employer', defined as being a non-public sector employer (including higher education institutions, trade unions and not-for-profit organisations) of 100 or more employees in Australia. For information about the coverage of the WGE Act, contact the Workplace Gender Equality Agency on (02) 9432 7000.

[STRIKETHROUGH THOSE NOT APPLICABLE]

(a) Yes, I am a relevant employer. I have attached a current letter of compliance as part of this tender response which indicates my compliance with the *Workplace Gender Equality Act 2012.*

(b) Yes, I am a relevant employer. I will be providing a current letter of compliance prior to contract.

(c) No, I am not a relevant employer.

11. Confirmation

11.1The Tenderer:

(a) offers to supply the Services described in the RFT at the prices specified in the tender;

(b) confirms that the tender remains valid and open for acceptance by the Department for a period of six months from the Closing Time;

(c) and any subcontractors proposed in the tender are not be named as an employer not currently complying with the *Workplace Gender Equality Act 2012 (Cth).* ;

(d) represents that having made all reasonable enquiries as at the date of this declaration that neither the Tenderer nor any nominated subcontractors proposed in the Tender is at the time of Tender listed as a terrorists under section 15 of the *Charter of the United Nations Act 1945.*

(e) If a public sector entity, represents and warrants that having made reasonable inquiries the Tender is compliant with the principles of competitive neutrality outlined in Financial Management Guidance No.9 Australian Government Competitive Neutrality Guidelines for Managers.

(f) confirms that it and any proposed subcontractors are not insolvent, bankrupt, in liquidation, or under administration or receivership;

(g) confirms that it and any proposed subcontractors consent to the public disclosure of the name, ABN and address of, and work to be performed by, a subcontractor if the Tenderer is selected to enter into a contract with the Department for the provision of the Services described in this RFT;

(h) confirms that it and any proposed subcontractors do not have any judicial decision against them (not including decisions under appeal) relating to employee entitlements in respect of which they have not paid the claim;

(i) confirms its capacity to tender and enter into a contract in the Draft Form of Contract and that there is no restriction under any relevant law to prevent it from tendering; and

(j) consents to the Department undertaking checks in accordance with this RFT.

11.2 The Tenderer warrants that neither the Tenderer nor any of its officers, employees, agents, and subcontractors has, in relation to the preparation, lodgement or assessment of the tender:

(a) improperly obtained confidential information;

(b) received improper assistance;

(c) engaged in collusive tendering, anti-competitive conduct or other similar conduct with any other Tenderer or other person; or

(d) attempted to improperly influence an officer of the Department or approached any Commonwealth officer (other than as permitted by the RFT).

11.3 The Tenderer notes that giving false or misleading information is a serious offence, and confirms that all information in its tender is true and correct in every material respect.

11.4

(a) The Tenderer understands its obligations under all applicable workplace relations, work health and safety, and workers' compensation laws. The Tenderer confirms that it complies with all of these obligations.

(b) If at any time prior to entry into a contract with the preferred Tenderer, any information provided in this declaration changes, the Tenderer agrees to advise the Department of that change within 7 calendar days.

12. Signature on behalf of Tenderer

[Note: To be signed by the Tenderer personally, or if the Tenderer is not an individual, by someone authorised to sign on behalf of the Tenderer, eg managing director]

Signature _____

Name _____

Position _____

Signature of witness _____

Name of witness _____

Address of witness _____

Date _____

Attachment 3 – Conditions for Participation

1. The Tenderer should provide a document addressing the Conditions for Participation at Clause 11(b).

Attachment 4 – proposed Monitoring and Evaluation Approach

1. The Tenderer should provide a draft monitoring and evaluation approach addressing the following:

   a. The rationale and logic for monitoring and evaluation, with reference to the investment approach and conceptual benchmarks and models of change developed for ESP provided at *Appendix C* and associated suite of management actions provided at *Appendix D.*
   b. Indicators proposed for monitoring
   c. Proposed timing of monitoring and monitoring locations
   d. The analytical methods relative to key criteria (outlined in #4 Statement of Requirements Services and Deliverables) including stratification and statistical methods
   e. Any additional proposed monitoring, such as specific faunal monitoring
   f. The on-ground monitoring protocols to be applied
   g. Any proposed approaches for generating continuity with the existing data set
   h. A data management strategy which includes consideration of data collection methods, metadata descriptions data storage, data processing and quality control
   i. A proposed reporting schedule, including the timing and content of reporting

   The proposed approach should be scalable – this is to enable negotiations, should they be required to finalise the approach and cost.

   The ecological monitoring and analysis may occur according to an already developed methodology provided at *Appendix E*. However, the Department requests recommendations for dataset harmonisation or how the Tenderer will approach continuity if an alternative method is proposed through the RFT. The dataset from the first eight years of monitoring is provided at *Appendix F*.

   Details of any proposed complementary or linked research should be outlined in this Attachment.

Attachment 5 – proposed communications and outreach activities

1. The Tenderer should provide a document describing the proposed communications and outreach activities that the Tenderer will engage in over the life of the contract addressing Schedule 1 Statement of Requirements No1 and No.7.

Attachment 6 - Capability

Note to user: This Attachment must be included in the RFT.

1. The Tenderer should demonstrate its capability to provide the Monitoring and Evaluation Services in accordance with the Statement of Requirement.

2. The Tenderer should provide a document demonstrating the Tenderer's capability with reference to the following:

   Organisational experience and competency with regard to:

   a. large-scale, long-term monitoring design
   b. advanced capacity for GIS, data analysis, data visualisation and reporting
   c. industry standard data and information management practices
   d. project management and administration of large-scale, complex projects
   e. outreach and communication within the agricultural and natural resource management sectors

   The individual skills of specified personnel within the proposed monitoring team, including:

   a. botanical field skills
   b. statistical / analytical skills
   c. ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the threatened ecological communities targeted through the Environmental Stewardship Program
   d. engagement and community outreach
   e. report writing skills
   f. project management skills, including logistics and planning

3. The Tenderer should provide:

   a. information on whether the Tenderer can meet all of the requirements in the Statement of Requirement
   b. information demonstrating its understanding of the required Monitoring and Evaluation Services
   c. information on how the Tenderer will manage and control the provision of the Monitoring and Evaluation Services
   d. information on its experience in providing similar Monitoring and Evaluation Services over the past 10 years, including purchaser, period and value
   e. information on its personnel who will provide the services, including:

      (i) skills, qualifications, experience and past performance;
      (ii) curriculum vitae for key personnel; and
      (iii) if any personnel are former employees of the Department (or a predecessor), length of employment and positions held

   f. information on any subcontractors it proposes to use in providing the Monitoring and Evaluation Services including:

      (i) name and ABN;
      (ii) address; and
      (iii) work to be carried out by the subcontractor

   g. contact details for at least 2 referees for whom the Tenderer has provided similar Monitoring and Evaluation Services

   h. information on how quality and performance standards will be maintained and monitored

i. Information on how occupational health and safety measures will be implemented in providing the Monitoring and Evaluation Services

j. information on what opportunities (if any) for Aboriginal or Torres Strait Islander people the Tenderer proposes if its tender is successful (including the nature and duration of the employment and the number of Aboriginal or Torres Strait Islander people involved)

Attachment 7 - Capacity

1. The Tenderer should provide a document including the information on the Tenderer's capacity as outlined below.
2. The Tenderer should demonstrate its capacity to provide the Monitoring and Evaluation Services in accordance with the Statement of Requirement.
3. The Tenderer should provide information on:

   i. if the Tenderer is lodging the tender for a consortium, details of the consortium arrangement, all members and proposed subcontractors

   Staffing capacity

   ii. information on availability and allocation of personnel to provide the Monitoring and Evaluation Service. This must include:

      (i) The role / tasks allocated to specified personnel

      (ii) The estimated number of days allocated per person

   iii. any details of its strategies for staff resourcing required for performance of the contract

   iv. names of the Tenderer's senior management

   Preparedness

   v. details of preparedness to undertake the monitoring and evaluation (facilities, transport, equipment and other relevant capital assets (e.g. IT or other capabilities)

   vi. details of its enterprise profile, including the location of principal locations for the provision of the services, relative to the geographic spread of ESP sites

   Legal Status

   vii. confirmation that there is no past, current, pending or finalised litigation against the Tenderer, or an explanation of any such litigation

   viii. particulars of any petition, claim, action, judgement or decision which is likely to affect the Tenderer's performance

Attachment 8 - Price

1. The Tenderer should provide a document including the information on price as outlined below.

2. The Department will pay the successful Tenderer according to milestones. All prices should be given on a GST inclusive basis with any GST component separately identified.

   However, the Department requests information on the daily rates of key specified personnel for this project for its consideration of value for money.

   Pricing of specific personnel

Personnel name	**Daily rate GST exclusive**	**Daily rate GST inclusive**	**Estimated work effort (days)**

Milestone payments

Milestone Date	**Milestone/Deliverable**	**Milestone payment (exclusive of GST)**	**Milestone payment (inclusive of GST)**
30 July, 2017	Payment on signing of contract		
15 September, 2017	Delivery of the Project Plan, and the Monitoring and Evaluation Plan to the Department's satisfaction		
	e.g. Year 1 progress report		
	e.g. Year 3 evaluation report		
TOTAL			

a. Tenderers should provide details of any discounts tendered (e.g. volume discounts or discounts for payments in advance).

b. Except for the expenses outlined in clause 10, all tendered prices, fees, rates and charges are to be inclusive of:

i. all taxes; and

ii. all things necessary and incidental to the provision of the required Monitoring and Evaluation Services and the due and proper performance of a contract with the Department substantially in the form of the Draft Form of Contract.

Attachment 9 - Insurance

1. If the tender does not include a document including the information on insurance as outlined below, the Tenderer is taken to confirm that it and any subcontractors can meet the Department's proposed insurance requirements.

2. The Department proposes that the following insurance requirements apply under the contract with the successful Tenderer:

   - Workers compensation insurance as required by law
   - Public liability insurance for an insured amount of $10,000,000 per claim
   - Professional indemnity or errors and omissions insurance for an insured amount of $5,000,000 per claim

3. Note that any subcontractor engaged by the Tenderer will be subject to the same insurance requirements.

4. The Tenderer should:

   (a) confirm that it and any subcontractors can meet the Department's proposed insurance requirements (provide certificates of currency where applicable); or

   (b) propose alternative insurance requirements.

Attachment 10 - Compliance statement

1. If the tender does not include a document addressing the information on compliance as outlined below, the Tenderer is taken to agree with all provisions of the Draft Form of Contract.
2. Using the compliance table in this Attachment 10, the tender should state any provisions of the Draft Form of Contract with which the Tenderer partially agrees or does not agree or considers are not applicable (ie the compliance table is to be completed on an exceptions basis).
3. If the Tenderer partially agrees or does not agree with a provision, it should provide the reason why, the relevant qualification, any proposed change to the Draft Form of Contract and any differences in costs or pricing associated with those changes.
4. If the tender states that a particular provision is not applicable, it should also state the reason why.
5. In this Attachment:
   i. **"agrees"** means that the contractual condition, obligation, characteristic or performance requirement imposed by the provision in the Draft Form of Contract *can be met by the Tenderer with no qualifications*;
   ii. **"partially agrees"** means that the contractual condition, obligation, characteristic or performance requirement imposed by the provision in the Draft Form of Contract *can be substantially met by the Tenderer, subject to certain qualifications*;
   iii. **"does not agree"** means that the complete contractual condition, obligation, characteristic or performance requirement imposed by the provision in the Draft Form of Contract *could not be met by the Tenderer or the Tenderer does not agree to meet it*; and
   iv. **"not applicable"** means that, due to the nature of the offer, or of the Tenderer, the question of adherence to the provision in the Draft Form of Contract does not arise.

Compliance table:

The Tenderer agrees with all provisions of the Draft Form of Contract other than as follows:

Provision (eg clause, paragraph…)	Partially agrees/does not agree/not applicable	Reasons/qualification	Proposed alternative wording	Differences in costs or pricing

Attachment 11 - Confidential information

1. The Tenderer should specify any information contained in the tender that it considers should be protected as confidential information.
2. The Tenderer should provide reasons why this information should be protected as confidential information and the period for which the Tenderer proposes it be protected.
3. Note that the Department will consider each request to keep information confidential on its merits. Whether or not the Department will agree to a request to keep information confidential will depend on the circumstances and negotiations with the successful Tenderer.
4. The Department reserves the right, in its discretion, to accept or refuse a request to treat information as confidential.
5. See clause 25 for further information.
6. If the tender does not include a document addressing the information on confidential information as required by this Attachment 9, the Tenderer is taken to agree that none of the information in its tender is confidential.

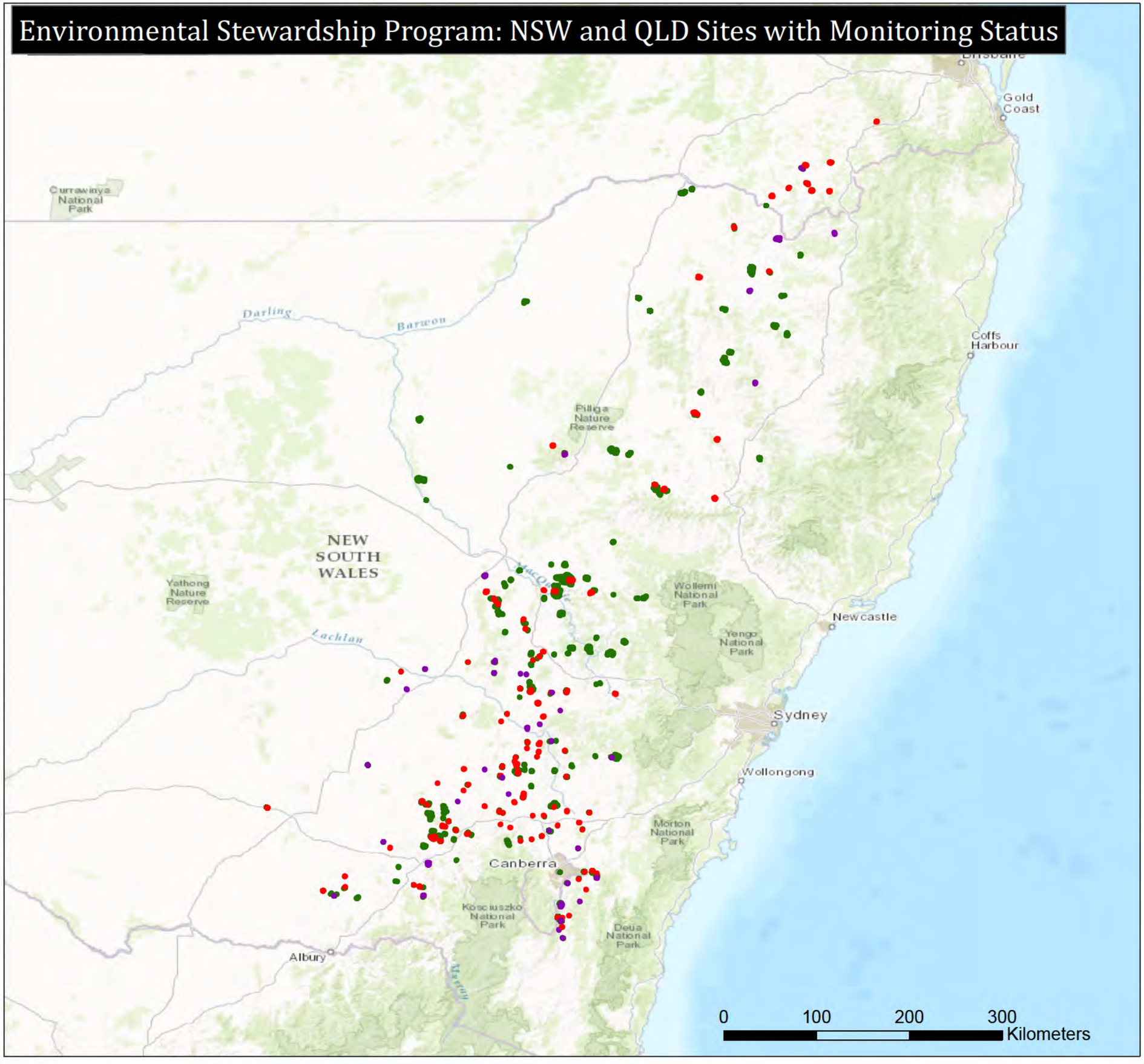
Item	Reason	Period

Addendum A & B Explanatory Note

Note, the map and shape file show all NSW & QLD sites that were originally funded under the ESP. However, some of the contracts have expired. We have chosen to include the full set of investment sites as a number of the expired contract properties were included in the first eight years of monitoring.

It is not anticipated that the Tenderers supply detailed survey design based on specific ESP sites at this stage. Rather Tenderers should indicate how they will monitor and stratify across the geographic spread of ESP sites.

Environmental Stewardship Program: NSW and QLD Sites with Monitoring Status



FOI 180106
Document 7b

Monitored ESP sites with controls

Monitored ESP sites without controls

ESP sites that are not monitored

Acknowledgements:
Produced by the Environmental Resources Information Network (ERIN). Australian Government Department of the Environment and Energy, © Commonwealth of Australia, 5 May 2017. NRMReq2017-16

Australian Government

Department of the Environment and Energy

CSIRO

Multiple Ecological Communities Conservation Value Metric

Final Report to the Australian Government Department of the Environment, Water, Heritage and the Arts

Stuart Whitten, Erik Doerr, Veronica Doerr, Art Langston and Anton Wood, CSIRO Sustainable Ecosystems

Final Report July 2010

Acknowledgements

The research presented in this report was conducted for the Australian Government Department of Environment, Water, Heritage and the Arts and Department of Agriculture, Fisheries and Forestry. The report has benefited from discussions with a wide range of people including Joselito Chua, David Duncan, Andrew Knop, Sue McIntyre, Kate Simmons, Jean Turner, Julian Wall, Tara Martin, Kristen Williams and Graham Wilson as well as substantial input from Environmental Stewardship Section officers. Errors and omissions remain the responsibility of the authors.

Citation

Whitten, S.M., Doerr, E., Doerr, V., Langston, A. and Wood, A. 2010. Multiple Ecological Communities Conservation Value Metric. Final report for The Australian Government Department of the Environment, Water, Heritage and the Arts, CSIRO Sustainable Ecosystems, Canberra.

Enquiries

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Important Disclaimer

Cover Photo: Weeping Myall Woodland – V&E Doerr.

Contents

List of Figures and Tables

Executive Summary

The purpose of this report

This report describes a Conservation Value Metric (CVM) for new assets to be targeted in the 2010-2011 Environmental Stewardship conservation tender. A conservation tender is a market-based instrument that when applied to biodiversity creates a structured market in which land managers are invited to submit bids offering specified management of a set of targeted threatened ecological communities (TTEC) and their required payment (bid price) for undertaking the management activities. Conservation tenders require a metric which can describe the relative outcome or return on investment to be expected from each bid if it is accepted. The 2010-11 Environmental Stewardship tender will utilise a Multiple Ecological Communities (MEC) approach requiring comparison across TTECs, i.e. a MEC CVM. Using the Environmental Stewardship Multiple Ecological Communities Project approach, more than one threatened ecological community can be targeted through the same auction process within a given region.

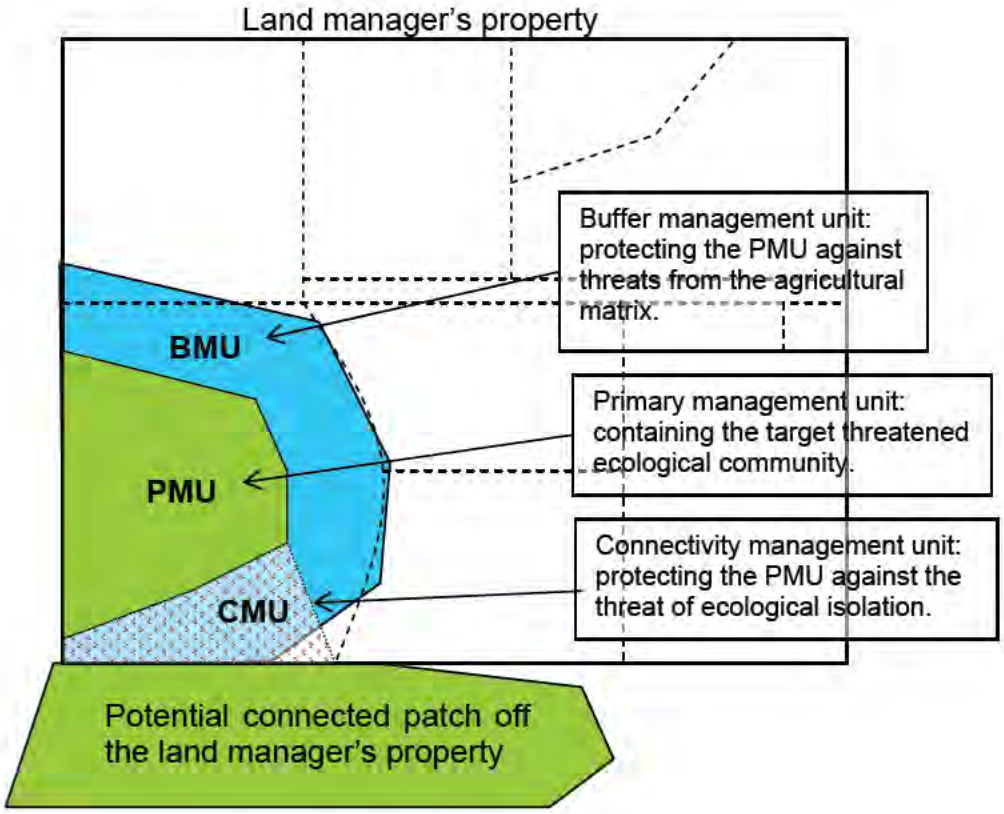
The proposed MEC CVM is structured to estimate the expected ecological result of investing in the conservation management of a site over a 15-year period. The expected site investment outcome is in turn based on a state and transition model (S&TM) framework, with different states being assigned value based on these models and the relevant EPBC listing criteria. Dividing the score produced by the metric by the bid price allows bids to be ranked according to the return on investment with the highest return bids to be selected.

The approach to the MEC CVM described in this report produces a single Conservation Value Score (CVS) for each property. The single score is an aggregation of scores for individual TTEC management units (and thus can be disaggregated into a score by TTEC or individual TTEC management units if required). The MEC CVM Tool compiles the required information to discern the condition state of each management unit, threats to the condition state, and opportunities to enhance outcomes. The Tool further identifies relevant on-ground management actions and uses the probability of ecological effectiveness and success of each action to estimate the expected future outcome. The management actions available reflect management within the primary management unit (PMU), management adjacent to the PMU which buffers the PMU from adverse external impacts (buffer management units; BMUs), and for the woodland TTECs, actions which connect the PMU to other woodland areas in the surrounding landscape (connectivity management units; CMUs).[1] A conceptual illustration of these management units is shown in Figure ES1.

A glossary is provided at the end of the report to assist readers with the definitions of specific terms and an easy way to identify the meaning of acronyms.

[1] The woodland connectivity management restriction is because it is not yet practical or cost effective to assess connectivity in grassland settings. More detail is provided in the Interim report and sections 3 and Appendix 4.

Figure ES1: Management units considered in the CVM



Constructing a MEC CVM and resultant CVS

Construction of the MEC CVM Tool requires a clearly structured set of attributes that are input to calculating the CVS and a robust and repeatable process for accurately collecting and assembling this information. The attributes for which information is required are defined by state and transition models (S&TM) which describe the features that distinguish the ecological condition of the TTECs and the likely response to various threats and management actions.

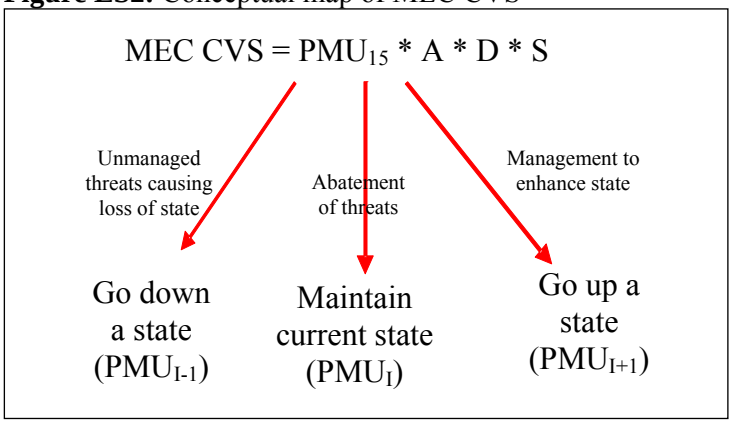
The S&TM were expressly developed for the purpose of the MEC Project and provide key theoretical underpinnings and structure for the MEC CVM Tool as follows. First, the S&TM assume that small changes in ecological condition across primary management units (PMUs) in the same state are not as important as the big jumps that come with transitions between states and associated ecological function. Thus the S&TM provide a simplified model of the ecological dynamics (transitions) between identifiable vegetation assemblages (states) for which a Rapid Assessment Protocol (RAP) has been developed to measure the relevant discriminating attributes for entry into the MEC CVM Tool. The RAP is described in detail in Section 4. Second, the appropriate management actions to prevent a downward transition (loss of state) and to facilitate an upward transition (gain of state) may be specific to the current state of a PMU rather than universal for all PMUs of a given ecological community. These state and specific threats on the site allow tailored management actions to be chosen by the land manager based on recommendations from the MEC CVM Tool. These management actions are intended to protect the ecological condition of the TTEC against threats from within the PMU, threats emanating from outside the PMU, and the threat of ecological isolation, via actions undertaken within the PMU, in BMUs, and in CMUs, respectively. Finally, the ecological states act as surrogates for ranked

values within each ecological community. The step wise changes in relative values result from the nature of the ecological transitions between states and are used to underpin the ranking of desired outcomes from investment (as described in detail in section 2).

The MEC CVM Tool and accompanying RAP are the structured vehicle for capturing the necessary information described above and assembling it into the required form to calculate the MEC CVS. The Tool captures relevant site data across the PMUs, BMUs, CMUs and area of connected patches of native vegetation in a consistent, repeatable and transparent way. The Tool is designed for ease of update to facilitate use in future funding rounds by allowing new ecological communities and the relevant threats and management options to be entered with relative ease (further details in Section 4). The Rapid Assessment Protocol (RAP) is assists in the range of different tasks the field officer must perform in using the MEC CVM Tool including what element is required (e.g. GIS, the MEC CVM Tool, gear for field data collection, etc.) and in what order tasks must be performed. The RAP describes each step a field officer must perform for each proposed site, from receipt of the Request for Site Assessment (RFSA) to sending the draft management plan to the land manager.

Our recommended CVS is constructed as illustrated in Figure ES2.

Figure ES2: Conceptual map of MEC CVS



The proposed MEC CVS:

- Estimates the expected relative value of investment for a proposed site (which may comprise several PMUs) at the end of a 15-year management period;
- Accommodates the probability that the site will degrade or improve across ecological states, including in response to management, where state change is limited to a single transition in the relevant TTEC S&TM;
- Allows transitions to be a response to the threats present and their management (or not) with threats arising within the PMU (internal), externally from activities adjacent to the PMU and from ecological isolation in the landscape; and
- Retains the underpinning logic of the previous BGGW metric in terms of calculating score per hectare that is multiplied by the area of the relevant PMU (A_{PMU}), duration of contract (D), and permanent protection security via conservation covenant (S).

The resultant CVS functional form calculated from the MEC CVM Tool is summarised in the three following equations (full definitions in Sections 3 simplified to a single PMU here):

$$MEC\ CVS = PMU_{15} * A_{PMU} * D * S \quad (1)$$

Where:

$$PMU_{15} = PMU_{I-1} * (P_{loss}) + PMU_{I} * (1 - P_{loss}) * (1 - P_{gain}) + PMU_{I+1} * (1 - P_{loss}) * (P_{gain}) \quad (2)$$

$$MEC\ CVI = CVS / \$\ \text{bid} \quad (11)$$

The proposed MEC CVS functional form has been tested and performed as anticipated generating a suitable spread of scores and consistent score response to the presence and management of threats for each TTEC. The maximum scores for higher initial states always exceed those possible for more degraded initial states. Where additional management is offered in degraded states there is significant potential to outscore PMUs that are initially in higher states (but where fewer actions are taken). Thus the metric facilitates effective discrimination between sites based on expectations of their likelihood of transition and the relative investment value ascribed. More information on the tests undertaken is provided in Section 5 and Appendix 7.

Advantages of the proposed approach

The approach set out in this report represents a significant improvement over previous metrics in a number of ways and to our knowledge represents cutting edge practice in the development and application of defensible metrics supporting conservation tenders. The functional form is consistent with both economic and ecological theory which allows for greater confidence in discriminating amongst the range of investment options available under the MEC Environmental Stewardship Project. To our knowledge the recommended approach is the first practical application of a direct linkage between impact of threats (via probabilities) and probability of change to ecological condition (represented through the S&TM states) in a conservation tender metric and represents a major conceptual advance over other available approaches. The functional form has the advantage of transparently setting out the consequences of uncertainty for MEC investment and making these amenable to future analysis and updating (for example via Bayesian approaches). The MEC CVM Tool is directly linked to an efficient field assessment process as set out in the RAP which minimises field assessment costs at the same time as improving accuracy of assessment. The approach offers a number of other advantages in terms of directly incorporating the impact of threats emanating from surrounding agricultural activities and ecological isolation. More details of these strengths are set out in the discussion and summarised in conclusions in Section 7.

The additional complexity incorporated in the MEC approach, particularly resulting from management actions to buffer the PMU from threats emanating in the surrounding landscape, or to manage isolation threats via connectivity management, will require detailed communication with landholders. We recommend that additional care is taken in designing and implementing communication in order to ensure that these relatively complex management requests, and in particular the linkages between threats and desired management actions are understood by land managers.

1. Introduction

This document presents the Final Report for the Environmental Stewardship project:

> *The development and testing of a conservation value measure for the Environmental Stewardship Multiple Ecological Communities (MEC) Project.*

This Final Report provides the response from CSIRO to meet the Australian Government requirements for a Conservation Value Measure (CVM) for the Environmental Stewardship Multiple Ecological Communities (MEC) Project under Caring for our Country. Through MEC, more than one target threatened ecological community (TTEC) will be invested in using a single conservation tender process within a given region. The proposed MEC CVM is intended to estimate the expected value of a site at the end of a 15-year management period. The expected site value is in turn based on a state and transition model (S&TM), with different states being assigned a relative value for the purposes of Environmental Stewardship investment.

This report summarises the development and testing of an approach for the assessment of each ecological community that can be used separately or in combination with the mechanisms for other communities. The conceptual approach is that of a score for each ecological community per property (by each management unit) which will be estimated at the property scale through a Conservation Value Score (CVS) using the Conservation Value Measure (CVM) Tool to produce a single combined score per property.

The CVS is based on the condition state of each ecological community combined with the identified outcome from a set of on-ground management actions that reflect the probability of ecological effectiveness and success of each action. These actions reflect management within the primary management unit (PMU), on adjacent areas which buffer the PMU (buffer management units – BMUs), and to manage woody vegetation that connects the PMU to other woodlands in the surrounding landscape (connectivity management units – CMUs). The BMU contribution to the CVS reflects actions that buffer the PMU from potential adverse impacts of adjoining practices; strengthens the ecological function of connectivity attributes through improved protection of paddock trees and encourages regeneration (albeit limited to woodland settings at this point as discussed in Section 3). The BMU and CMU should in some cases increase the spatial extent of patches of the target threatened ecological community (TTEC).

The objective of this report is to concisely set out the proposed MEC CVS methodology (and the hence CVM used to assemble this information) and supporting materials. We set out the key recommendations for the Environmental Stewardship MEC Project The report addresses the following issues:

i. A description of the MEC CVM that encompasses:
    a. A scoring mechanism for multiple communities and comparison within and across bids that results in a single score for each bid and for each community within that bid so far as is practicable;
    b. A method for including the impacts of agricultural matrix management on the offered area(s);

   c. Consideration of approaches to scoring concepts including spatial extent and ecological function in the regional landscape of bids (but may not be limited to these).

ii. A process for directly linking management scores to probability of successfully enhancing ecological condition within the state and transition models (S&TM) and to the likelihood of progression between states which comprises:

   a. A modified set of S&TMs that describe each ecological state in each of the TTECs and the type of opportunities available to private landholders to manage threats or deliver enhancement opportunities;

   b. A rapid assessment protocol (RAP) as the recommended procedure for conducting site assessments. The RAP and supporting evidence allows classification of each TTEC into states in the S&TM. The RAP and additional supporting material provides for identification of threats and enhancement opportunities relevant to each state in each TTEC.

   c. A set of probabilities of transition between states in each TTEC as a basis for evaluating the relative impact of different management offered by landholders within the MEC CVM Tool.

iii. Testing of the MEC CVS (noting testing of the CVM Tool will follow); and

iv. A summary of engagement and consultations during the project.

Background

The Australian Government's Caring for Our Country Environmental Stewardship Program is being run over a 4 year period from 2007-11. The objective of the project as stated in the strategic framework is to 'maintain and improve the quality and extent of targeted high public value assets on private land'. The desired outcomes include (from the strategic framework):

- Improved habitat across the landscape;
- Increased viability, integrity and buffers to high quality remnants;
- Improvements to the long-term protection of nationally endangered ecological communities;
- Improvements in the condition and function of ecological communities; and
- Enduring changes to land manager attitudes and behaviours towards environmental protection and sustainable land management practices.

The Environmental Stewardship Program is one of a number of programs that apply a competitive tender arrangement to prioritise the allocation of funds to natural resource management (NRM). Other Australian examples include biodiversity Bushtender - Vic, Vegetation Incentive Program - Qld, Southern Rivers Bush Incentives - NSW, and some Australian Government Biodiversity Hotspots funding and the Forest Conservation Fund. These tenders rely on metrics to evaluate the relative value-for-money merits of on-ground projects. Most metrics are local adaptations of existing assessment approaches while others were purpose built (e.g. Bushtender). Environmental Stewardship MEC projects will operate through contracts with private land managers from ten to fifteen years.

The initial application of the Environmental Stewardship Program was to Box Gum Grassy Woodlands (BGGW) through delivery of the Box Gum Grassy Woodlands Project. Five funding rounds were implemented as part of this project in 2008 and 2009. A number of aspects of the BGGW Project were reviewed during 2009, including the BGGW CVM (or metric) (Whitten *et.al.* 2009). The Whitten *et.al.* (2009) review was supported by a conceptual paper describing broad metric options to target enhanced spatial configuration in tenders and other programs by Reeson *et al*. (2009).

The focus of the 2010-11 period is development and implementation of a Multiple Ecological Communities (MEC) approach which will target more than one threatened ecological community through the same auction process within a given region. The initial MEC Project was intended to target the following ecological communities in New South Wales (NSW) and South Australia (SA):

- NSW Project:
  Box Gum Grassy Woodlands (BGGW) and Derived Grasslands;
  Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern NSW and Southern Queensland (BAG); and
  Weeping Myall Woodlands (WMW).
- SA Project
  Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of SA (PBGW);
  Iron-grass Natural Temperate Grassland of SA (IGG); and
  Swamps of the Fleurieu Peninsula (not included in this report).

Swamps of the Fleurieu Peninsula are no longer being targeted as part of the 2010-2011 MEC Project and are not included in this report. This decision is due to the initial S&TM model and supporting management information available to CSIRO being considered unsuitable while tight delivery timeframes did not permit the necessary revisions required for inclusion in the MEC CVM.

The objective of this project is to develop a metric to support the Environmental Stewardship MEC Project. The intention was that the proposed metric would be broadly based upon the form and function of the existing BGGW Project CVM where appropriate. However, the metric supporting the MEC Project will need to provide directly for several different elements to the previous BGGW Project metric. In particular the new metric will need to cover the new assets, make additional provision for complimentary management actions in the surrounding production matrix, and include a more comprehensive assessment of the regional landscape.

Consultations and engagement activities

A number of formal consultation activities have been undertaken in developing the advice presented in this report. They were:

- An initial workshop held at CSIRO's Gungahlin Homestead site on February 1st and 2nd 2010. The first workshop was intended to translate the required information from the S&TM models and identify the necessary additional information to construct the CVM. Details in Attachment A.
- A second workshop held at CSIRO's Gungahlin Homestead site on March 12th 2010. The second workshop was a planning meeting with ESS staff and several external experts on biodiversity metrics to discuss the proposed form

- A third workshop was held at the Waite Institute in Adelaide on March 23rd 2010 with CSIRO support to address the FPS community. The results of that workshop are not included in this report.
- Field testing and revision of the rapid assessment protocol in NSW (13-16 April, 2010) and SA (19-22 April, 2010) involving ESS assistance, and where possible local or specialist expertise and knowledge. A report describing the RAP is Attachment B.
- A Mock Auction exercise held in DEWHA's meeting rooms in Farrell Place, Canberra on 21 May, 2010. The objective of the Mock Auction was to introduce the proposed approach to ESS staff and the Environmental Stewardship Evaluation Panel members and collect final feedback for inclusion in this report. The Mock Auction process and a short report from the day are described in Appendix 4.

These formal consultation activities were supported by numerous less formal consultations via meetings, phone and email discussions with ESS officers (predominately with the technical team within ESS) and others involved in the consultation process to discuss detailed aspects of the project. A summary of the more pertinent agreements, recommendations and conclusions from these discussions is provided in Appendix 6. Note that Appendix 6 also contains some important suggestions for the implementation team of ESS who are tasked with delivering the recommended approaches in this report to the field delivery agents in NSW and SA.

Synopsis of Final Report structure

The objective in this, the Final Report from the project team, is to detail the proposed approach to be undertaken at each point in the MEC Project metric. In setting out our recommended approaches we note that the set provided in this report is incomplete as there are a number of additional tasks required to implement the MEC Project which do not form part of this piece of where and which are being separately undertaken by ESS. In most cases these tasks will be clearly referenced in text or in Appendix 6.

The report is structured as follows:

- **Section 2** sets out the conceptual approach to the MEC CVS including the S&TM approach and linkage to the ecological values that the metric is intended to estimate.
- **Section 3** provides a concise explanation of the proposed structure and form for the MEC CVS. This section sets out the mathematical form for the proposed CVS inclusive of all site aspects including the target threatened ecological community offered, buffering and connectivity management activities.
- **Section 4** comprises a brief description of the proposed MEC CVM Tool, its critical elements and functional structure. The MEC CVM Tool provides the framework for assembling the required information to calculate the CVS.
- **Section 5** contains the results of MEC CVS tests and a brief description of adjustments in response to these tests.

- **Section 6** provides a summary of the rapid assessment protocol and field testing procedure.
- **Section 7** summarises the most important points of the proposed approach, suggests several points of emphasis for implementation, and notes the advantages and disadvantages of the proposed metric.

This report is supported by a glossary and a number of appendices and attachments which should be consulted for more information where necessary. A brief description of each follows.

Glossary a description of the most common technical terms and acronyms used in this report. The glossary immediately follows the reference list.

Appendices:

1. **Simplified State and Transition Models:** the final simplified S&TMs for the five TTECs.
2. **List of threats and management actions that abate each**.
3. **Approach to Probability Matrices:** a summary of the approach taken to assemble the probability matrices which set out the transition probabilities between ecological states for each TTEC for each relevant internal or external threat or enhancement activity.
4. **The Rapid Assessment Protocol:** detailed instructions for the RAP for each TTEC in the Environmental Stewardship MEC Project.
5. **Report on the Mock Auction exercise:** a summary of the exercise and conclusions from the day.
6. **Summary conclusions from CSIRO – ESS and related discussions:** an assembly of the key outcomes from the numerous discussions between the project team and ESS officers. It is intended to capture the numerous issues, technical and otherwise, that were raised between the project team and ESS for future reference including by the implementation team of ESS.
7. **Analysis of metric performance:** Additional detail on the CVS performance for each of the five TTECs included in the Environmental Stewardship MEC Project.
8. **Worked examples:** Setting out several worked examples of the MEC CVS.

Attachments:

1. **Interim Report:** The interim report submitted on 29th March 2010.
2. **RAP Field Testing Report:** A summary of the procedures undertaken in testing and revising the draft RAP. It includes the recommendations and decision points for the final RAP.
3. **MEC CVM Tool specifications:** Sets out the agreed draft design specifications for the MEC CVM Tool (which have changed in parts by mutual agreement). A report describing the MEC CVM Tool will follow separately.
4. **Draft MEC CVM Tool in MS Access format:** A prototype MEC CVM Tool for initial testing. A final tool will follow once testing is complete.

2. Conceptual basis for MEC CVS/CVM

2.1 Basic metric concepts

The role of the metric in a competitive tender is to facilitate the efficient allocation of public funds, consistent with the program goals. The metric is the quantitative measure of the payoff from alternative biodiversity investment options (within program boundaries). Efficient allocation requires that the metric is able to accurately describe the *relative* value of two different bids, and not just which provides a higher biodiversity outcome. To this end, we must be confident that a bid that scores twice as high as another bid is in fact desired twice as much, and that we would be ambivalent between the two bids if the higher scoring bid was also twice as expensive. The design of the metric requires two conceptual steps:

1. Identify the desired biodiversity outcomes and the elements which represent them and should be included in the metric (i.e. the information that needs to be captured by the CVM Tool); and
2. Determine what functional form is appropriate to combine the selected elements to represent the relative value of the different biodiversity investment outcomes (i.e. the way that the CVS is calculated from the CVM).

The CVS is designed to represent the relative expected biodiversity value across the range of investment options available. Therefore, the range of investment options that the CVM Tool will need to calculate the CVS for is limited to those options that meet program targeting and eligibility constraints. Conceptually, the CVS can be calculated to represent either the net gain or total value of the ecological asset at a single point in time. This conceptual structure is common to most biodiversity metrics intended for use in allocating funds across competing projects, and for metrics intended to describe the relative economic benefits that would result from an investment. The MEC CVS is calculated to estimate total asset value in 15 years (the maximum contract length) but it is relatively easy to convert it to estimate net gain over that time period.

The functional composition of the CVS should differ depending on the goals of the application to which it is applied and will clearly require different information to be assembled via the CVM Tool. Hence, design and implementation requires:

- Ensuring the components of the metric collected in the CVM Tool provide appropriate coverage of the program, project objectives and desired outcomes; and
- That the components are combined into the CVS in a way that reflect benefits expected from investment and is appropriate to the application and the ecological relationships of the ecosystem.

2.2 State and transition models and their role in the MEC CVS/CVM

The state and transition model approach

State and transition models (S&TMs) were originally developed to reflect particular ecological theories. Thus directly integrating these models into the MEC CVS/CVM fundamentally changes the structural approach but not necessarily the conceptual approach. Specifically, state and transition models were developed to reflect what were believed to be threshold dynamics in ecological systems (or approximate

threshold dynamics). Thus, rather than arbitrarily categorising something that varies continuously (a frequent misinterpretation of what these models do), these models propose that at least some processes create step-like changes, or discontinuous variation, with broadly stable states in between these 'transitions'. According to these models, areas within a single stable 'state' may vary in their ecological condition or value, but they will be more similar to each other in terms of condition than they will be to areas in other states. Transitions between states can occur due to a specific action or process (like a particular threat, management action, or natural episodic event) which may be different for each state.

The integration of the state and transition model structure into the proposed metric structure therefore has a number of specific consequences. First, it inherently means that we believe that small changes in ecological condition across primary management units (PMUs) in the same state are not nearly as important as the big jumps that come with transitions between states. The difference between the ecological states therefore represents the change to the return from investment in a particular state compared to another and provides the basis for estimating the relative values from investment. The investment return is assigned equally to all PMUs in a given state rather than based on a more detailed condition score. Second, the appropriate management actions to prevent a downward transition (loss of state) and to facilitate an upward transition (gain of state) may be specific to the current state of a PMU rather than universal for all PMUs in all states of a given ecological community. This is why the metric is structured around the initial state a PMU is in (rather than a more detailed condition score) and a model of the relative value of the PMU in 15 years given the threats present and management actions chosen by the land manager *that are specific to that state*. Finally, the state attribute definitions are specifically linked to the Rapid Assessment Protocol (RAP) in that they are quantitative thresholds that a PMU ecological condition must meet in the field assessment.

Characterisation of state values into an economically comparable set

The MEC Project requires the CVM Tool to calculate the relative values across the five eligible communities (in terms of expected values of PMUs in 15 years as described above) in order to allocate investment dollars between them. The distribution of scores must represent the relative values (or benefits) associated with investment in different TTECs, and in different condition states in the S&TM within a single listed community. Therefore we require a methodology for directly comparing the values of states *across* communities as well as within each community.

Each community targeted for investment through the Environmental Stewardship MEC Project has been listed under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. All TTECs except Weeping Myall are listed as 'critically endangered' (Weeping Myall is listed as 'endangered').

The listing of ecological communities and the emerging practice of identifying condition classes within the *EPBC Act* provides a conceptual framework for assembling a rank order of condition states across different ecological communities.

EPBC Act Listing Advices expressly describe 'condition classes' which specify minimum standards for the ecological community to be *EPBC* listed. Sometimes, but not always, Listed Condition Classes are described as A and B (for example, PBGW and IGG) or Best Quality and Good Quality (as in BAG). However, in some cases there are no finer distinctions (such as A, B, Best or Good) that identify multiple

conditions within Listed classes as above. For example, BGGW and WMW only recognise a single Listed Condition Class.

For some Listed TTECs an Unlisted class is described as Condition Class C and is considered recoverable to the listing condition standard - that is to A or B - within an unspecified time period. This is the case with PBGW and IGG. However, for BGGW, MWM and BAG there are no classes that indicate a "recoverable" condition.

It was beyond the scope of this project study for DEWHA or the CSIRO to develop and populate an alternative conceptual or data-backed framework to rank ecological states and describe relative values across communities. ESS was therefore asked to provide a set of final relative values for each ecological state in each TTEC.

In doing this, ESS used the *EPBC Act* and the condition classes described for each TTEC as described above. In particular the PBGW and IGG Listing Advices were used as a starting framework to align scores with. Therefore all TTECs, according to their state and transition model States were attributed a starting score with (or comparable to) A, B or C Class statuses (in the table below this has been summarised to listed if A or B and unlisted if C or equivalent). In some instances the variation within a described state in a STM could meet both listed and unlisted condition. Note that for BGGW the derived grassland condition class was given a lower start score (although equivalent in the *EPBC Act*) because it is missing fundamental components of the original habitat (i.e. trees).

These resulting values are shown in Table 1 and provide the relative values across the proposed scale in the ecological scoring component of the MEC (0 to 100). We use these scores to compare across different ecological communities providing the MEC metric is applied equivalently as discussed in the next section. In Table 1 the states are defined by the states are defined by the condition of the vegetation as set out in Appendix A1. For example, for WMW condition state 1 is allocated a score of 100. In the case of BGGW the derived grassland states are denoted as 'B' states and treed remnants 'A' states, such that a state 1 treed remnant is denoted 1A.

Table 1: ESS supplied values for each TTEC and state

EPBC Listing status	Score	BGGW	WMW	PBGW	IGG	BAG
Listed	100	1A	1	1	1	1
Listed	95					1.5a, 1.5b
Listed	90	1B				2, 2a, 2b
Listed	85					2.5a, 2.5b
Listed or Unlisted	80	2A	2	2	2	3
Listed	60	2B				
Unlisted	20			3	3	
Listed or Unlisted	20	3A	3			
Listed or Unlisted	10	3B				
Unlisted	0	4	4	4	4	4
Unlisted	0	5	5	5	5	5

Note: further discussion of the relative value issues is available in the Interim Report. BGGW states in the B stream are commonly referred to as BGGW derived grasslands.

In summary and as a linkage to the next section, the S&T models play two roles in the MEC CVM Tool (noting the caveats above). First, they provide a simplified model of the ecological dynamics (transitions) between identifiable vegetation assemblages

(states). Second, the states are surrogates for ranked values within each ecological community. There are step wise changes in relative values because of the nature of the ecological transitions between states. The resultant metric design is thus significantly different to that built from a continuous condition index type approach which has been the basis for most metrics in Australia to date (a multiple criteria analysis approach such as used in the NatureAssist program in Qld being the other). The MEC CVM Tool is built on a set of ecological states and with step wise changes in relative values between these. The calculated CVS is smoothed by probabilities of transition between states as discussed in the following section. The explicit link between relative investment value of ecological states and expected outcomes is a major conceptual advantage of the proposed approach over others available.

3. Conservation Value Metric

In this section we set out the proposed metric functional structure. Additional discussion of each of the metric components can be found in the Interim Report (Attachment A).

3.1 The proposed MEC CVS structure

Conceptual structure

The metric is constructed as an estimate of the expected condition of the TTEC within the PMU in fifteen years time. The suggested approach estimates a per hectare score which is then adjusted for the total area of the PMU, the duration of the contract (assumed 15 years in general), and security, expressed as additional protection offered to the PMU by a conservation covenant or similar legally binding agreement. This construct facilitates consistent estimation of the relative return on investment from conservation actions offered across the site in 15 years time given the initial ecological community and state, the threats present and management actions chosen by the land manager.

A simplified conceptual equation form of the proposed metric to indicate how a single PMU would be calculated follows (the more complex, detailed form is explained in steps below):

$$MEC\ CVS = PMU_{15} * A_{PMU} * D * S \quad (1)$$

And $PMU_{15} = f(PMU_I, P_{loss}, P_{gain})$

Where:

PMU_{15} = Expected final PMU score in 15 years.

PMU_I = Initial PMU score which is the assessed starting ecological condition as state of PMU in S&TM via the RAP input to the MEC CVM Tool.

P_{loss} = Probability that the PMU will degrade to a lower S&TM state (a single state step) due to the presence and severity of threats.

P_{gain} = Probability that the PMU will improve to a higher S&TM state (a single state step), conditional on threats being managed effectively (i.e. no degradation to lower state) and any additional enhancement activities.

A_{PMU} = Area of the PMU.

D and *S* are duration of contract and security over the site (inclusive of all BMU and CMU) rather than the PMU. Note that the weighting for *S* is applied if the covenant applies to at least 30% of the entire site area. That is, the *D* and *S* are applied at a site level and may therefore apply to one or more PMU.

The proposed metric is explicitly constructed to estimate an expected per hectare relative value of investment in the future ecological outcome for the community in the PMU. The metric applies a multiplicative form rather than the additive form previously applied in Environmental Stewardship (the core PMU_{15} component remains bounded between zero and 100 as previously). The success of management of threats and opportunities for enhanced outcomes are expressly taken into account via the probability of their impact on the state.

The S&TMs provide a functional structure for interpreting the likelihood and trajectory of ecological change. Establishing the current ecological state is a key input to the MEC CVM Tool. The initial state (PMU_I) is identified via the processes set out in the RAP which facilitates collection of the necessary data and checks. Details of the RAP are summarised in Section 6, the relevant protocols are in Appendix 5, and a report on their compilation and testing provided as Attachment B. The RAP process is not further discussed in this section.

The S&TMs were provided to the CSIRO and later augmented as necessary by the CSIRO through literature reviews (see Wall 2010, EcoLogical report for more information). The EcoLogical report and consultations with relevant experts were used to generate a list of threats to the condition of the ecological community and a set of management actions that are expected to drive an improvement to a more desirable ecological state (see Appendices 2 and 3 for more details). Note that the potential improvement or loss is limited to a single ecological state.[2] That is, given that any land manager successful in attaining Environmental Stewardship funding will be required to undertake a minimum set of compulsory management actions, there is a negligible probability of declining more than one state over a fifteen year contract period. Similarly, management actions that abate threats or actively enhance the PMU are only likely to deliver a single state step improvement within the fifteen year period of the Environmental Stewardship MEC Project.

Threats are divided between internal, external and isolation. Internal threats may be managed within the PMU itself. External threats are the impacts of activities external to the PMU on ecological condition within the PMU (such as damage to roots by cultivation adjacent to the PMU). The threat of ecological isolation will occur if the PMU is too small to support self sustaining populations of the species within the ecological community, or too distant from other similar vegetation associations to make movement of genes, individuals and populations feasible. External threats emerging from activities adjacent to the site can be managed in buffers adjacent to the PMU offered (i.e. the BMU). Isolation threats to the persistence of the TTEC PMU from isolation can be managed by the linkages to, and the aggregate quantity of habitat within a regional landscape (including the PMU).

Proposed MEC site score functional form

Figure 1: Conceptual map of PMU score function

$$PMU_{15} = PMU_{I-1} * (P_{lossAll})$$ ← state lost

$$+ PMU_{I} * (1-P_{lossAll}) * (1-P_{gainAll})$$ ← state maintained

$$+ PMU_{I+1} * (1-P_{lossAll}) * (P_{gainAll})$$ ← state improved

[2] Except for the revised S&TM for BAG as discussed in detail later.

The proposed MEC PMU score is shown conceptually in Figure 1. Relative ecological values within the proposed metric are constructed as an expected ecological value after fifteen years:

$$PMU_{15} = PMU_{I-1} * (P_{loss}) + PMU_I * (1 - P_{loss}) * (1 - P_{gain}) + PMU_{I+1} * (1 - P_{loss}) * (P_{gain}) \quad (2)$$

Where:

PMU_{15}, PMU_I , P_{loss} and P_{gain} are all as defined above.

PMU_{I-1} = State score of next lower state

PMU_{I+1} = State score of next higher state

$(1-P_{loss})$ = Probability that PMU does NOT degrade to lower S&TM state

$(1-P_{gain})$ = Probability that PMU does NOT improve to higher S&TM state

3.2 Estimation of internal threat impacts

Probability of loss of state

Internal threats are the consequences of various activities and threats occurring within the PMU estimated as a product of their likelihood, seriousness, and abatement likelihood as follows:

$$P_{loss} = P_{threat} * P_{degrade} * (1 - P_{abate}) \quad (3)$$

Where:

P_{threat} = Probability that one or more threats will be present at the PMU expressed as a zero/one depending on presence absence

$P_{degrade}$ = Probability that one or more of these threats will be severe enough to degrade PMU to a lower state

P_{abate} = Probability that management actions aimed at threat abatement will succeed and prevent loss of state in PMU

Notice that $(1 - P_{abate})$ is therefore the probability that management actions aimed at threat abatement will fail. P_{threat} for any given threat will simply be classified as 0 or 1 based on evaluation of within-PMU threats (0 if the threat is absent and 1 if it is present). Similarly, P_{abate} will simply be classified as 0 or 1 depending on whether or not the landowner chooses to undertake management actions designed to abate that threat (0 if no management actions, 1 if management actions undertaken). Note that this means we are assuming that management to abate threats will always be 100% successful at preventing a loss of state and that landowners have a 100% probability of successfully delivering the management actions they agree to.[3] Discussion of $P_{degrade}$ estimates can be found in Appendix 3 along with probability estimates.

Where numerous different threats are simultaneously present a cumulative $P_{lossAll}$ for all the threats combined is calculated:

[3] We realise that promised abatement may not eventuate or be fully successful however this simplification makes the metric much easier to apply, is robust to historical observation (i.e. sufficient success to avoid further decline) and consistent with other program design.

$$P_{lossAll} = 1 - [(1 - P_{loss1})*(1 - P_{loss2})*(1 - P_{loss3})*....*(1 - P_{lossN})] \quad (4)$$

Where:

P_{loss1}, P_{loss2}, etc = Probability that PMU will degrade to lower state due to each relevant threat.

To avoid significant likelihood of loss of state we propose that the most pervasive threats internal to the PMU that have a high likelihood of causing a loss of state be compulsorily managed (in addition to those required by law). We describe a set compulsory management requirements as the minimum management package (MMP) which is set out for each TTEC in Appendix 3. Since all landowners will be required to undertake the MMP these threats do not need to be considered in the P_{loss} equations because they will not help distinguish between the investment values of different land manager bids.[4]

Probability of gain of state

P_{gain} is estimated in a similar way to P_{loss} but based on the probabilities that various management actions will improve the PMU sufficiently that it will make the transition to a higher state (and score). As noted P_{gain} is conditional on threats being managed effectively (i.e. no degradation to lower state).[5] A cumulative $P_{gainAll}$ for all management actions combined could similarly be calculated as:

$$P_{gainAll} = 1 - [(1 - P_{gain1}) * (1 - P_{gain2}) * (1 - P_{gain3}) *....* (1 - P_{gainN})] \quad (5)$$

Where:

P_{gain1}, P_{gain2}, etc = Probability that PMU will improve to higher state due to each relevant management action

Note that if the current state is the maximum state and hence improvement is not possible then $P_{gainAll}$ becomes zero. These PMUs are not disadvantaged because only management of threats is required to retain the maximum score whereas a PMU in a lower state has only some probability of attaining the higher state (see Section 5 for worked example).

3.3 External and isolation threats

External and isolation threats are the consequences of activities occurring outside of the PMU but which impact on the ecological condition within the PMU. They are described as follows:

1. External threats emanate from adjacent land uses and which impact on the PMU; and
2. Isolation threat results from the potential for ecological isolation which reduces the long-term viability of the plant (and animal) populations within the PMU.

[4] There are also a number of threats potentially present that are managed compulsorily by a variety of other legislative tools such as native vegetation clearing laws in NSW and SA. They fall into this category as well, i.e., they do not need to appear in P_{loss} equations.

[5] Adoption and success assumptions as per P_{loss}. It would be relatively easy to adjust the metric for observed deviations if required.

Additional descriptions beyond the technical details below are provided for external and isolation threats in the Interim Report. An example of the management units is provided in the Glossary.

Buffering to manage external threats

External threats from adjacent land uses are conceptualised as edge effects. These external threats to the PMU can be abated by undertaking a set of potential management actions in a buffer management unit (BMU). For an indication of the precise external threats being considered, please see Appendices 2 and 3.

For simplicity, as external threats penetrate to differing depths, we propose that minimum BMUs are grouped into two classes for which the edge depth depends on the ecological community (detailed in Appendix 2 and 3). Note there is no P_{gain} for external threats as buffering actions are only considered to abate threats (not enhance the PMU).

The damage to the PMU is dependent on the area of each PMU that is within the critical distance of the PMU boundary. For example, physical damage from edges exposed to cropping, wind damage, and so on may extend 20 metres into a PMU and thus require a buffer of 20 metres, while enhanced nutrient impacts from fertilising neighbouring land may penetrate more than 150 metres and therefore require an equivalent buffer (see e.g., Lovell & Sullivan 2006). We therefore recommend a special case of P_{loss} in Equation (6) for external threats and their associated buffering management actions:[6]

$$P_{loss} = P_{threat} * P_{degrade} * [(W_{EE} * (Perimeter - 4 * W_{EE}) / 10{,}000) / A] * [1- (P_{abate} * BP / Perimeter)] \quad (6)$$

Where:

P_{threat}, $P_{degrade}$, P_{abate} are defined as above.

$Perimeter$ = Perimeter distance around site offered in metres

W_{EE} = Width of edge effect is the depth to which threat penetrates the PMU for each relevant threat in metres

A = Total area of PMU offered in hectares

BP = Buffered perimeter

$W_{EE} * (Perimeter - 4 * W_{EE})/10{,}000) / A$: to a maximum of 1.

As previously it is assumed that P_{abate} will be 1 for all appropriately targeted buffering management actions except abatement of wind transport of agrochemicals in the absence of 30 percent cover of scattered trees and their protection (0.5 applied). Where buffering management actions can only be applied around a portion of the PMU (e.g., the PMU is located on a property boundary and only half the perimeter can be managed by the landholder), then P_{abate} will be reduced based on the

[6] Note in Equation (6) a correction factor is applied to $P_{degrade}$ based on the proportion of the site subject to edge effects, assuming the site is a rectangular shape (expected to be the most common shape). The correction term itself ensures that corners are not double-counted and is $4*W_{EE}^2$ which when simplified produces the form shown in (6).

proportion of the PMU boundary that will be buffered, and thus will partially, but not fully, cancel out the relevant external threat.

Managing isolation threats

Functional isolation of a PMU prevents the desirable flow of native individuals and their genetic material into a PMU thus creating an isolation threat (Wilcox & Murphy 1985; Debinski & Holt 2000; Lindenmayer & Fischer 2006). This is a threat because of the possibility of the PMU failing to function as a self-sustaining population. Research on minimum viable population sizes suggests that several thousand individuals are likely to be required for long-term viability (Traill *et al.* 2007). Hence smaller and more isolated PMUs of the TTECs targeted in the Multiple Ecological Communities Project are unlikely to be self-sustaining in the longer term. The seriousness of isolation as a threat depends critically on the size of the patch size of which the PMU is a part, so $P_{degrade}$ will depend on the relevant connected patch size.[7] Very small patches will have a high likelihood of losing state due to isolation effects while patches above a certain threshold size will have essentially no chance of losing state due to isolation effects (within 15 years).

Fostering connectivity in the surrounding landscape is thought to reduce the isolation threat and improve the probability of the various species that constitute the community persisting into the future (i.e., reducing the likelihood of a loss of state in a PMU). Where a landowner agrees to undertake connectivity management the total area of habitat that is functionally connected (including the area of the home patch itself) will be summed. $P_{degrade}$ associated with the isolation threat will then be reduced to the level one would predict for a patch the size of the entire area that is connected to the site (abutting and through connectivity management).

The practical application of the isolation concept is limited to woodland communities because it has not been possible to develop an effective remote assessment technique that meets the requirements of the MEC Environmental Stewardship Project within the timelines and technical capabilities available. The practical constraint is the assessment of communities on neighbouring properties. Woodland communities can be remotely assessed (for example via Google Earth technology based on satellite imagery), grasslands cannot. Hence, isolation threat is only applied to PBGW, WMW, and BGGW (including BGGW derived grasslands).[8] Ideally functional isolation will be extended to grassland settings in a future MEC CVM.

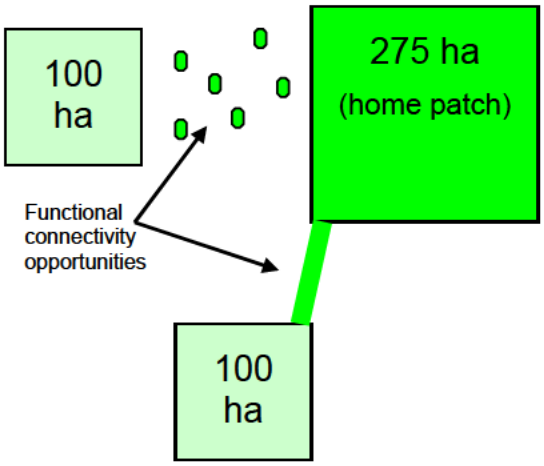
The concept is illustrated in Figure 2 which shows a potential patch of 275ha which may be functionally linked to two other patches each of 100ha. One linkage is via an existing vegetation corridor and the other via 'stepping stones', perhaps consisting of scattered paddock trees. Note that the PMU could comprise part or all of the 275 ha

[7] Where the PMU is part of a contiguous larger patch the relevant scale for assessment is the patch. Hence, we use the term patch of which the PMU may only form part. Patches will need to be connected to the relevant PMU as described in the RAP and may consist of the same TTEC or other similar woody native vegetation communities. Patches may also contain other PMUs, or be part of BMUs. The maximum patch size at which there is no isolation threat is stated in Appendix 3.

[8] We anticipate that grassland sites (BAG and IGG) are likely to be disadvantaged due to small size and expensive management of threats such as weeds. Therefore the inclusion of an isolation threat is unlikely to significantly disadvantage woodlands over grassland communities.

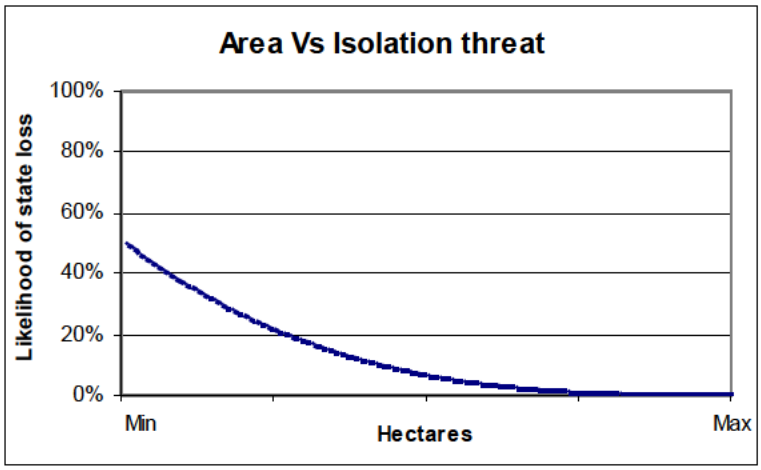
patch for the purposes of isolation (though connectivity management would also be required in any intervening part of the home patch that occurs on the landholder's property between the PMU and functional connectivity opportunities).

Figure 2: Functional connectivity in landscapes



We propose that the shape of the relationship between the patch size and the isolation threat is as per Figure 3 which represents a cubic form with a maximum $P_{degrade}$ value of 0.5 (see Equation 7). This is based on a pragmatic application of broad ecological theory (see e.g., Soulé 1987). As per the probability matrices (see Appendix 3 and discussion in Interim Report) expert opinion is used to identify the patch size at which the isolation threat is eliminated.

Figure 3: Relationship between area and isolation threat



The isolation threat is somewhat different from all other threats in our conception of the CVS because management actions influence our calculation of $P_{degrade}$ rather than coming into our calculation as a P_{abate} value. Thus, for isolation threats we will calculate a P_{loss} value according to the following equation:

$$P_{loss}\ (\text{Isolation}) = P_{threat} * P_{degradeI} \qquad (7)$$

Where:

P_{threat} = 1 for isolation (because it is always assumed to be a potential threat)

$P_{degradeI}$= Probability that isolation will be severe enough to lead to a lower state after including the effects of connectivity management (if any undertaken) to increase the effective size of the patch

The cubic form of $P_{degradeI}$ can be estimated as:[9]

$$P_{degradeI} = [(1 - A_{CP} / A_{NIT})^3] / 2 \quad (8)$$

Where:

A_{CP} = Area of connected patches up to a maximum of A_{NIT}

A_{NIT} = Patch area at which no isolation threat (NIT) is considered present for the relevant TTEC

The value of P_{loss} (Isolation) can then be included with all other P_{loss} values to calculate $P_{lossAll}$ according to Equation 4 above. Increasing A_{CP} reduces the isolation threat until $A_{CP} = A_{NIT}$ at which point it becomes 0.

A number of specific assumptions apply to the patch isolation threat methodology, most of which are based on Doerr *et.al.* (2010):

- Patches for which functional connectivity is considered must be within 1.5km (measured from nearest edge to nearest edge) of the patch that hosts the PMU;
- Functional connectivity can be achieved by managing existing continuous corridors of vegetation or stepping stone paddock trees or similar, as long as the gaps within or between these features average no more than 100m with no gaps exceeding a maximum distance of 165m;
- Population size (and thus population viability) is determined solely by patch size with no effects attributable to variation in patch quality or condition (both in the PMU and in connected patches). In reality, both are important but it is not feasible to evaluate the state/condition of connected patches, so all patches will be assumed to be of average quality; and
- Functional connectivity is only possible for woodland communities due to difficulty in identifying patches and connectivity in grassland communities and to a dearth of empirical research on connectivity in such communities.

3.4 Aggregation

The proposed aggregation structure for the MEC CVS is as set out in Equations 1 and 2 (repeated below):

$$MEC\ CVS = PMU_{15} * A_{PMU} * D * S \quad (1)$$

The PMU score in fifteen years is estimated by:

$$PMU_{15} = PMU_{I-1} * (P_{lossAll}) + PMU_I * (1 - P_{lossAll}) * (1 - P_{gainAll}) + PMU_{I+1} * (1 - P_{lossAll}) * (P_{gainAll}) \quad (2)$$

If multiple PMUs are included in a single bid then (1) becomes:

[9] Hence for sites equal or larger than A_{NIT} then $P_{degradeI}$ equals 0.

$$MEC\ CVS = [\sum_{i=1-n} (PMU_{i,15} * A_{PMUi})] * D * S \quad (10)$$

Where the additional subscript i denotes the relevant PMU ($i = 1, \ldots, n$).

For completeness we note that Area, Duration and Security are defined as follows:[10]

A_{PMU} = Area of PMU offered in hectares.

D = Duration of contract that the landholder is interested in. Strictly D is estimated as (contract length/15).

S = Security of offer which relates to the relative permanency of the proposed management changes through a conservation covenant.

The CVI is calculated as CVM per dollar bid. That is:

$$MEC\ CVI = CVS / \$ \text{ bid} \quad (11)$$

Equation 11 represents the standard benefits per unit of cost form of CVI. The dollar bid is the total cost of the proposed bid over the selected contract period (between ten and fifteen years).

Discussion notes and reminder of key assumptions

Several critical assumptions underpinning the discussion above are set out below:

1. If a synergistic interaction between threats or management actions is expected then a combined $P_{degrade}$ or P_{gain} would need to be constructed for the particular combination of threats or actions.
2. It only takes one unmanaged high probability threat to reduce a PMU's score substantially. Therefore, even if a number of threats are successfully managed the score will drop if a single threat is not successfully managed. Similarly, it takes only one high probability management action to raise the site score towards the next state.
3. A loss of state 'trumps' a gain in state. This assumption is clearly expressed in Equation (2) where the probability of achieving PMU_{I-1} is based only on the probability of losing state while the probability of achieving PMU_{I+1} is based on the probability of gaining state multiplied by the probability of NOT losing state. Put simply, if you are not managing a threat an enhancement action is much less likely to be effective in driving a transition to an improved state.
4. The proposed metric is constructed as an absolute expected value. A net value metric could be constructed from a differenced functional form.
5. A given PMU can make no more than a single transition up or down during the 15-year management period. Shorter contracts (10-14 years) are treated as 15-year contracts for this purpose.
6. Estimates for all required probabilities are valid (see Appendix 3 discussion).

[10] If different security or contract lengths were allowed for different PMUs then D and S could be included within the summation in Equation 10.

4. Brief description of the MEC CVM Tool

The MEC CVM Tool is the structured vehicle for capturing the necessary information to calculate the MEC CVS as set out in Section 3 using the information from sources including that collected from application of the RAP and pre-determined probability matrices (per Appendix 2 and 3). Specifications for the tool evolved constantly throughout its development due to re-specification of tool requirements and the concurrent development of data definitions (specified in the RAP). A specification matching the final tool functionality is set out in Attachment C; and Attachment D is a prototype version of the tool for the purposes of initial testing. In this section we briefly describe the purpose, outputs, assessment steps, and an overview of the proposed program flow.

4.1 Purpose and outputs

The primary purpose of the MEC CVM Tool is to facilitate entry of site data across the PMU, BMU, CMU and area of connected patches in a consistent way. Data collection was standardised to the level of detail required in order to calculate the MEC CVS but left sufficiently generic to allow for tool re-parameterisation with new TTECs in future funding rounds (see discussion below). Entered site data includes the management history and vegetation parameters required to identify the ecological condition of the TTEC (per PMU) as well as the any threats present that might alter that condition. Consistent data collection (using the RAP) and collation (via the CVM Tool) is what underpins the comparison of sites in a competitive tender. It also facilitates some auditing requirements that are necessary for confidence in program outcomes. Export of data from the tool facilitates this auditing role as well as analysis of bid data for future program design.

A related purpose in the Environmental Stewardship MEC Project is to inform management choices by participating land managers by presenting management options specific to each PMU and its TTEC, the ecological state of that community, and the threat present. It does this by presenting management options in decreasing rank order of importance and with broad guidance to their prioritisation (via colour coding high, medium, or low). This information is necessary for land managers to identify those management activities that are most likely to yield the benefits desired by Environmental Stewardship and to begin the complex task of determining which to include in their proposal, in part based on their assessment of the costs and benefits that will result for their farm enterprise.

To allow for reuse of the tool in any potential future Environmental Stewardship funding rounds, extensive components of the tool allow the addition of new vegetation classifications with different S&TM structures and related vegetation attributes without the need for any programming skills. Parameterisation of the tool including redefinition of key words, scheme name, duration and covenant constraints, vegetation classifications and values, threats and on-ground management actions, and their associated probabilities of occurrence and success, is completely controlled via a set of interactive forms that can be selectively accessed by the program manager but hidden from the end user. We note that this level of re-usability comes at some cost of reduced specific capability. For example, plot data about vegetation attributes is constrained in the tool to selection of a single class value for each attribute at each PMU. Taking this approach allows the tool to be parameterised in the future for new

vegetation communities with different attributes and values of those attributes. However it forgoes the capability of digitally recording intermediate data used to calculate those values in the tool itself. In order to provide that functionality the tool can be parameterised to define a Microsoft Excel template to be used for storage of those data and calculation of attribute class values. For each PMU and TTEC combination the tool generates a copy of the template named according to the site reference code and the PMU number and opens the workbook for the user.

To ensure the CVM Tool is fit for purpose it must also meet a number of other constraints where possible, including:

- Ensure that naming conventions are adhered to throughout the tool (communities, states, personnel, reference ID, etc);
- Maximum compressed size of the tool program and associated data should be less than 2MB to facilitate email of data;
- Allow creation of PDF record of site visit; and
- Incorporate access level control as necessary for confidentiality and security provisions.

The CVM Tool will provide several outputs necessary to facilitate analysis and protect the integrity of the data collected. For the purposes of calculating a CVS and then a CVI for bids in the Environmental Stewardship MEC Project these include features such as output of tabulated bid, site, management and CVS data. For the purpose of communicating with land managers the tool will provide printouts of site data and state predictions based on entered attributes and management options selected. Finally, for reporting purposes the Tool will export hectares of TTEC versus total area managed within site by state, buffers and connectivity.

4.2 Assessment steps and flow in MEC CVM Tool

The CVM Tool is primarily designed to be used with respect to site based assessment, and hence there may be a number of pre-site assessment steps that are not built into the CVM Tool at this point in time. The CVM Tool follows the same logical structure of MEC Request for Site Assessment (RFSA), and RAP assessment processes. Each site at RFSA stage may initially be comprised of one or more proposed areas each with a single TTEC. Each proposed area may be set up to have one or more PMUs with vegetation representative of the TTEC for that proposed area and apparently homogenous in state. They are allowed to contain up to 20% in area of another vegetation type. Each PMU is assessed against one set of state variables and management history questions that are specific to its TTEC. To restrict the potential for erroneous data collection, the CVM Tool will only allow one version of each site, PMU, and management combination to be entered; and any redundant PMUs (i.e. those for a specified area or PMU that are no longer under consideration) can be manually deleted.

Data is to be collected in the Tool in the following steps:

1. Pre-proposal documentation comprising a reference number, field officer allocation.
2. Pre-assessment check via a series of Yes/No questions which gather basic data about catchment, proposed areas, TTECs present, minimum size, and past management provisions (see relevant sections in RAP).

3. Plot assessment for each PMU (see relevant sections in RAP).
4. Post-assessment land manager discussion and data review including:
    a. Duration of proposal (must be 10-15 years).
    b. Whether the land manager proposes to covenant.
    c. Site data review by PMU including confirmation of size, threats and present landuse parameters.
    d. For each PMU, the management actions that are compulsory and additional optional actions, whether a BMU is proposed to be managed and over what proportion of the perimeter, whether a CMU is proposed.
    e. Provision to capture comments and other information.
    f. Export of a PDF record of site visit that can be given to the land manager.

Subsequent to the site visit and associated data entry, the CVM Tool facilitates management plan preparation by exporting both the PDF record of site visit and if desired using the exported a Microsoft Excel data file as an input into a Microsoft Word template of the management plan.

5. MEC CVM calculated CVS testing and adjustment

The aim in this section is to provide an overview of the functional implications of the MEC CVM Tool for the ecological and management driven aspects (calculated as the CVS). We show the range of scores that can be expected given the functional form and threat probabilities. In addition we aim to verify that the calculated CVS does in fact perform as expected with respect to differing management actions, including when buffering and connectivity management options are included. We note several adjustments to the CVS that have been made since it was demonstrated in the Mock Auction procedure (see Appendix 5). The CVM Tool will also be directly tested prior to field implementation to ensure that the required data is correctly collected and assembled to calculate the CVS that is the focus of the tests in this section.

To deliver these objectives we provide a concise summary of the performance of the metric for one TTEC, Peppermint Box Grassy Woodlands (PBGW). We consider the variation in scores as a result of internal threats and management actions, including additional enhancement management actions and both buffering and connectivity management to address external threats. Tests for each of the four remaining communities (including the two streams of BGGW) are provided in Appendix 7. Additional details of testing of individual components of the metric were also conducted and are available on request.[11] The section concludes with discussion of the implications of the MEC CVS and a summary of the recommended adjustments to the CVS calculations. We do not provide additional tests relating to area, duration or security as there is no mathematical reason for why these components would perform other than expected. Additional sensitivity analysis with respect to these components can be performed if necessary.

5.1 Illustrative performance of calculated CVS using PBGW

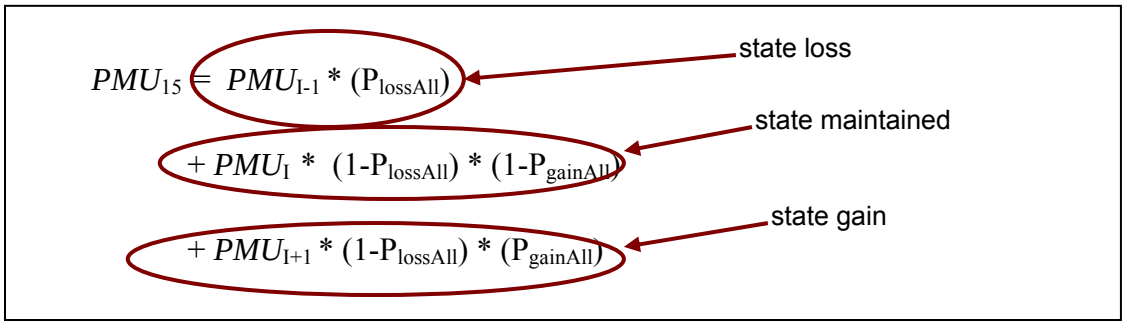
Aggregated score resulting from internal threats

To illustrate the performance of the calculated CVS we provide a detailed analysis of the performance of the metric for PBGW. We initially use a simplified form of the calculated CVS to spell out some of the key functionalities and implications. To demonstrate the components of the metric and to ensure it performs as expected we tested the internal, external and isolation threat contributions to the PMU_{15} component of the score. Internal components can be further divided between their contributions to the three possible outcomes from investment: state lost, state maintained or state improved. These components are illustrated in Figure 4 (repeat of Figure 1). All analyses were conducted using the metric functional form as set out in Section 3 and the probability matrices contained in Appendix 3.

[11] Additional testing included examining the contribution of:

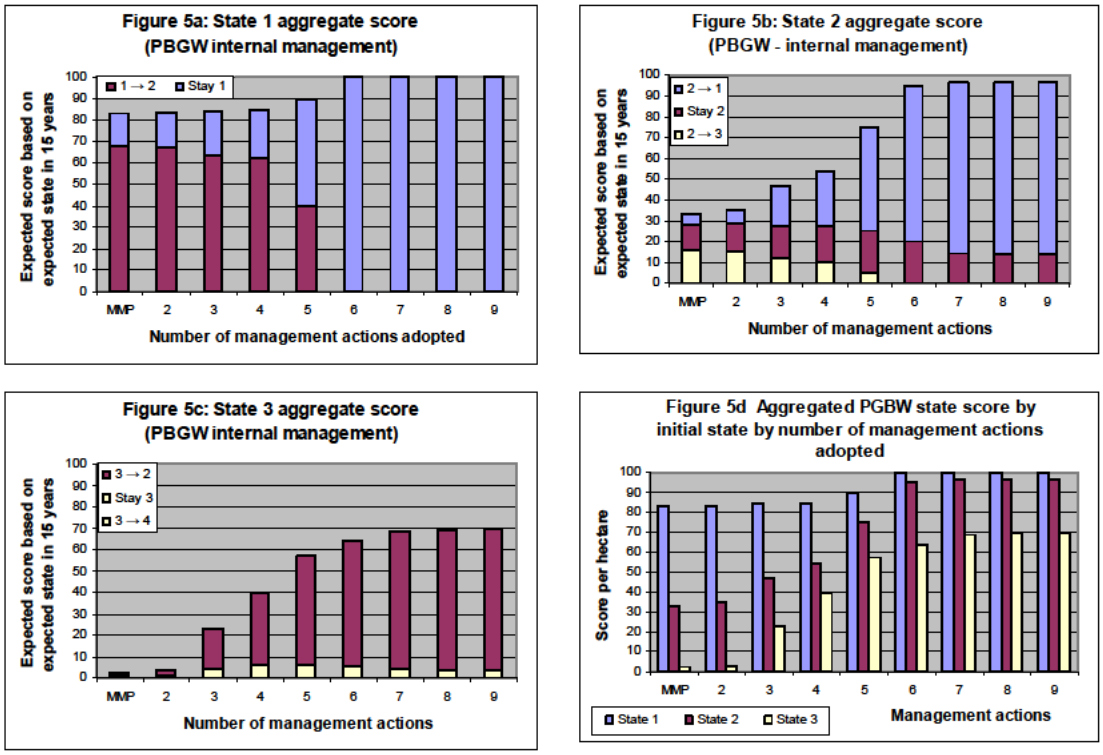
- The contributions of each of state loss, state gain and state maintained to the aggregate CVS for each community to ensure they performed as expected;
- The implication of differing buffer depths on the impact of external threats on PMUs; and
- The implication of different maximum patch areas on the impact of isolation threats on PMUs.

Figure 4: Mapping of internal threat scoring in subsequent figures



The effects of internal threats and their management on the aggregated score are shown in Figure 5. In each case all internal threats are assumed to be present while we exclude consideration of external and isolation threats until later in this section for simplicity of explanation. Figure 5a shows impact of management actions on the per hectare score for a PMU initially in State 1 condition. The maximum possible score of 100 is achieve once all management actions (MMP-6) which abate internal threats have been undertaken (enhancement actions have no impact as there is no higher state available). Figure 5b shows the impacts for a PMU initially in State 2 condition. The score impact of unmanaged internal threats is greater than for a State 1 PMU because the likelihood of state loss to the low score State 3 condition is high. Management of internal threats abates the potential for state loss and allows for greater probability of state gain and a higher score. Figure 5c shows the equivalent analysis for a PMU initially in State 3 condition. For initial states 2 and 3 the maximum score attainable for each initial state is less than 100 which illustrates the point that degraded initial states do not have a 100% likelihood of state gain. Figures 5a-c demonstrate the importance of managing threats in order to facilitate state gain and the consequence in the CVS which is summarised in Figure 5d which compares the aggregate score by initial State and the number of management actions adopted.

Figure 5: Aggregated PMU_{15} and number of internal management actions adopted



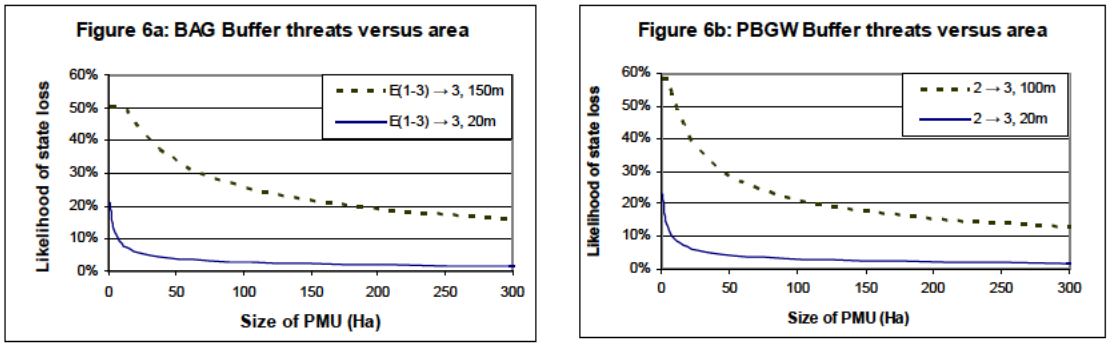
Notes: 1. MMP is the minimum management package that all participants must accept and 2-9 represent additional management actions that may be adopted.

2. The apparent differences between each bar are partially dictated by the order in which threats are entered. Since only the combined likelihood is relevant this is not noteworthy for analysis.

Aggregated score when external and isolation threats are included

External threats can be abated via buffering management actions and isolation threats can be abated via connectivity management for woodland communities. In both cases the impact of the threat on the score is dependent on the size or landscape context of the PMU. The impact of size on adjusted external threats is shown in Figure 6 (Equation 6 applied with a fixed edge ratio PMU of different sizes and assuming all external threats are present). Because external threats only penetrate PMUs to a certain distance, the larger the PMU offered the smaller the probability that external threats will cause a loss of state, and thus the smaller the benefits of buffering management actions. Figure 6a shows the impact of two buffer depths for the relevant threats for BAG. Similarly Figure 6b shows the impact of two buffer depths for PBGW. Note that the required larger buffer depth for BAG is 150m and for PBGW it is 100m. The difference is due to a pragmatic trade-off between property sizes and practicality of buffering compared to the penetration of the relevant threats. The only significant difference between the two examples is the slower reduction in threat as the PMU size increases for BAG compared to PBGW when a large buffer is required due to the greater buffer depth requirement.

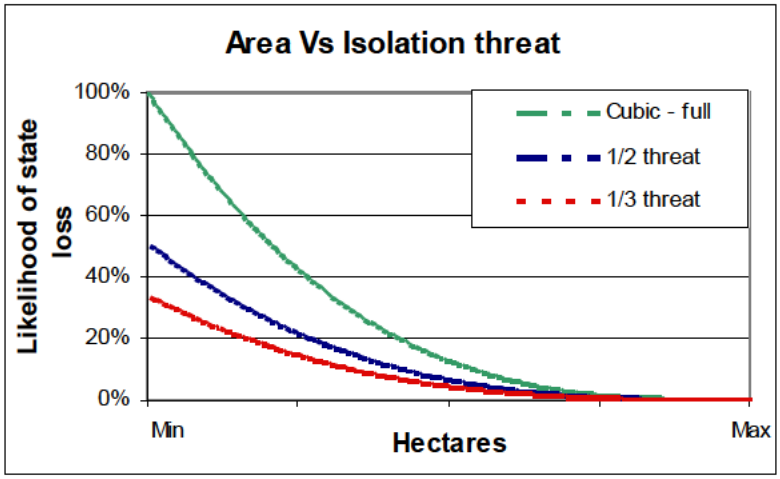
Figure 6: Example impact of external threats on likelihood of loss of state



The buffer depths shown in Figure 6 reflect a recommended adjustment by CSIRO to ESS following initial MEC CVS testing for the Mock Auction on 21 May. The original widths (of 30m and 150m for SA communities and 30m and 300m for NSW communities) were considered to impact too strongly on scores and thus on likelihood of land manager participation and were reduced to 100m and 20m for SA communities and 150m and 20m for NSW communities. Threat probabilities were also reduced for the same reason (only large threats were reduced by approximately one third).

The likelihood of state loss as a function of total connected area of woody communities is shown in Figure 7 for a cubic function, starting with the smallest possible areas (approaching 0 ha) experiencing full, half and a third of the maximum possible probability of state loss of 100%. We recommend using a cubic function per Equation 8 and have introduced the 0.5 weighting (maximum possible likelihood of state loss of 50%) following sensitivity analysis per below, to ensure that the impact of connectivity management on PMU_{15} scores is not overwhelming compared to the impact of other management actions.

Figure 7: Impact of isolation threat on likelihood of state loss as a function of total area of connected woody vegetation patches

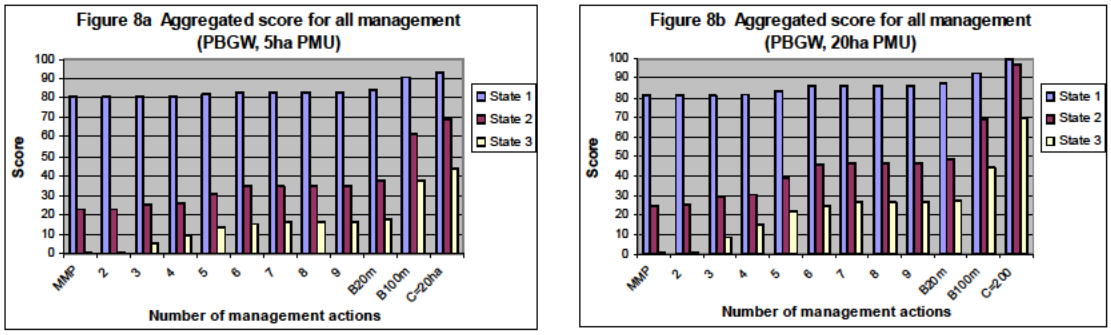


A fully aggregated score representing the PMU_{15} of the MEC CVS is shown in Figure 8 for all initial states for two scenarios: a) 5 ha PMU and b) 20 ha PMU. The impact of additional management actions is shown from left to right with buffering combined

into two management actions for simplicity.[12] The impact of buffers and connectivity on scores is clear with large gains in scores resulting once all buffer management actions are adopted (to a buffer width of 100m for PBGW). The impact of connectivity is illustrated by the right most bar in each panel, given the cubic function and the 0.5 weighting described above. The 20ha PMU (Figure 8b) is connected to at least an additional 180ha while the 5ha PMU (Figure 8a) is connected to an additional 15ha. Managing connectivity to a large area as well as all threats allows state 2 and 3 PMUs to achieve relatively large scores.

Note also the spread in scores whereby adopting the MMP alone on state 3, unconnected PMUs scores very low. Offering to manage all internal threats and offering buffer and connectivity management to large areas will score highly, even for initial state 3 PMUs. Note that while state 1 PMUs will always score highly they will also be very rare. More important is the spread across state 2 and 3 PMUs. Ignoring the order effect (see note under Figure 5) we can see that it is possible for bids offering well-managed state 3 PMUs to outscore poorly-managed state 2 PMUs. However we note that state 3 PMUs which fail to offer either buffering or connectivity are unlikely to score well. Similarly state 3 (and to a lesser extent state 2) PMUs which are buffered but do not offer internal management will score relatively low scores.

Figure 8: All inclusive aggregated PMU_{15} for PBGW for two sizes of PMU

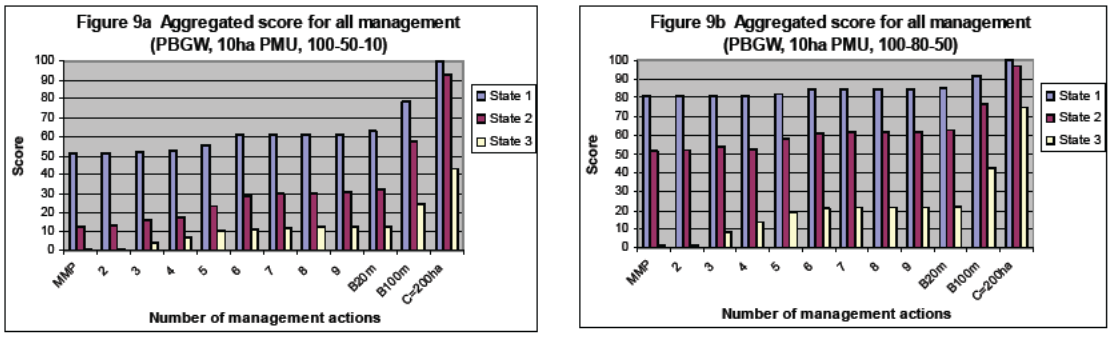


Note: scores estimated assuming all threats present.

The impact of state scores (i.e., the assigned relative values discussed in Section 2 of this report) on the spread of PMU_{15} scores is illustrated in Figure 9. Reducing the state 2 score (left panel) has significant impact on the relative spread between the maximum scores that state 2 and state 3 PMUs can achieve. A higher state 3 score (right panel) relatively advantages state 2 PMUs by reducing the minimum score they can achieve (due to the single state step restriction). Impacts on state 1 scores are proportionately minor. No changes to relative scores are recommended for PBGW.

[12] Appendix 7, Figure A7.15 shows each buffer management component separately.

Figure 9: Impact of state scores on spread

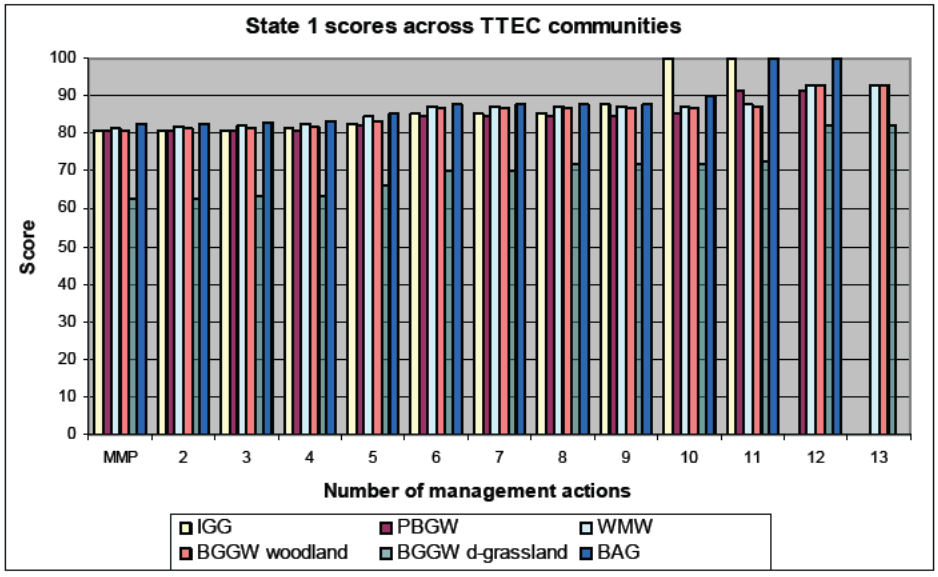


5.2 Overall performance of CVS

A synopsis of the additional testing of the MEC CVS that has been performed is shown in Appendix 7 which provides equivalent Figures to 5, 6 and 9 for each of the remaining TTECs. The figures demonstrate that the calculated CVS is performing broadly as expected. The maximum scores for higher states always exceed degraded states. Degraded states for which additional management is offered often outscore states in better condition except for state 1; which generally outscore all degraded states (and which are very rare and highly valued). This is identical to the conclusion for PBGW noted above.

Additional tests performed on cross community comparisons of the calculated CVS are shown below in Figures 10 through 12. Note that the number of management actions that apply in each community may differ, so that it is not easy to compare the maximum scores. Scores across communities appear to be relatively consistent except the BAG TTEC which is discussed further below (Figure 10). The only case in which scores are consistently lower is the derived grassland states of BGGW which is as expected because a lower maximum score was prescribed in section 2 due to the absence of trees (Figures 10, 11, 12).

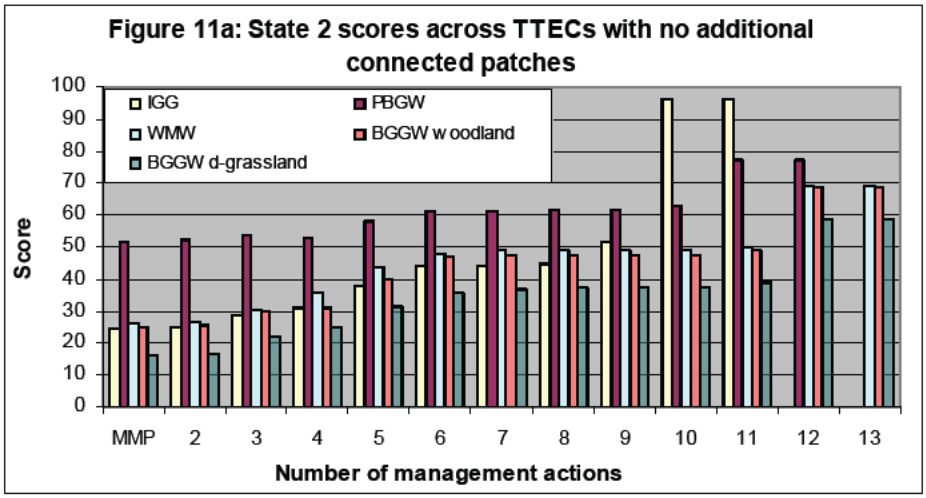
Figure 10: State 1 scores across TTECs using representative PMU size

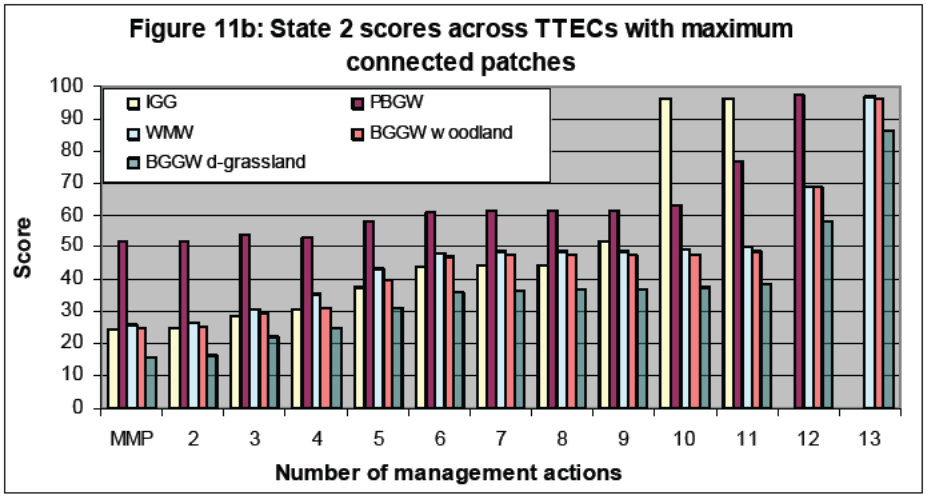


Note: scores estimated assuming all threats present and no additional connected patches. BAG included.

Note the implications of removing connectivity considerations for grasslands which are shown by the splits between no additional connected area and maximum connected area in Figures 11 and 12. Recall that connectivity management is not an option for grasslands due a lack of knowledge and difficulty in assessment. The influence of total connected patches on scores is best demonstrated by noting that the maximum IGG scores are much higher than woodland communities in Figure 11a and 12a (where no additional woodland patches are connected). This is the result of the CVS being structured to remove the isolation threat for grasslands (except BGGW derived grasslands which are a state of BGGW). Hence, even small grassland sites are able to score highly. However, keep in mind that such grasslands are unlikely to be in a high initial state, will be difficult, expensive or impossible to buffer (and thus abate external threats), and because of their small size are likely to be more expensive per hectare to manage. In advance of the tender we do not know what the relative interplay between these components will be; therefore we are comfortable with the relative scores shown below and recommend that the isolation threat be treated as zero for grassland settings.

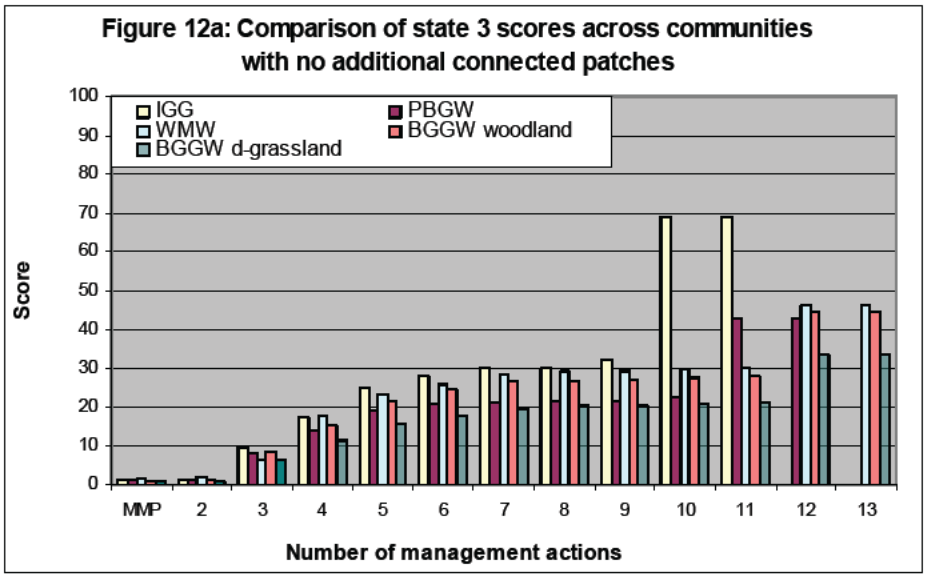
Figure 11: State 2 scores across TTECs using representative PMU size

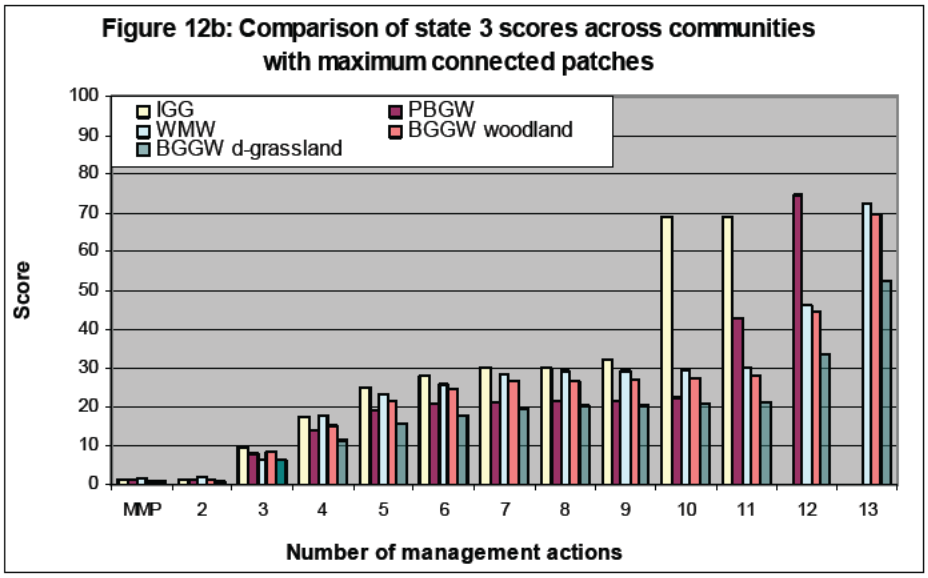




Note: scores estimated assuming all threats present. No BAG TTEC shown. Different communities have different numbers of potential management actions hence no data for some in 12, 13.

Figure 12: State 3 scores across TTECs using representative PMU size





Note: scores estimated assuming all threats present. No BAG TTEC shown. Different communities have different numbers of potential management actions hence no data for some in 12, 13.

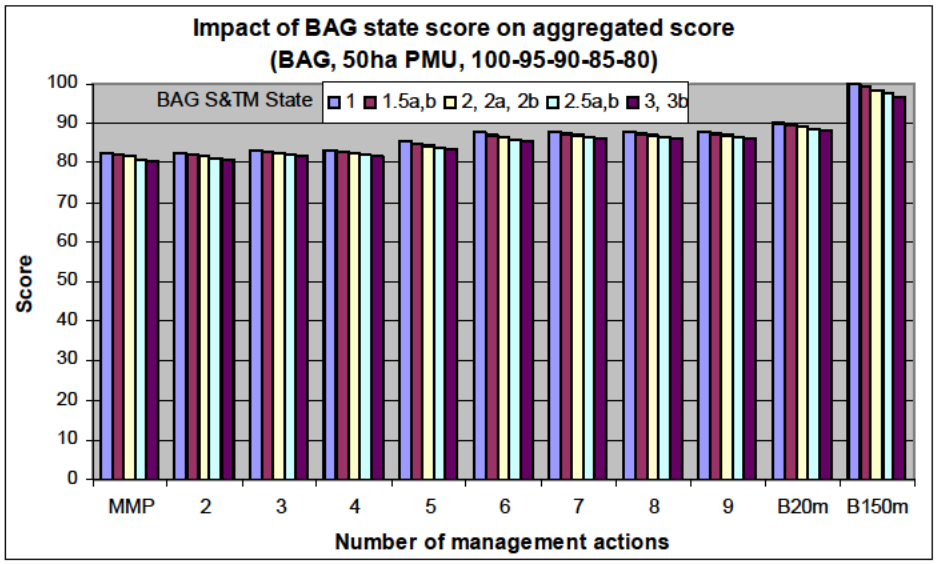
In contrast to the other four remaining communities, the interaction between the relative scores provided for BAG and the BAG S&TM do not produce a significant spread in scores as shown in Figure 13a. The current structure means that the MMP is assumed sufficient to prevent degradation beyond the revised state 3 for any successful BAG tender.[13] The relative values ascribed to BAG in all states are high (between 80 and 100). Thus the ecological interactions with management actions indicate that the PMU_{15} score cannot be below 80 no matter what the initial state and

[13] We note in passing that the ecological relationships for BAG suggest that it is a strong candidate for an outcome oriented payment rather than the current management input structure Environmental Stewardship is testing and recommend this is considered in future. The potential for an outcome oriented payment results from the relatively rapid and directly linked response to management, and the ability to distinguish between the relative values of different sub-states.

with sound management may approach 100 for all initial states if all management actions are undertaken.

The lack of spread in initial scores (the second point above) tends to drive the spread in scores as illustrated by Figure 13. The revised S&TM reflects a compressed score spread and the potential for recovery across the eligible states in the BAG S&TM. The tight score spread us likely to lead to a price threshold effect whereby virtually all BAG offered above a price being accepted and similar effects below a lower threshold price (determined by interactions with other community offer values).[14] If the BAG bids fall between the two thresholds then selection will be dominated by price variation rather than the small CVS variation.

Figure 13: All inclusive PMU_{15} for representative BAG PMU size



Note: no connectivity management as it is not relevant to grasslands.

[14] The low discriminatory power of the BAG score introduces a risk that, relative to other communities, an inordinately high or low amount of funds, may be allocated to BAG or small or large area of BAG purchased. While this risk is likely to be low (BAG sites are high fertility and therefore likely to have significant opportunity costs in addition to management costs) an area target may be considered in addition to any budget requirements. The area target would avoid purchasing a very large area of BAG in the unlikely event that BAG offer prices (bids) are relatively cheap compared to other communities (keeping in mind that there is little discriminatory power in the CVS relating to BAG). We assume that if BAG is relatively expensive (given the high score) there will not be a desire to purchase additional BAG.

6. Rapid Assessment Protocol

6.1 What the RAP approach is

The MEC CVM Tool requires input from a field officer on a range of different parameters, including not only data to determine the initial state (from the State and Transition Models; S&TMs) of a primary management unit (PMU), but also information on threats present within the PMU and those present adjacent to the PMU. The CVM Tool is also interactive in that it processes these data to determine which management actions are appropriate for a given PMU and what their relative priorities are (i.e., high, medium, etc.), information that must then be used by the field officer in conjunction with the landscape context of the PMU (obtained via aerial imagery) to help the land manager decide which management actions to undertake. Thus, there are a range of different tasks the field officer must perform, different tasks require different tools (GIS, the MEC CVM Tool, gear for field data collection, etc.), and tasks must be performed in a particular order. As a result, it is critical that field officers be provided with a single detailed protocol that describes all of these steps and how to perform them in prescribed order.

The Rapid Assessment Protocol (RAP) has been designed to be that complete protocol – describing the steps a field officer must go through for each proposed site, from receipt of the Request for Site Assessment (RFSA) form to sending the draft management plan to the land manager. For the portion of the RAP that involves collection of on-ground vegetation data within PMUs to assign them to states within the S&TMs, we needed to simplify the S&TMs as provided by EcoLogical (Wall 2010). The purpose of the simplifications was merely to ensure field officers were collecting data that could be used to distinguish between states (rather than describe multiple states without distinguishing among them) and to focus on variables that could be assessed rapidly on a 50m x 20m plot. These simplified S&TMs are provided in Appendix A.1 of this report.

Our final RAP version is as complete as possible based on development of the MEC CVM Tool. However, some of the field officers' tasks are less related to direct inputs to the CVM Tool and more to data storage (e.g., for GIS information). Thus, there are additional instructions being developed by ESS that will eventually need to be integrated into our RAP.

6.2 Conclusions from field testing RAP

We initially developed a draft Rapid Assessment Protocol, then tested it in the field and revised it according to our findings. Our field testing of the RAP was intended to accomplish just a few specific objectives:

1. Ensure that all aspects of the RAP were technically feasible as well as practical in a field setting;
2. Ensure that state assignments made by the RAP in the field were broadly consistent with the management history of PMUs and the general condition of the PMU based on the knowledge of local experts; and
3. Ensure that the relative state assignments made by the RAP in the field were sensible across PMUs that varied in management history and general condition.

We carried out field testing in PMUs of all five different TTECs that the MEC CVM is designed to evaluate and compare. Working in conjunction with local experts, we identified and arranged permissions to visit 4-8 PMUs of each community. PMUs were selected to represent a range of ecological conditions, management histories, and, to some extent, geographical variation (particularly for communities where experts suggested that such variation was important). For most PMU visits, the project team from Canberra (made up of CSIRO and ESS researchers) was accompanied either by a local expert possessing detailed knowledge of the TTEC in question or by the land manager responsible for the PMU (or occasionally by both).

Field-testing demonstrated that our approach was generally robust and practical to implement. However, based on these experiences, we made a number of changes to the Rapid Assessment Protocol (RAP), the state and transition models (S&TMs), and/or the general approach of the MEC Project. These changes were to ensure greater ease of implementation and more appropriate assignment of state to ensure appropriate comparability of PMUs within and across TTECs. The most significant of these changes were:

- To exclude the possibility of connectivity management for grassland communities due to the extreme difficulty of evaluating connectivity for grassland PMUs quickly and easily (e.g., using remotely sensed data);
- To provide greater clarity and simplicity in the determination of 'intergrade' (and thus when a PMU needs to be divided into multiple PMUs), in order to make this process less time-consuming for field officers and thus less expensive;
- To divide threats of proliferation and invasion of exotic plants into two groups based on the species present – those that are more aggressive invaders and proliferators and those that are not. This was based on the fact that a number of PMUs contained exotic plants, but ones that are not very aggressive and thus might not have the same probability of causing a loss of state within 15 years;
- Eliminate scalding and groundwater salinity as threats, given that they are often symptoms of other threats and cannot always be locally managed;
- Include transfer of herbicides, pesticides and other agro-chemicals as an external threat, in addition to transfer of nutrients;
- Use PMU management history as criteria for making a final determination of state for PMUs that have been assigned to a particular state based on only one ecological variable; and
- Redesign the Basalt and Alluvial Grasslands S&TM to allow for two states with transitions but continuous variation in condition within the higher state. This change was needed to cope with a mismatch between the original S&TM characteristics and characteristics of PMUs observed during the field testing, and particularly a lack of on-ground evidence for the existence of more degraded states as described in the original S&TM.

Full details are provided in the RAP Field Testing Report (see Attachment B at the end of this report).

6.3 Summary of the RAP

The Rapid Assessment Protocol involves the following basic steps:

1. **RFSA Check:** Perform desk-top analysis to confirm the site is eligible for a site visit.
2. **Prepare Aerial Images:** Make appointment with land manager for site visit and prepare aerial imagery for assessing and discussing management options with land manager.
3. **Site Assessment (Intro & Field History):** Have initial discussion with land manager on the program, aerial images, and previous management history of proposed PMUs.
4. **Site Assessment (PMU):** Verify boundaries, eligibility of PMU(s), and presence of internal threats through brief tour of PMU(s) and discussion with land manager.
5. **Site Assessment (BMU and CMU):** Verify presence of trees in potential buffer and connectivity areas and presence of external threats through brief examination of areas adjacent to PMU(s) and discussion with land manager.
6. **Site Assessment (to assign state of PMU):** Collect ecological data (using a 50 m x 20 m sampling plot) that will allow MEC Tool to assign a state each PMU.
7. **Management Discussion:** Use MEC Tool to generate the list of potential management actions with relative priorities and discuss actions within PMU(s) as well as buffering and connectivity management with land manager to determine what they wish to offer in terms of management units and management actions.
8. **GIS Confirmation:** Enter and confirm all spatial data after site visit using GIS.
9. **Prepare Draft Management Plan:** Use 'Data Export' in the MEC CVM Tool along with aerial image and the management plan template to prepare draft plan for land manager to confirm their choices and to help them cost their bid.

The first two steps ensure the field officer has prepared properly for a site visit in terms of verifying eligibility based on data submitted in the RFSA, preparing the MEC CVM Tool, and preparing aerial imagery to evaluate buffering and connectivity potential at a site. Steps 3-5 are performed during the site visit, preferably with the land manager present, to verify eligibility as well as potential buffers and connectivity based on on-ground information. Steps 3-5 also help field officers properly define the boundaries of areas of the TTECs that the land manager will offer to manage as part of the Environmental Stewardship Program (PMUs) and evaluate the presence of threats to the PMUs. Step 6 does not require the land manager to be present and involves collecting vegetation data on a 50m x 20m representative plot for each PMU – data that the MEC Tool uses to determine the initial state (based on the S&TMs) of the PMU. In step 7 the field officer uses the MEC CVM Tool to develop the list of potential management actions the land manager could select (including buffer and connectivity management) and uses that along with the aerial images as the basis for a conversation with the land manager to select management actions and begin to develop a management plan. In steps 8-9, the field officer returns to the office to

confirm spatial details of the site and prepare the draft management plan for the land manager to use in preparing a bid.

The detailed protocol is provided in full in Appendix A.4 at the end of this report.

7. Conclusions

7.1 Summary of MEC CVS project outcomes

In this report we have described the design, testing and linkage to field collection of the necessary data to deliver a MEC CVS. The proposed Environmental Stewardship MEC CVM Tool and supporting material comprises:

i. An expected value-based scoring mechanism for multiple communities and comparison across bids that results in a single score from each bid offered which is conceptually constructed by PMU offered so far as is practicable;

ii. A method for including the impacts of agricultural matrix management on the offered area(s) via the consideration of external threats and their management via BMUs;

iii. A method for including landscape context via the consideration of isolation threats and their management in agricultural matrix through the use of CMUs;

iv. The proposed MEC CVM Tool is constructed based on the S&TM and directly links management scores to probability of successful transition between states;

v. The transition probabilities between states in the S&TMs describe the opportunities available to private landholders to manage threats and/or deliver enhancement opportunities relevant to the particular state and location of the PMU relative to the surrounding agricultural matrix;

vi. The MEC CVM Tool is supported by a rapid assessment protocol (RAP) which sets out the procedure for conducting site assessments. The RAP and supporting evidence classifies each TTEC into states in the S&TM and will allow for consistent and robust assessment of threats and enhancement opportunities relevant to each state in each TTEC; and

vii. The MEC CVM Tool which will house the data collected via the RAP and associated processes in the implementation of the Environmental Stewardship Multiple Ecological Communities Project.

The proposed approach has been tested in two ways. The RAP has been substantively field tested in conjunction with ESS officers and local experts for all five TTECs. Field testing established that:

- The RAP was technically feasible and practical in field settings;
- State assignments in the field were consistent with expectations from S&TMs; and
- Several changes were made following field testing to ensure greater ease of implementation and more appropriate assignment of state to ensure appropriate comparability of PMUs within and across TTECs.

The proposed MEC CVS functional form has been extensively tested using the relative values provided by ESS and the probabilities set out in Appendix 3. The scoring structure performed as expected. The CVS reflects the importance of managing threats in order to facilitate state gain. Without effective threat management

it will be difficult for PMUs to score highly. The maximum scores for higher states always exceed degraded states. Degraded states for which additional management is offered often outscore states in better condition except for state 1: which generally outscores all degraded states (and which are very rare and highly valued). Thus the metric facilitates effective discrimination between sites based on expectations of their likelihood of transition (to improved states with effective management, and to more degraded states without) and on the relative value ascribed to different states.

Several changes were made to the recommended MEC CVS parameters following testing. The proposed external threat management buffers were reduced (from 30m to 20m for all small buffers, and large buffers from 150 to 100m in SA and from 300m to 150m in NSW) as was the weighting associated with isolation threat for different areas of connected patches (only large threats were reduced and by approximately one third). We note the implications of the relatively small spread in BAG scores which is likely to deliver selection dominated by price variation rather than the small CVS variation. Price variation dominated selection should not be considered a problem given the small variation in quality (and therefore investment value) between sites.

The additional complexity incorporated in the MEC approach, particularly resulting from management actions to buffer the PMU from threats emanating in the surrounding landscape, or to manage isolation threats via connectivity management, will require detailed communication with landholders. We recommend that additional care is taken in designing and implementing communication in order to ensure that these relatively complex management requests, and in particular the linkages between threats and desired management actions are understood by land managers.

7.2 Strengths and weaknesses of the recommended approach

The approach set out in this report represents a significant improvement over previous metrics in a number of ways and to our knowledge represents world leading practice in the development and application of defensible metrics supporting conservation tenders. The functional form is consistent with both economic and ecological theory which allows for greater confidence in discriminating amongst the range of investment options available under the MEC Environmental Stewardship Project. The functional form has an additional advantage of making uncertainty provisions of investment more transparent and amenable to future analysis of the response from investment. To our knowledge the recommended approach is the first practical application of a direct linkage between impact of threats (via probabilities) and probability of change to ecological condition (represented through the S&TM states) in a conservation tender metric. The CVM Tool is directly linked to a more efficient field assessment process as set out in the RAP which minimises field assessment costs at the same time as improving accuracy of assessment. The approach offers a number of other advantages in terms of directly incorporating the impact of threats emanating from surrounding agricultural activities and ecological isolation. More details of these strengths are set out in the discussion below.

Despite the strengths of the approach we recognise that there remain a number of weaknesses to the approach. These are also documented in order to recognise the applications where the approach may not work well and where future development efforts should be focused. We do not believe that any of these weaknesses are sufficient to warrant practical difficulties or failures in the implementation of the MEC CVM Tool. We also note that the weaknesses present in the recommended

approach are all present to a larger extent in previous metrics used for conservation tenders in Australia albeit often in a way that is not transparent or easily identified.

We summarise the strengths and weaknesses of this approach as follows (in no particular order):

- Strength: the functional form is consistent with both economic and ecological theory (unlike existing metrics). The expected value calculation ascribes an appropriate relative economic value and incorporates a best information ecological response to management to provide a consistent estimate of the relative value at the end of the fifteen year investment period. We note that there have been some minor modifications to external and isolation threats for practical application purpose that relax this strength slightly. The advantage of this format is that such adjustments can easily be identified and their impact tested.
- Strength: conceptual and functional simplicity of all PMU score components across all management components. Despite the use of probabilities, the metric is conceptually simple to understand and consistent in the treatment of each component of benefit from the proposed management on the site.
- Strength: greater consistency of relative ecological score with economic values for each ecological community.
- Strength: uses S&TM to categorise communities into rank order of value classes for each TTEC with reference to legislated priorities via the *EPBC Act*. Within each the TTEC, PMUs will be more similar to each other in terms of condition than they will be to other ecological states. This approach allows for a set of relative values for different ecological communities and states to be identified.
- Strength: uses S&TM to frame ecological response of communities, taking into account the thresholds and constraints to significant improvements in condition.
- Strength: a more explicit focus on managing threats to the PMU as a priority before enhancement activities are likely to succeed. This will also aid in communicating the value of management to private land managers.
- Strength: explicit inclusion of buffering activities to ameliorate external threats to the ecological condition of the PMU originating from activities beyond the PMU boundaries.
- Strength: evaluation of landscape benefits (via reduced isolation threat) as a direct impact on the persistence of the desired biodiversity asset through the inward gene flow benefits to the PMU from the surrounding landscape. This also simplifies estimation of benefits from management of surrounding habitat offered in a proposal.
- Strength: field assessment of PMU condition is expected to be easier and the opportunity for errors to impact on final scores should be smaller than the existing approaches via the field tested RAP.
- Weakness: reliance on expert values to inform the response of ecological communities to threats, their damage, and likely success of abatement activities. This proved a difficulty in the approach which was overcome by a combination of expert input and literature review of the evidence available. Nevertheless this weakness compares with an equivalent weakness in the existing BGGW metric (and all other metrics we are aware of) from the use of expert knowledge to describe benchmark measures for ecological attributes

and the relative value of those attributes to the final score. The BGGW metric used in previous Environmental Stewardship project rounds obscures this weakness through use of a single condition response score for selected management which is not transparent, nor amenable to sensitivity testing. We note that the form of metric applied strongly lends itself to continuous updating from field evidence of success probabilities.

- Weakness: continued focus on inputs (ex ante management promises) over outputs in rewarding landholders for efforts in delivering the desired program goals.
- Weakness: difficulty in identifying relevant quality habitat in the landscape neighbourhood and including this in the surrounding landscape score. This was particularly the case for grassland communities where assessment of isolation threat was abandoned due to the lack of knowledge and practical difficulties faced (similar problems in all other conservation tenders).
- Weakness: landscape approach continues to be problematic in the sense of describing an appropriate, tested, functional form for the isolation threat.
- Weakness: difficulty in describing the relative values ascribed to different ecological states and communities (partially overcome via the use of EPBC listing status as a conceptual framework). Again this is an equivalent weakness to all other metrics including the BGGW which use either a scarcity and condition index approach (which is not theoretically correct in application to distance measures as used in investment metrics) or multi-criteria based approaches (which to date has not included a strong linkage to the expected ecological outcomes except via expert assessment).[15]

There are undoubtedly more attributes that should be considered on both sides but this list provides a useful summary of the advantages of the approach recommended in this report and the remaining weaknesses and limitations.

[15] See for example: Johansson and Cattaneo (2006) or Hajkowicz, Collins and Cattaneo (2009).

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Glossary

Bid price: the payment required by the land manager, presented as a bid in the tender, to undertake the actions described in the management plan.

Box Gum Grassy Woodland (BGGW): see White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland below."

Buffer: The area immediately surrounding a PMU which can be managed so as to reduce the impact of external threats on the ecological community of the PMU.

Buffer Management Unit (BMU): An area to be managed as a buffer for a PMU within the Environmental Stewardship MEC Project. See example of management units at end of glossary.

Connectivity: For the purposes of the MEC Project, when we refer to connectivity, we mean *structural connectivity*, that is features of a fragmented or heterogeneous landscape that physically link otherwise discrete patches of habitat. The types of structural connectivity that are eligible for connectivity management within the MEC Project have been shown to be associated with *functional connectivity*, the degree to which organisms actually move between patches (Doerr *et al.* 2010).

Connectivity Management Unit (CMU): An area to be managed to promote connectivity between a PMU and other patches of native vegetation. See example of management units at end of glossary.

Conservation value index (CVI): an index of relative value for money of a land manager proposal constructed by dividing the CVS by bid price.

Conservation value measure (CVM): a measure of the ecological value (per hectare) of a PMU. The attributes of the CVM are collected using the MEC CVM Tool. The required attributes are specified in the RAP in order to estimate PMU_{15}, the expected ecological condition of that PMU after 15 years of management. PMU_{15} is determined by a combination of the initial condition of a PMU (based on its state; see State & Transition Models below), the probability of losing value due to the particular threats present, and the probability of increasing value as a result of agreed management actions. Actions undertaken in BMUs or CMUs associated with a PMU abating external threats or isolation effects form part of the data required by the CVM. The CVM Tool is used to calculate the CVS (see next).

Conservation value score (CVS): Is the score calculated from the data input into the CVM to provide a metric for comparing the investment value of each bid. The CVS for the MEC Project is estimated as PMU_{15} (the expected ecological condition of each PMU after 15 years of management) multiplied by area and then summed for each bid with the resulting subtotal multiplied by duration and security.

Corridor: Trees and/or shrubs that provide a linear connection between two patches. Corridors may be eligible for management under the MEC Project as part of a connectivity management unit (see Section 3.3 or Appendix 4 for details).

Ecological Community (EC): A naturally occurring and interacting assemblage of species (plants, animals, and other organisms). According to the *EPBC Act*: "the extent in nature in the Australian jurisdiction of an assemblage of native species that inhabits a particular area in nature." www.environment.gov.au/epbc/about/index.html

External Threat: Any process occurring *outside* a PMU that can potentially cause degradation of the TTEC within the PMU.

Intergrade: Areas within a Primary Management Unit that contain different ecological communities or different states of the same TTEC, but which can constitute no more than 20% of the PMU for it to be eligible. Intergrade must NOT contain buildings, gardens, roads, dams, rubbish tips, quarries, or any other impervious surfaces.

Internal Threat: Any process occurring *within* a PMU that can potentially cause degradation of the TTEC within the PMU.

Iron-grass Natural Temperate Grassland of South Australia (IGG): A threatened ecological community native to South Australia that is both listed under the EPBC Act (as critically endangered) and targeted for inclusion in the Environmental Stewardship MEC Project. Referred to in this report and associated materials as "Iron-grass Grassland" or "IGG".

Land manager proposal: the offer (submitted to the Multiple Ecological Communities Project) by a land manager of a specific set of agreed management actions across the site inclusive of all offered PMU, BMU and CMU.

Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and Southern Queensland (BAG): A threatened ecological community native to New South Wales that is both listed under the EPBC Act (as critically endangered) and targeted for inclusion in the Environmental Stewardship MEC Project. Referred to in this report and associated materials as "Basalt and Alluvial Grassland" or "BAG".

Patch: A discrete area of some type of native vegetation. A PMU in the MEC Project may consist of an entire patch or only a portion of a larger patch.

Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia (PBGW): A threatened ecological community native to South Australia that is both listed under the EPBC Act (as critically endangered) and targeted for inclusion in the Environmental Stewardship MEC Project. Referred to in this report and associated materials as "Peppermint Box Grassy Woodland" or "PBGW".

Primary Management Unit (PMU): An area consisting of a single state of a single TTEC that contains no more than 20% intergrade. See example of management units at end of glossary.

Rapid Assessment Protocol (RAP): A step-by-step protocol used by field officers to conduct a site assessment under the MEC Project. The primary aim of the RAP is to ensure that all data needed to calculate the CVM for each PMU on a site are collected efficiently.

Scattered Paddock Trees: Native trees that have been retained in a production paddock, generally at a low density (canopy cover of less than 5%). Areas of scattered paddock trees may be eligible for management under the Environmental Stewardship MEC Project as part of either a buffer management unit or a connectivity management unit (see Section 3.3 or Appendix 4 for details).

Secondary Management Unit (SMU): Management units that are managed to provide buffering (BMUs) or connectivity (CMUs) for a primary management unit. See example of management units at end of glossary.

Site: The total area proposed for management in the land managers bid. That is, all the management units (both primary and secondary management units) that are being offered.

State & Transition Models (S&TMs): Conceptual models that aim to describe an ecological community in terms of discrete states and transitions between these states. In the S&TMs used by the MEC Project, different states are defined based on variation in ecological condition as assessed by attributes such as plant species richness and nativeness (i.e. the proportion of individual plants present that are native to the region as opposed to exotic). These S&TMs should be considered as proposed management-based S&TMs with transitions predicted to occur based on changes in management practices.

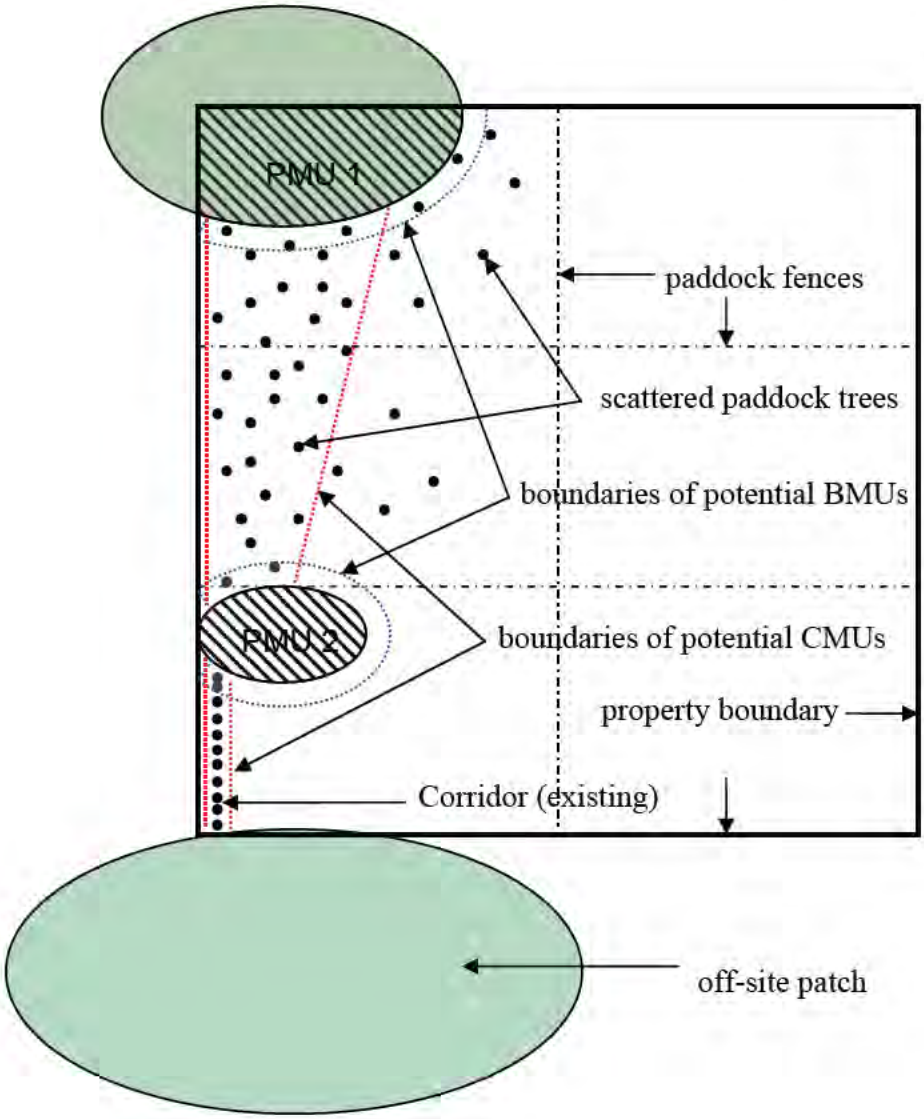
Target Threatened Ecological Community (TTEC): EPBC listed ecological communities (see definition above) that are included in the current round of the Environmental Stewardship MEC Project.

Weeping Myall Woodlands (WMW): A threatened ecological community native to New South Wales that is both listed under the EPBC Act (as endangered) and targeted for inclusion in the Environmental Stewardship MEC Project. Referred to in this report and associated materials as "Weeping Myall Woodland" or "WMW".

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BGGW) (*Eucalyptus albens*, *Eucalyptus melliodora* and *Eucalyptus blakelyi* respectively): A threatened ecological community native to New South Wales, Victoria and Queensland that is both listed under the EPBC Act (as endangered) and targeted for inclusion in the Environmental Stewardship MEC Project. Referred to in this report and associated materials as "Box Gum Grassy Woodland" or "BGGW". This ecological community is also listed in a derived grassland state which is referred to in this report as “derived grassland BGGW”.

Example of management units

A depiction of a typical site/property with two potential PMUs (shaded) each containing a TTEC. Note that PMU1 consists of only part of a larger patch, while PMU2 is entirely on the focal property. The blue dotted lines indicate potential buffer areas (only one width of buffer shown for simplicity), though only the portions of these buffer areas that are on the focal property will be eligible as BMUs. Connectivity between PMU1 and PMU2 is provided by scattered paddock trees, while a corridor provides connectivity between PMU2 and a large off-site patch. The red dotted lines thus indicate areas that would be eligible for management as CMUs.



Appendices

A.1 Simplified State and Transition Models

Overview

The following models are simplified versions of State & Transition Models (S&TMs) prepared for use in the MEC Project by a series of expert workshops (EcoLogical 2010). They have been simplified from these original models primarily to conform to the types of data that could be reasonably gathered as part of a rapid assessment protocol (RAP). As much as possible, we have attempted to retain information from the expert workshops. However, for some communities, field testing of the RAP identified serious problems or inconsistencies with the original S&TMs, necessitating additional changes (see Report on Field Testing the RAP).

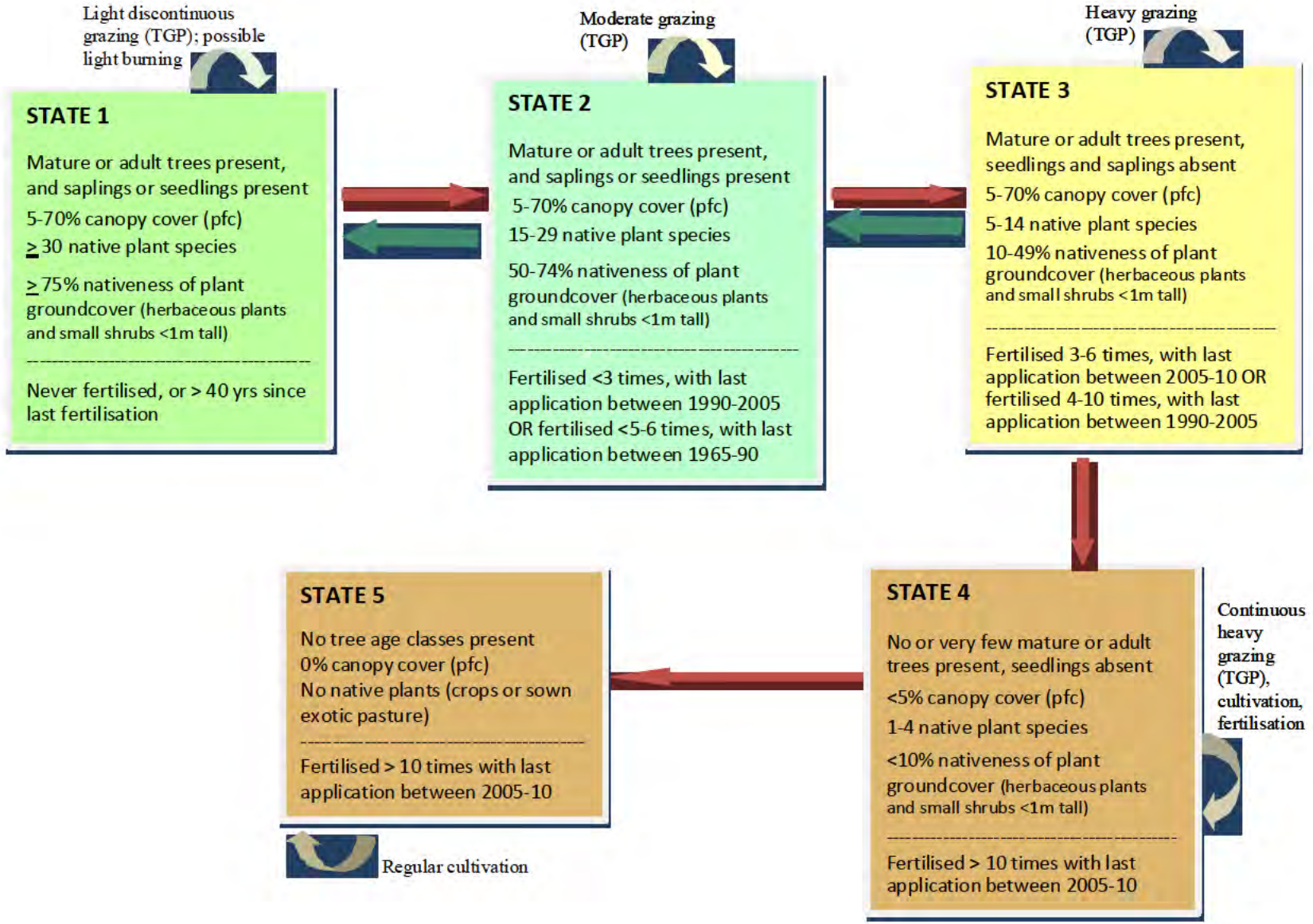
The models presented here (and in the EcoLogical report) are probably not S&TMs in the strict sense, as the states and transitions between them have not necessarily been shown to exhibit true transitional dynamics. In fact, limited data from field testing suggests that the "states" in these models mostly represent ranges along a continuum. Furthermore, any natural (i.e., not induced by management) transitional dynamics in these ecosystems have not been considered in the models – they are purely management-based. However, the models can still inform calculation of the MEC CVM and guide the selection of management actions. We suggest that they be treated as proposed management-based S&TMs that should be subject to further testing.

Each model consists of boxes representing different states connected to each other by transition arrows corresponding to either threats that cause a management unit to decline to a lower state or to management actions that cause a management unit to improve to a higher state. Each box contains a list of attributes that define the state, including ecological variables (above the line) and fertilisation/cultivation history variables (below the line). Each state also has an associated grazing history (represented in terms of total grazing pressure; TGP), shown with a recursive arrow, which may define the state instead of or in addition to fertilisation/cultivation history. Note that we have quantified fertilisation history in terms of timing and number of applications on the management unit, but similar fertility levels could be achieved through livestock inputs and/or nutrient transfer from fertilised areas adjacent to the management unit.

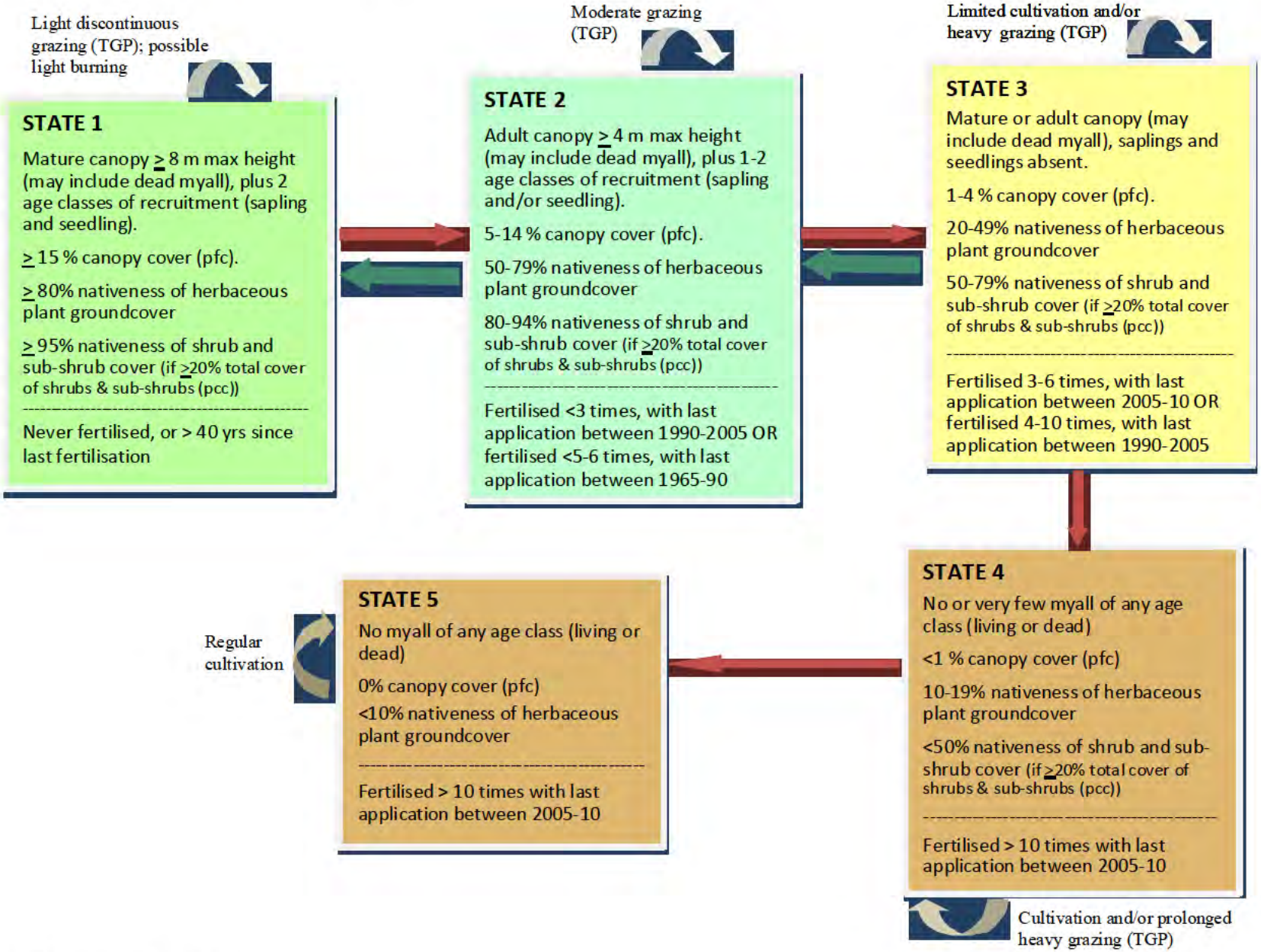
It must be noted that the actual values presented for the various attributes in each state of each community are only valid in the context of our RAP. For example, 15-29 species of native herbaceous plants means 15-29 species *as assessed by our RAP* (i.e., counted during a 10-minute walking survey of a representative 20x50m plot). A more comprehensive survey would undoubtedly produce a much higher total number of species (as well as different values for other attributes). In short, these models should not be applied to any data that were not collected precisely according to our RAP.

The colours of the state boxes in the models correspond to the values assigned to those states in the calculation of the MEC CVM (shading from green (the highest value) through blue to yellow to tan to brown (the lowest value = ineligible)). We have attempted to maintain this consistency across the different models so that they can be easily compared in terms of the relative values placed on different states both within and between models.

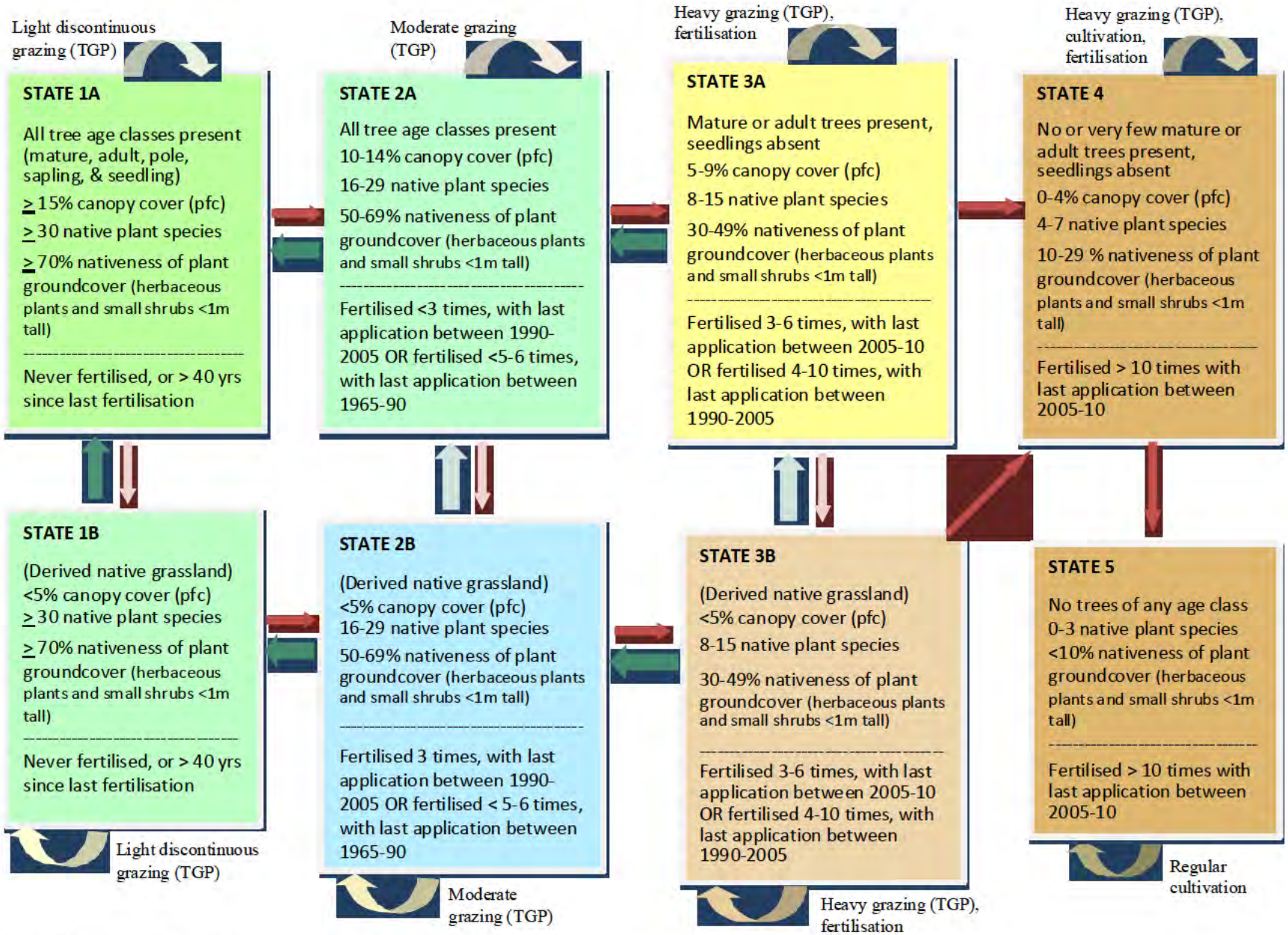
A.1.1 Simplified State and Transition Model: Peppermint Box Grassy Woodland



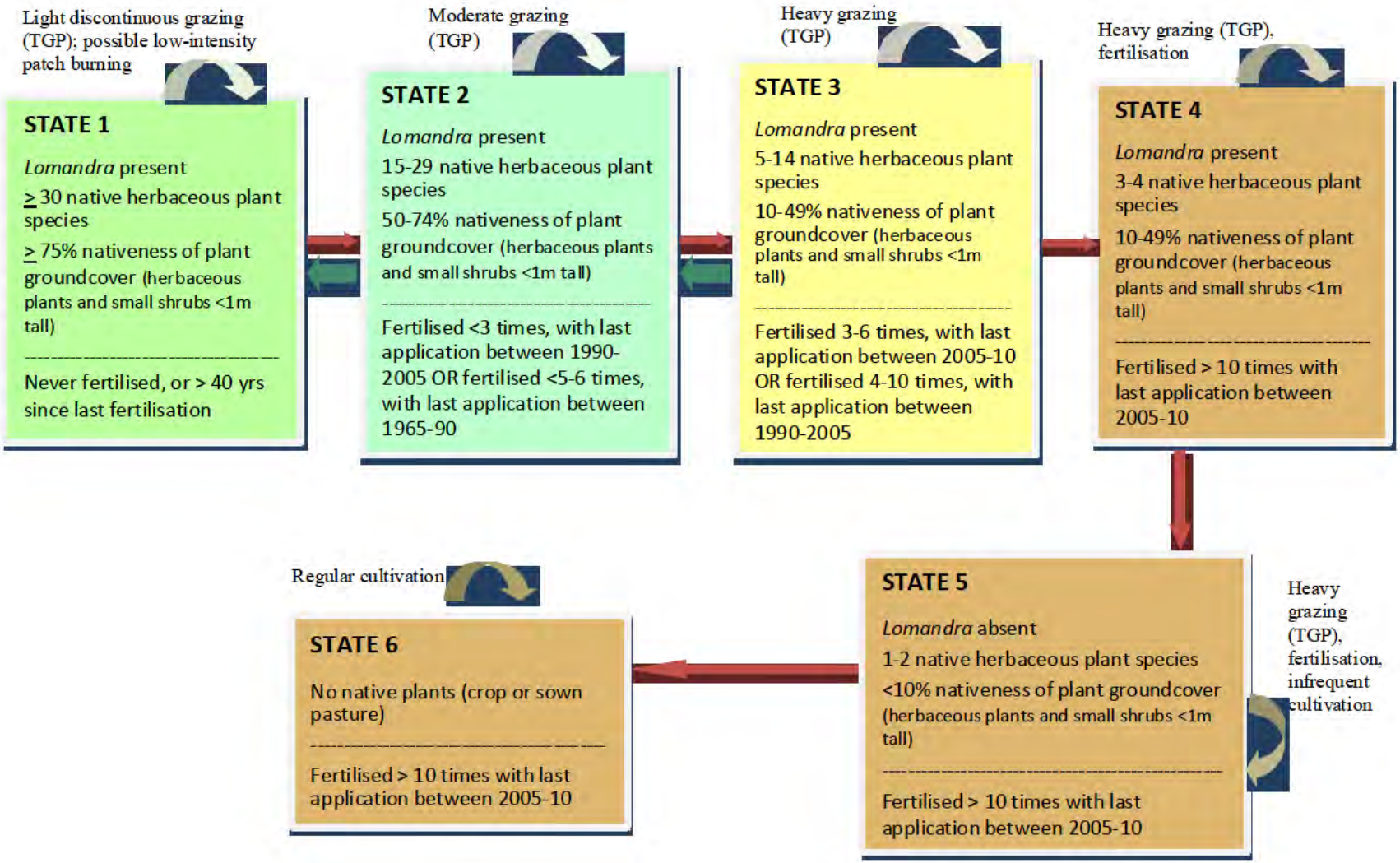
A.1.2 Simplified State and Transition Model: Weeping Myall Woodland



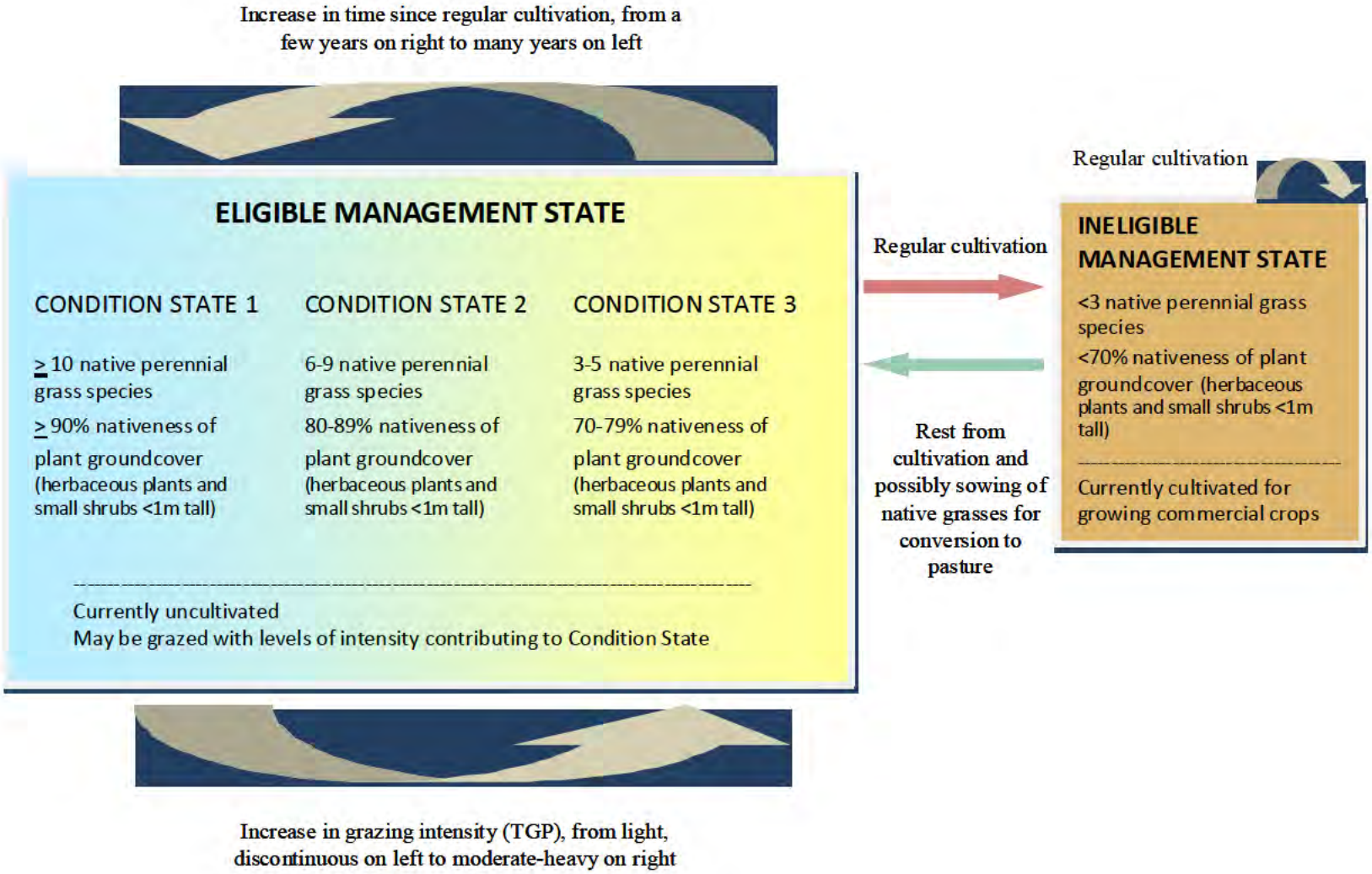
A.1.3 Simplified State and Transition Model: Box Gum Grassy Woodland



A.1.4 Simplified State and Transition Model: Iron Grass Grassland



A.1.5 Simplified State and Transition Model: Basalt and Alluvial Grassland



A.2 List of threats and management actions that abate

Internal Threats	Management Actions in Primary Management Units	Abate	Enhance
Universal Threats (livestock grazing, cultivation, etc.)	Minimum Management Package*	X	X
Proliferation of Exotic Herbaceous Plants – Non-aggressive	Monitoring and Managing Exotic Herbaceous Plants – Non-aggressive (could include crash grazing and burning amongst other options)	X	X
Proliferation of Exotic Herbaceous Plants – Aggressive	Monitoring and Managing Exotic Herbaceous Plants – Aggressive (may include crash grazing and burning amongst other options)	X	X
Proliferation of Exotic Shrubs – Aggressive	Monitoring and Managing Exotic Shrubs – Aggressive (may include crash grazing and burning amongst other options)	X	X
Feral Grazing	Monitoring and Managing Feral Species	X	X
Soil Disturbance by Feral Species	Monitoring and Managing Feral Species	X	X
Excessive Grazing by Native Species	Monitoring and Managing Native Grazers	X	X
	Broadscale or No-Till Sowing Native Perennial Species		X
	Planting Understorey Shrubs (WMW only)		X
	Planting Target Tree Species (derived BGGW only)		X
	Adding Fallen Timber (Woodlands only)		X
	Dominant Single Native Plant Species Biomass Control (intended particularly for reducing *Themeda* dominance or managing proliferation of *Vachellia* via a PVP – may include crash grazing and burning as well as more mechanical options)		X

External Threats	Management Actions in Buffer Units (all Abate only)	Width required?	Trees required?	P_{abate}
Invasion of Exotic Herbaceous Plants – Aggressive	Monitoring and Managing Exotic Herbaceous Plants – Aggressive	100/150m	No	1
Invasion of Exotic Shrubs – Aggressive	Monitoring and Managing Exotic Shrubs – Aggressive	100/150m	No	1
Wind Transport of Nutrients/Herbicides/Pesticides	Reduce Generation of Agro-chemicals, Option A: available regardless of whether buffer unit contains trees (accomplished through no fertilisation, no cultivation & no spraying of other agro-chemicals)	100/150m	No	0.5
Wind Transport of Nutrients/Herbicides/Pesticides	Reduce Generation and Transport of Agro-chemicals, Option B: available as alternative to Option A if buffer unit contains trees (accomplished through no fertilisation, no cultivation & no spraying of other agro-chemicals PLUS fostering regeneration of trees through strategic grazing or fencing trees 10m outside edge of crown)	100/150m	Yes	1
Water Transport of Nutrients/Herbicides/Pesticides	Fostering Dense Sward of Native Perennial Grasses (through no fertilisation, no cultivation)	20m	No	1
Disturbance of Roots (woodland TTECs only)	No Cultivation	20m	No	1

External Threat	Management Actions in Connectivity Units (all Abate only)
Isolation (woodland TTECs only)	Fostering Native Understorey and Regeneration of Trees (through no fertilisation, no cultivation PLUS no destructive livestock grazing or fencing trees 10m outside edge of crown)

*** Minimum Management Package:** conservation grazing, no cultivation, no fertiliser application, retain all native vegetation (alive or dead), retain all bush rocks no planting species that are not native to the TTEC, no intentional burning outside of a management plan, all other actions associated with legal "duty of care" (e.g., control listed noxious weeds, etc.)

A.3 Approach to Probability Matrices

We encountered only one serious impediment to implementation of our approach to the MEC CVM as outlined in our Interim Report and this has been the difficulty of obtaining estimates for the transition probabilities. To calculate the expected value of a primary management unit (PMU) after 15 years, we require estimates of probabilities of experiencing a decline in state associated with each relevant threat as well as estimates of probabilities of achieving an increase in state associated with each management action to be adopted. Our original plan was to consult at least two experts on each target threatened ecological community (TTEC) to be included in the upcoming Environmental Stewardship MEC Project, and get those experts to estimate these transition probabilities. The probabilities supplied by these experts would then be averaged. If the first two experts provided widely divergent estimates, we would then seek estimates from a third expert to include in the averages.

Unfortunately, the probability estimates we have received from experts on the NSW communities have been wildly divergent and inclusion of a third expert has not really helped. There are a number of possible issues responsible for these difficulties.

1. The probabilities we are asking for are not necessarily characteristics of communities that anyone is used to thinking about, so there seems to be considerable variation in how well the different experts are able to conceptualise the relevant processes and corresponding probabilities.
2. We have detected a real difference between experts from a research/academic background and those from a natural resource management background, as the latter often lack access to the latest published research. Thus, averaging responses from experts in these two groups tends to produce probabilities based on old information rather than current best-practice information. Yet it is the latter that we want to include in the project.
3. While experts take pains to ensure the relative probability estimates are appropriate *within* a community, it's difficult to be confident about the actual values. As a result, we see little consistency in the estimates *across* communities, even for threats that should have very similar effects in multiple communities. As the CVM needs to be able to compare bids across communities, this is a significant problem.

Because our original approach became unworkable, we proposed the following new approach to deriving estimates for transition probabilities:

1. First, we developed a list of guiding principles on which to base probability estimates. These were based on a combination of published literature, information from the original state and transition model document (EcoLogical 2010) and information gained from the experts during their previous attempts to fill out the probability matrices.
2. Then, based primarily on these guiding principles, but also incorporating some of the more robust probability estimates previously obtained from experts, we estimated the relevant transition probabilities for each TTEC to ensure we have relative consistency both within and across communities.

We received ESS approval to proceed with this new approach and developed the following guiding principles:

General Principles:[16]

- Grazing generally causes losses of grazing-sensitive species but does not threaten all species in a community, except at very high levels where it also produces some degree of nutrient enrichment.
- Grazing may promote shrub growth (native and exotic) by reducing competition from grasses (though possibly only at high levels of grazing).
- Nutrient enrichment causes losses of nutrient-sensitive species, exhibits some threshold dynamics (i.e., there is not a linear relationship between nutrients and species loss), and there are more of these nutrient-sensitive species in most communities than there are grazing-sensitive species.
- Nutrient enrichment inhibits establishment of native plants – both herbaceous plants and trees.
- Effects of nutrient enrichment are reduced in communities adapted to naturally more fertile soils.
- Nutrient enrichment provides a competitive advantage for exotic species, particularly annuals, over native species, particularly perennials.
- All other things being equal, species groups (i.e., native vs. exotic) that are dominant (constitute >50% of the community) will tend to proliferate more than those that are not dominant. In other words, proximity provides an indirect competitive advantage.
- Soil disturbance primarily acts as a threat by providing opportunities for seeds of exotic plants to establish; thus, the threat is linked to the presence of other factors that make it more likely exotics will establish relative to natives.
- Disturbance of roots has direct effects, causing physical damage to trees.
- Burning and crash grazing may sometimes be successful methods of reducing the dominance of particular ground plants (native or exotic) in addition to more mechanical or chemical means of control.
- Direct competition (i.e., between similar plant forms such as between exotic and native grasses) is stronger than indirect competition (i.e., between different plant forms such as between exotic shrubs and native grasses).
- Very little research has been performed on restoration of ecological communities in Australia, making it difficult to identify principles to guide assignment of enhancement probabilities.

Specific applications to deciding how threats/management actions vary between states (closed circles) and between communities (open circles):

- Lower states will be more susceptible to proliferation of exotic plant species as these states already have a higher proportion of exotic plants to produce seed as well as nutrient-enriched conditions which tend to favour exotic establishment. For the latter reason, lower states will also be more susceptible to invasion of

[16] Many of these principles are based on the EcoLogical report (Wall 2010) and references cited therein and others are based on personal communication with experts (see Acknowledgements).

exotic plant species, though the differences among states will be less pronounced than for proliferation of exotic plant species.

  - The above differences will be less pronounced for communities adapted to naturally higher fertility soils (Basalt and Alluvial Grassland and, to a lesser extent, Weeping Myall Woodland).
  - Weeping Myall Woodland is more susceptible to exotic shrubs because it can be a shrubbier community compared to the other TTECs, so exotic shrubs may impact the community through direct competition with native shrubs rather than just through indirect competition with native herbaceous plants.

- Higher states will be more susceptible to degradation associated with increased grazing by feral animals and excessive grazing by native grazers because lower states will have generally experienced a history of relatively high grazing pressure and will have already lost their most grazing-sensitive species.
  - Impacts of grazing will be slightly less in communities adapted to naturally more fertile soils (Basalt and Alluvial Grassland and, to a lesser extent, Weeping Myall Woodland), as grazing really combines the physical effects of grazing with nutrient enrichment from scats.
- Lower states will be more susceptible to effects of soil disturbance, as these states have a higher proportion of exotic plants to produce seed as well as nutrient-enriched conditions which tend to favour exotic establishment in the disturbed soils.
  - Impacts of soil disturbance will be slightly less in the lower states of communities adapted to naturally more fertile soils (Basalt and Alluvial Grassland and, to a lesser extent, Weeping Myall Woodland), as elevated soil nutrients will not favour the establishment of exotics over natives to the same degree.
- Higher states will be more susceptible to degradation associated with nutrient enrichment from external nutrient sources because lower states are already nutrient enriched and have already lost the most nutrient-sensitive plant species.
- Higher states will be more susceptible to degradation associated with herbicide/pesticide drift as greater canopy densities and greater species richness in these states make it more likely that more canopy will be affected and that more species may be lost.
  - Impacts of nutrient transfer and herbicide/pesticide transfer are largely interchangeable, because communities with naturally more fertile soils that might be more robust to nutrient transfer are also found in regions where greater herbicide/pesticide use is common (due to the adoption of no-till agriculture). Thus, this combined external threat will not differ among communities despite differing adjacent land uses.
- States may be equally at threat from disturbance to roots, as the greater canopy tree density in higher states may result in more canopy being affected, but the trees that are affected in lower states may suffer more since they may be already stressed from other factors.

  - Disturbance of roots will have a greater negative effect in communities where canopies are already stressed by things such as insect damage (Weeping Myall Woodland).
  - Disturbance of roots will have less of a negative effect in communities where canopy cover is less useful in distinguishing between states (e.g., Peppermint Box Grassy Woodland).

- All planting actions will be more likely to succeed in higher states, where establishment is more likely because nutrient levels are not elevated and competition from exotic species is reduced. However, if planting actions are successful, they are likely to have a greater positive effect in lower states where it is more likely that the seed/tube-stock obtained is of species that are not already present. Thus, these two effects may cancel each other out, resulting in similar probabilities of planting actions causing a gain in state across all states. The exception is derived grassland states, in which tree planting will have equal positive effects across all states but establishment will still be more likely in higher states, giving tree planting in higher derived states a greater probability of causing a gain in state.
  - The degree to which success of planting actions is reduced in lower states may be minimal in communities adapted to naturally more fertile soils (Basalt and Alluvial Grassland and, to a lesser extent, Weeping Myall Woodland).

Most enhancement management actions may have relatively equal probabilities across states of causing a gain in state because of the types of competing influences highlighted above for planting actions. In the absence of more principles related to ecological restoration, it is also more parsimonious to assign similar probabilities across states.

A.3.1 Populated probability matrix: Peppermint Box Grassy Woodland

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that "universal threats" associated with livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care"
  (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions		
Threats: existing within site	***1 → 2***	***2 → 3***	***3 → 4***
Universal Threats	1	1	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05	0.1	0.2
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2	0.4	0.8
Proliferation of Exotic Shrubs - Aggressive	0.1	0.2	0.4
Feral Grazing Pressure (Rabbits, Goats)	0.5	0.25	0.05
Feral Soil Disturbance (Pigs, Rabbits)	0.1	0.15	0.2
Excessive Native Grazing Pressure (Kangaroos)	0.5	0.25	0.05

	Transitions		
Threats: existing outside site but threatening site	***1 → 2***	***2 → 3***	***3 → 4***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15	0.25	0.35
Invasion of Exotic Shrubs - Aggressive	0.1	0.15	0.2
Wind Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Water Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Disturbance of Roots	0.05	0.05	0.05

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions	
Management Actions: undertaken within site	***2 → 1***	***3 → 2***
Minimum Management Package (MMP)	0.25	0.25
M&M* Herbaceous Exotics - Non-aggressive	0.05	0.05
M&M Herbaceous Exotics - Aggressive	0.3	0.35
M&M Exotic Shrubs - Aggressive	0.1	0.1
M&M Feral Species	0.25	0.2
M&M Native Grazers	0.25	0.2
Broadscale or No-Till Sow Native Perennials	0.3	0.3
Add Fallen Timber	0.01	0.05
Biomass Control	0.01	0.01

* M&M = "Monitor and Manage"

A.3.2 Populated probability matrix: Weeping Myall Woodland

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that the universal threats of livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care"
  (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions		
Threats: existing within site	***1 → 2***	***2 → 3***	***3 → 4***
Universal Threats	1	1	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05	0.05	0.1
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2	0.35	0.6
Proliferation of Exotic Shrubs - Aggressive	0.2	0.35	0.6
Feral Grazing Pressure (Rabbits, Goats)	0.4	0.15	0.05
Feral Soil Disturbance (Pigs, Rabbits)	0.1	0.15	0.15
Excessive Native Grazing Pressure (Kangaroos)	0.4	0.15	0.05

	Transitions		
Threats: existing outside site but threatening site	***1 → 2***	***2 → 3***	***3 → 4***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15	0.2	0.25
Invasion of Exotic Shrubs - Aggressive	0.15	0.2	0.25
Wind Transport of Nutrients/Herbicides/Pesticides	0.4	0.3	0.1
Water Transport of Nutrients/Herbicides/Pesticides	0.4	0.3	0.1
Disturbance of Roots	0.1	0.1	0.1

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions	
Management Actions: undertaken within site	***2 → 1***	***3 → 2***
Minimum Management Package (MMP)	0.3	0.3
M&M* Herbaceous Exotics - Non-aggressive	0.05	0.05
M&M Herbaceous Exotics - Aggressive	0.25	0.3
M&M Exotic Shrubs - Aggressive	0.15	0.15
M&M Feral Species	0.2	0.15
M&M Native Grazers	0.2	0.15
Broadscale or No-Till Sow Native Perennials	0.3	0.35
Plant Understorey Shrubs	0.15	0.2
Add Fallen Timber	0.01	0.05
Biomass Control	0.05	0.1

* M&M = “Monitor and Manage”

A.3.3 Populated probability matrix: Box Gum Grassy Woodlands

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that the universal threats of livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care"
  (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions		
Threats: existing within site	***1A → 2A***	***2A → 3A***	***3A → 4***
Universal Threats	1	1	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05	0.1	0.2
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2	0.4	0.8
Proliferation of Exotic Shrubs - Aggressive	0.1	0.2	0.4
Feral Grazing Pressure (Rabbits, Goats)	0.5	0.25	0.05
Feral Soil Disturbance (Pigs, Rabbits)	0.1	0.15	0.2
Excessive Native Grazing Pressure (Kangaroos)	0.5	0.25	0.05

	Transitions		
Threats: existing outside site but threatening site	***1A → 2A***	***2A → 3A***	***3A → 4***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15	0.25	0.35
Invasion of Exotic Shrubs - Aggressive	0.1	0.15	0.2
Wind Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Water Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Disturbance of Roots	0.1	0.1	0.1

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions	
Management Actions: undertaken within site	***2A → 1A***	***3A → 2A***
Minimum Management Package (MMP)	0.25	0.25
M&M* Herbaceous Exotics - Non-aggressive	0.05	0.05
M&M Herbaceous Exotics - Aggressive	0.25	0.3
M&M Exotic Shrubs - Aggressive	0.1	0.1
M&M Feral Species	0.25	0.2
M&M Native Grazers	0.25	0.2
Broadscale or No-Till Sow Native Perennials	0.3	0.3
Add Fallen Timber	0.01	0.05
Biomass Control	0.05	0.1

* M&M = “Monitor and Manage”

A.3.4 Populated probability matrix: Box Gum Grassy Woodlands - Derived Native Grasslands

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that the universal threats of livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care" (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions		
Threats: existing within site	***1B → 2B***	***2B → 3B***	***3B → 4***
Universal Threats	1	1	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05	0.1	0.2
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2	0.4	0.8
Proliferation of Exotic Shrubs - Aggressive	0.1	0.2	0.4
Feral Grazing Pressure (Rabbits, Goats)	0.4	0.15	0.05
Feral Soil Disturbance (Pigs, Rabbits)	0.05	0.1	0.15
Excessive Native Grazing Pressure (Kangaroos)	0.4	0.15	0.05

	Transitions		
Threats: existing outside site but threatening site	***1B → 2B***	***2B → 3B***	***3B → 4***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15	0.25	0.35
Invasion of Exotic Shrubs - Aggressive	0.1	0.15	0.2
Wind Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Water Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions		
Management Actions: undertaken within site	***1B → 1A***	***2B → 1B***	***3B → 2B***
Minimum Management Package (MMP)	0	0.25	0.25
M&M* Herbaceous Exotics - Non-aggressive	0	0.05	0.05
M&M Herbaceous Exotics - Aggressive	0	0.25	0.3
M&M Exotic Shrubs - Aggressive	0	0.1	0.1
M&M Feral Species	0	0.25	0.2
M&M Native Grazers	0	0.25	0.2
Broadscale or No-Till Sow Native Perennials	0	0.3	0.3
Plant Target Tree Species	0.45	0.25	0.15
Add Fallen Timber	0	0.01	0.05
Biomass Control	0	0.05	0.1

* M&M = “Monitor and Manage”

A.3.5 Populated probability matrix: Iron Grass Grasslands

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that the universal threats of livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care"
  (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions		
Threats: existing within site	***1 → 2***	***2 → 3***	***3 → 4***
Universal Threats	1	1	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05	0.1	0.2
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2	0.4	0.8
Proliferation of Exotic Shrubs - Aggressive	0.1	0.2	0.4
Feral Grazing Pressure (Rabbits, Goats)	0.5	0.25	0.05
Feral Soil Disturbance (Pigs, Rabbits)	0.1	0.15	0.2
Excessive Native Grazing Pressure (Kangaroos)	0.5	0.25	0.05

	Transitions		
Threats: existing outside site but threatening site	***1 → 2***	***2 → 3***	***3 → 4***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15	0.25	0.35
Invasion of Exotic Shrubs - Aggressive	0.1	0.15	0.2
Wind Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1
Water Transport of Nutrients/Herbicides/Pesticides	0.5	0.35	0.1

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions	
Management Actions: undertaken within site	***2 → 1***	***3 → 2***
Minimum Management Package (MMP)	0.25	0.25
M&M* Herbaceous Exotics - Non-aggressive	0.05	0.05
M&M Herbaceous Exotics - Aggressive	0.3	0.35
M&M Exotic Shrubs - Aggressive	0.1	0.1
M&M Feral Species	0.25	0.2
M&M Native Grazers	0.25	0.2
Broadscale or No-Till Sow Native Perennials	0.3	0.3
Biomass Control	0.01	0.01

* M&M = “Monitor and Manage”

A.3.6 Populated probability matrix: Basalt and Alluvial Grasslands

For all of the following, we assume the land manager will undertake the following compulsory actions and thus that the universal threats of livestock grazing, fertilisation, cultivation, and clearing will be managed.

Minimum Management Package within site:
- No destructive livestock grazing
- No cultivation
- No fertilisation
- No removal of native vegetation (alive or dead)
- No planting species that are not native to the TTEC
- No removal of bush rock
- No intentional burning outside of a management plan
- All other actions associated with legal "duty of care"
  (e.g., removal of listed noxious weeds, etc.)

Probabilities of an unmanaged threat causing a loss of state (i.e., $P_{degrade}$ values) (assuming all other threats successfully managed)

	Transitions
Threats: existing within site	***E(1-3) → 3***
Universal Threats	1
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05
Proliferation of Exotic Herbaceous Plants - Aggressive	0.2
Proliferation of Exotic Shrubs - Aggressive	0.1
Feral Grazing Pressure (Rabbits, Goats)	0.3
Feral Soil Disturbance (Pigs, Rabbits)	0.1
Excessive Native Grazing Pressure (Kangaroos)	0.3

	Transitions
Threats: existing outside site but threatening site	***E(1-3) → 3***
Invasion of Exotic Herbaceous Plants - Aggressive	0.15
Invasion of Exotic Shrubs - Aggressive	0.1
Wind Transport of Nutrients/Herbicides/Pesticides	0.35
Water Transport of Nutrients/Herbicides/Pesticides	0.35

Probabilities of a management action causing a gain of state (i.e., $P_{enhance}$ values) (assuming all threats managed to prevent a loss of state)

	Transitions
Management Actions: undertaken within site	***E(1-3) → 1***
Minimum Management Package (MMP)	0.3
M&M* Herbaceous Exotics - Non-aggressive	0.05
M&M Herbaceous Exotics - Aggressive	0.25
M&M Exotic Shrubs - Aggressive	0.1
M&M Feral Species	0.2
M&M Native Grazers	0.2
Broadscale or No-Till Sow Native Perennials	0.3
Biomass Control	0.15

* M&M = “Monitor and Manage”

A.4 The Rapid Assessment Protocol for the MEC project

Purpose of the rapid assessment protocol (RAP)

To provide as complete as possible a set of instructions for field officers to follow, from receipt of RFSA forms to preparing draft management plans. Brief reminders of these instructions are provided within the MEC CVM Tool itself, but this document provides the most complete and definitive instructions to date. The details of the RAP that involve collection of data to be entered into the MEC CVM Tool are very complete and should be followed to the letter. Actions that are performed independently of the MEC CVM Tool (e.g., verifying data in RFSAs and preparing GIS files) require further refinement and/or reference to separate protocols. See Appendix 6 Part B for more details on this need for integration with ESS documents.

ASSUMPTIONS: As a result of land manager workshops (which will happen BEFORE site assessment visits), primary management units unlikely to be a target threatened ecological community (TTEC; due, for example, to geographic location relative to the distribution of the TTEC or to placement in the landscape (i.e., BGGW does not occur on rocky ridges)) will be unlikely to be proposed for site assessment.

Brief outline of RAP protocol

1. RFSA Check: Perform desk-top analysis to confirm the site is eligible for a site visit and set up MEC CVM Tool for site assessments.
2. Prepare Aerial Images: Make appointment with land manager for site visit and prepare aerial imagery for assessing and discussing management options.
3. Site Assessment (Intro): Have initial discussion with land manager on the program, aerial images, and possible areas of intergrade.
4. Site Assessment (PMU): Determine eligibility and boundaries of PMU(s), management history of PMU(s), and presence of internal threats through brief tour of PMU(s) and discussion with land manager.
5. Site Assessment (BMU and CMU): Verify presence of trees in potential buffer and connectivity areas and presence of external threats through brief examination of areas adjacent to PMU(s) and discussion with land manager.
6. Site Assessment (to assign state of PMU): Collect ecological data (using a 50 m x 20 m plot) that will allow the MEC CVM Tool to assign the state of each PMU.
7. Enter data in MEC CVM Tool: Complete data entry thus far for each PMU on the site to facilitate an appropriate discussion of management options.
8. Management Discussion: Use the MEC CVM Tool to generate the list of potential management actions with relative priorities and discuss actions with land manager to determine what they wish to offer.
9. GIS Confirmation: Confirm and enter all spatial data after site visit using GIS.
10. Prepare Draft Management Plan: Use 'Record of visit' in the MEC CVM Tool along with an aerial image and the management plan template to prepare a draft management plan for the land manager to confirm their choices and to help them cost their bid.

Full RAP Protocol

*****Note that superscript numbers denote tasks for which more detailed instructions are provided on subsequent pages.*****

1. On receipt of Requests for Site Assessment (RFSAs):
    a. The full data from RFSAs will need to be recorded separately (i.e. not in the MEC CVM Tool), some responses will need to be verified, and a desktop analysis performed to confirm site eligibility.[***]
    b. The following should be done by one administrative officer for all RFSAs that are deemed eligible and are to receive site assessments. Enter the bid reference code from the RFSA in the MEC CVM Tool and record the name of the field officer who will do the assessment (by opening the Tool, clicking on 'Data Entry' and ensuring you are in the 'Bid data' tab). When you open the Tool, click on the CSIRO certification which should ensure you have macros enabled. If a Security warning still comes up above all the tabs indicating the some functions have been disabled, click on 'Options' and enable those functions. After entering a bid reference code and field officer's name, hit 'Set up data file' and have field officers complete the subsequent steps for each site they are assigned. Hitting the 'Set up data file' button creates a new database for EACH site that will need to be opened by the field officer to enter the rest of the data.
2. Prepare to visit each site:
    a. Identify the property and approximate boundaries of proposed area(s) on a satellite image in GIS from the material submitted by the land manager on or with their RFSA. Note that if the manager did not submit a map/aerial image with the property and proposed area boundaries marked, you will need to phone the land manager to get enough spatial information to locate the property and especially the proposed area(s) in GIS. This is also a good time to visually check that proposed areas appear to meet the minimum size requirements for the TTEC they are thought to contain.***
    b. Make an appointment to meet the land manager for site assessment, including the discussion in which the land manager will choose his/her management options. Site assessments should take no more than ½ day for each site, longer if the manager has proposed more than one area and/or TTEC on the property. Note that if the land manager has limited availability, it is possible (but far from ideal), to meet the land manager for 1-1.5 hours to tour the site and discuss threats and management history (Steps 3-5 in this RAP), then perform the plot assessment without the land manager present and discuss management choices later over the phone.
    c. In GIS, draw polygons to represent boundaries around each proposed area on the site. Also mark any portions of each proposed area that appear very different from the rest (e.g., obviously different shade or structural pattern,

[***] These instructions are not yet complete. See Appendix 6 Part B for more information on integrating additional instructions and protocols.

and thus might contain a different community or be a different state of the TTEC). Estimate whether these areas constitute >20% of the total proposed area. You will need to discuss these areas with the land manager when you visit the site and may need to physically check them during site assessment. Print one aerial image of each proposed area with these markings.

d. Still in GIS, mark areas that are potential buffer management areas (both a 20 m-wide buffer and a larger one as well – 100 m for SA communities and 150 m for NSW communities)[1].

e. For woody TTECs (BGGW (including DNG), WMW and PBGW), identify any other patches that appear to be native woody vegetation, are at least 5 ha in size in NSW and 2 ha in size in SA, and that have an edge within 1.5 km of any edge of the proposed area. Use the measuring tool and/or printed references to help you make approximate visual estimates. Determine whether an acceptable type of structural connectivity currently exists between the proposed area and these other patches[2]. If so, mark the approximate boundaries of these potential connectivity areas and label the patches they connect with their approximate sizes.

f. Print a second aerial image of the proposed area that includes these buffer area and connectivity area markings. This will be used to discuss buffering management options and connectivity management options for the wooded communities with the land manager. For the woodland communities, be sure that this image includes two scales – one to indicate 165 m, and one to indicate 1.5 km, as these will help you confirm eligibility for connectivity management in the field.

g. In the MEC CVM Tool, record TTEC information for each area proposed by the land manager based on information given in the RFSA and visually checked during the preceding steps. This will involve opening the database named based on the bid reference code, and clicking on 'Data Entry'. Under the 'Bid data' tab, check to be sure the bid reference code appears correct (if not, you have opened the wrong database) and your name appears correctly as the field officer, then click on the 'Proposed areas' tab. For each proposed area, enter a single lower-case letter as the 'Area code' (e.g., a, b, c, etc.), use the drop-down menu to select the TTEC that the land manager believes the proposed area contains, and hit enter on your keyboard. If you need to enter another proposed area for the site, hit 'Add Proposed Area' and repeat. You can then use the arrows to scroll through each proposed area if you need to add or change data. Note that you cannot change the TTEC of a proposed area once it has been assigned – you will need to delete that proposed area and enter a new one. More detailed or different protocol information may need to be provided if a decision is made to enter more data directly from the RFSA forms.[***]

[***] These instructions are not yet complete. See Appendix 6 Part B for more information on integrating additional instructions and protocols.

Note that further verification of these responses will occur during the field visit.

h. Finally, prepare a paper datasheet for data collection in the field by entering the preliminary information, up to the Proposed area reference. Include an estimate of the total size of the proposed area.

3. Site assessment – initial discussion:

   a. Briefly discuss the Environmental Stewardship Program and the MEC Project with the land manager to ensure any questions are answered.

   b. Share the aerial images and proposed area boundaries with the land manager.

   c. If you noted areas that look different in 2.c. above, ask the land manager what is in each of these areas. If any of them classify as infrastructure or highly degraded areas (defined as buildings (residential and farm), gardens, roads, dams, rubbish tips, quarries, other impervious surfaces such as concrete foundations, and similar), re-draw the boundaries of the proposed area to exclude these impervious surfaces and verify that the remaining portion still meets the minimum size requirements for the TTEC in question. Change the area estimate on your paper datasheet accordingly. (Note that these areas need to be excluded from any PMUs for determining size of the PMUs, but the land manager does NOT need to fence these areas off.) If areas that look different ***and*** constitute >20% of the proposed area are thought to constitute another eligible state of the TTEC or any other native vegetation community, plan to have at least a quick look at them in your tour of the proposed area.

4. Site assessment – examination of the proposed area to confirm eligibility and establish boundaries of PMUs, check management history, and score internal threats (with the land manager if possible – if not, may have to ask additional questions in meeting with the land manager before or after):

   a. Briefly tour the proposed area to confirm the presence and eligibility of the TTEC. Specifically,

      i. Verify the presence of the TTEC (by answering the community-defining questions provided in the training manual by ESS[3]). Note that this should be done using a quick visual estimation rather than by collecting any quantitative data. Enter the TTEC name on the paper datasheet. If the TTEC is not present or is only present in an area smaller than the minimum size, inform the land manager that the proposed area is not eligible and, if that is the only area being proposed, end the site visit.

      ii. In NSW, verify the likely presence/absence of each of the priority exotic plant species and check that the proposed area does not contain >10% crown cover of these species, either individually or in combination (they will be listed on your paper datasheet – circle the species present). Do this based on a very gross visual estimation – do *not* take the extra time to set up plots or transects to quantify this. If there is >10% cover of these plants (either individually or collectively), note this on your paper datasheet

and inform the land manager that the proposed area is not eligible. If that is the only area being proposed on the site, end the site visit.

b. Establish boundaries of PMUs by check different-looking areas of vegetation identified in 3.c. above. Divide into multiple PMUs and redraw boundaries on your aerial image if necessary.

   i. Verify that the proposed area should not be divided into more than one PMU and/or the boundaries should not be adjusted based on your tour and an examination of any different-looking portions of vegetation identified in 3.c.[4]. If boundaries need to be adjusted and/or multiple PMUs need to be created, note the new boundaries on your aerial images to facilitate management discussions, particularly in relation to buffering and connectivity. If multiple PMUs need to be created, start a new paper datasheet for each additional PMU and fill in a PMU number on all datasheets (1, 2, 3, etc.). Note that each PMU on a site should have a unique number (so Proposed area 'a' might contain PMU1 and PMU2, while Proposed area 'b' contains PMU3, etc.). Mark the aerial images with PMU numbers so you can remember later which number refers to which PMU.

   ii. If any of the final PMUs contain <20% vegetation that is not thought to be the TTEC in question or is the TTEC but is not thought to be in the same State[4] (i.e., they contain up to 20% 'intergrade'), then note on your paper datasheet what is in that ≤20% intergrade.

   iii. Using your GPS (set to GDA94), mark a few points at key corners or boundaries for each PMU – the minimum necessary to help ensure you can draw an accurate polygon representing the PMU once you download these points in GIS after your site visit. More details will be available re the GIS in the training manual being prepared by ESS.[***]

c. Ask the land manager about the management history of each PMU. Answer each of the history questions on the paper datasheet. The questions separating livestock grazing from grazing by feral and native species are designed to help answer the question about total grazing pressure more effectively. Note that if the land manager does not know the history, an educated guess must be given. When uncertain between two or more possible responses, record the one that involves *less* past management disturbance (e.g., less grazing, etc.).

d. Score internal threats as present or absent on the paper datasheet based on observations during your tour of the PMU, knowledge of the region, and discussion with the land manager[5].

[***] These instructions are not yet complete. See Appendix 6 Part B for more information on integrating additional instructions and protocols.

5. Site assessment – examination of external threats, potential buffer management areas and potential connectivity management areas (with the land manager if possible – if not, may have to ask additional questions in meeting with the land manager before or after):
    a. If you adjusted the boundaries of the PMU in 4.b.i. above, then quickly re-evaluate which areas adjacent to the PMU could be managed as buffers[1] as well as which other patches of native woody vegetation are close enough to the proposed PMU to allow for connectivity management in the intervening space[2].
    b. If you did not have the opportunity to do so as part of the brief tour of the PMU, have a quick look over the fence for external threats. Also note whether trees and shrubs that appear in potential buffer areas and potential connectivity areas on your broader aerial image are generally still there on the ground. If not, make a note on the aerial image.
    c. Score external threats as present or absent on the paper datasheet based on your observations of adjoining paddocks, knowledge of the region, and discussion with the land manager[6]. The isolation threat should ALWAYS be scored as present.
6. Site assessment – determining management state or condition state of PMU (generally done without land manager):
    a. For each PMU regardless of size, select only one 50 m x 20 m sampling plot (50 m transect with 10 m either side of it) that appears to be typical – not the best spot, not the worst spot, but something broadly representative of the variation you have seen in the PMU[7].
    b. Lay out a 50 m transect tape. Using your GPS (set to GDA94), mark the start and end points of the transect, which you will download later and enter in GIS. Take one digital photo from the start of the transect facing the end of the transect and either name the file appropriately directly on your camera or note the file name on the data sheet.
    c. Perform the plot assessment protocol for the TTEC in question to classify the management state or condition state of the PMU, recording all data on the paper datasheet[8].
7. Enter all data in the MEC CVM Tool (generally done without land manager). Note that data can actually be entered as frequently as you wish, depending on how easy it is to access your laptop. We have included the data entry here purely because we suspect this is generally when it will occur – after all walking around sites and PMUs is complete:
    a. Open the MEC CVM Tool by opening the database named based on the bid reference code for this site, and click on ‘Data entry’. Under ‘Bid data’, record the date of your assessment.
    b. Under the ‘Proposed areas’ tab, use the arrows to scroll through each proposed area that was entered in 2.g. above, ensure the TTEC is correctly specified, and answer the area and exotic plant species questions based on the data you recorded on your paper datasheet. Note that if the TTEC has changed after field verification, you will need to delete the Proposed area and enter a new one. If any of your answers indicate that the Proposed

area is not eligible for the program, the Tool will not let you continue to enter data. If the Proposed area is eligible, the next data entry tab ('PMUs') should appear.

c. Under the 'PMUs' tab, use the arrows to scroll through each Proposed area on the site and specify details of the PMU(s) they contain. Record the PMU number from your paper datasheets as well as the estimated size of the PMU (you will confirm this later with GIS), the presence and composition of any intergrade, and a rough estimate of the amount of intergrade. Once you have entered these data for one PMU, you will need to hit the 'Add PMU' button to see the subsequent data entry tabs, even if you don't need to enter another PMU for that Proposed area.

d. Under the 'Field histories' tab, use the arrows to scroll through each PMU on the site and answer all the questions about its management history, from the responses you recorded on your paper datasheet. Use the question arrows to move to the next question once you have answered the previous one. When all questions have been answered, the notice indicating that some questions have not been answered will disappear.

e. Under the 'Threats' tab, use the arrows to scroll through each PMU on the site and select Yes for each threat that you identified as present and No for each threat that you did not detect as present on each PMU, based on the data collected on your paper datasheet. Note that there are two sub-tabs to work through – 'Threats within the PMU' and 'Threats from outside the PMU'. Remember that for woodland TTECs, the Isolation threat should always be considered to be present.

f. Under the 'Plot data' tab, use the arrows to scroll through each PMU on the site and answer each of the questions based on the plot data recorded on your paper datasheet. You will select the categorical response from the drop-down menus that matches the data you collected. For example, the paper datasheet will tell you how many native herbaceous plant species you observed and the MEC CVM Tool will ask you to select the range your actual number falls into (e.g., >30, 16-29, 8-15, etc.).

    i. For questions regarding % nativeness, % bare ground, and % projected foliage cover of canopy, you will need to click on the 'Open data calculation sheet' button first to perform the necessary calculations before selecting an appropriate response from the drop-down menus.

    ii. When you click this button, an Excel template will open in which there is a separate worksheet for each variable that needs to be calculated for the TTEC in question. Enter the tally numbers or % cover estimates from your paper datasheet as directed. The worksheet should automatically calculate the variable you are interested in. You may do this for all variables that require calculation (i.e., for all worksheets in the Excel workbook), then minimise the Excel workbook to be able to answer the questions in the MEC CVM Tool, maximising it

again when you need to check the appropriate value of a given variable.[***]

iii. When you close the workbook, you will be asked if you want to save the changes. Click yes, and you will find an Excel document named based on the bid reference code for this site will be saved to your computer. If you click again on 'Open data calculation sheet' to check anything, this file should open, showing you all the data you previously entered.

iv. Once all questions have been answered, the notice indicating that some questions have not been answered will disappear and a box will appear above the 'Open data calculation sheet' button indicating which State the PMU has been assigned. Check that this seems to make sense, based on the S&TM for the TTEC in question and the state assignment rules briefly described at the very end of this RAP. If the State seems to be very wrong, double-check all your data entry.

g. Under the 'Managements' tab, use the arrows to scroll through each PMU on the site and make sure that a list of management actions is appearing under both the sub-tabs 'Management within the PMU' and 'Management outside the PMU'. If a list of actions does not appear, double-check your data entry. These lists will be used to discuss options with the land manager in step #8 below.

h. Close the MEC CVM Tool by clicking on the 'Return to menu' button in the upper right, then clicking on 'Quit'.

8. Discuss management options with land manager to prepare initial plan:

a. Open the MEC CVM Tool, being sure to open the database named based on the appropriate bid reference code, click on 'Data entry' and then on the 'Managements' tab. For each PMU, this tab will show the list of potential management actions the land manager could undertake both within the PMU and in potential buffer areas and connectivity areas based on the starting state of the PMU and the threats you have identified as present. Note that the list may be longer than one page and you may need to scroll down to see them all. Management actions will be highlighted a particular colour according to their relative importance in maintaining and improving the quality of the PMU and all this information should be shared with the land manager. While you should not discuss price with land managers, be aware that the degree to which these management actions will enhance the land manager's score also depends critically on how much it will cost to perform the actions, not just the relative importance presented in the MEC CVM Tool.

b. If you must have this discussion with the land manager after the site visit and it cannot be face-to-face, ensure you have mailed, faxed or emailed the

[***] These instructions are not yet complete. See Appendix 6 Part B for more information on integrating additional instructions and protocols.

land manager the list of potential management actions along with their priority ratings (by clicking on 'Record of visit' when you open the MEC CVM Tool to produce the printable pdf record of your site visit) as well as an aerial image showing potential buffer and connectivity management areas. The land manager will need to be looking at these documents to make decisions on which management actions he/she wishes to select.

c. General instructions: In the MEC CVM Tool, select Yes or No for each action, depending on whether the land manager agrees to undertake it or not. Clicking on 'Background Information' or referring to printed material on the MEC Project should provide more detailed information about what each of these management actions actually entail. Note that some actions explicitly involve multiple options (e.g., how regeneration is to be managed in connectivity areas) and sometimes the detail is to be determined based on a conversation between you and the land manager so you can apply more local knowledge about effective management techniques (e.g., monitoring and managing exotic plants). Where the land manager must select a particular option within a management action, or you discuss further detail with them about what the management action should entail, be sure to make notes about this to help you prepare the draft management plan later.

d. First, discuss the management actions the land manager wishes to undertake within each PMU.

e. Second, discuss potential buffer management actions for each PMU. We are not asking you to perform this task *after* talking about the PMU itself because we wish to assign any lesser importance to buffering actions – indeed, buffering actions and managing connectivity may appear as high priority actions. This is simply designed to allow the land manager to discuss management that is probably more familiar first, then progress to the newer ideas and components of the MEC Project.

    i. Note that if Wind Transport of Nutrients/Herbicides/Pesticides is present as a threat, there are two options for managing it based on whether there are trees in the buffer or not. Only one of these options (or none) should be selected – never both, as they are the same except for management of tree regeneration (with regeneration management being higher priority where it is possible). Consider that a buffer has trees if at least 30% of it contains at least scattered paddock trees.

    ii. Note also that land managers may decide to apply buffer management to only part of the area they could potentially manage as a buffer (i.e., a proportion of the perimeter of the PMU rather than the entire perimeter). You will need to enter the approximate % perimeter over which the land manager is choosing to apply each buffer management action.

    iii. As the MEC CVM Tool is not spatially explicit, you will also want to mark on your aerial images *which* areas are to receive *which* types of buffer management. You will need the spatially

explicit information to prepare your GIS file and a map to go along with the draft management plan.

f. Third, double check that the land manager has not failed to select any management actions that are essentially being done anyway. For example, if a land manager in NSW elects to manage wind transport of nutrients into a PMU of Weeping Myall Woodland, this action involves no fertilisation and no cultivation in a 150 m buffer. Given that managing disturbance of roots involves no cultivation in a 20 m buffer, this action is also being accomplished with no extra effort on the part of the land manager. Both these management actions should be selected in the MEC CVM Tool.

g. Fourth, for woody communities, discuss potential connectivity management if you have identified areas where that could be applied[2]. There is only one management action (albeit one that provides flexibility in how the land manager chooses to manage for tree regeneration). Thus, this discussion is more about *where* the land manager wishes to implement this action. There is no value in managing multiple connections to one other patch, but there is value in managing one connection each to multiple other patches. Note that if the connection consists of scattered trees, the entire paddock does not necessarily need to be managed for connectivity (though it could be cheaper/easier to do so), but the area to be managed must still contain sufficient trees such that most gap distances are no more than 100 m and no gaps are >165 m.

    i. In the MEC CVM Tool, you will need to record the approximate total area of woody vegetation being connected. This ***does not*** include the area of the CMU, but it ***does*** include the area of the PMU and the patches it is connected to, and therefore it ***does*** include any woody areas that are contiguous with the PMU and are thus automatically connected without the need for specific connectivity management[2].

    ii. As the MEC CVM Tool is not spatially explicit, you will also want to mark on your aerial images *which* areas are to receive connectivity management. You will need the spatially explicit information to prepare your GIS file and a map to go along with the draft management plan.

h. Note that if the appropriate boundaries for buffer and/or connectivity areas are not clear, you may wish to collect a few additional GPS points at the conclusion of your discussion with the land manager.

i. Double-check that you have recorded all management actions the land manager wishes to include in their bid, but no more. Note that this should ideally be the final set of options chosen – the land manager *can* adjust the plan later but that is time-consuming, so effort should be put in now to make sure the land manager really understands the options and has chosen which ones to pursue based on careful consideration.

j. Note on the bottom half of the 'Bid data' tab whether the land manager would like to put a covenant on the site and the total number of years they anticipate agreeing to be part of the program (between 10 and 15). These data will be confirmed when the final bids come in.

k. Close the MEC CVM Tool by clicking on the 'Return to menu' button in the upper right, then clicking on 'Quit'.

9. Post-visit confirmation of spatial details (Note that more information should be available from the GIS protocol being developed separately by ESS for the field officer training manual – that will need to be integrated with this protocol[***]):

   a. Download the digital photo taken at the plot in each PMU and file it electronically (as per filing system determined by delivery agents).

   b. In Arc GIS, load up your GPS perimeter and transect points. Draw a polygon around each PMU and label it. Note that you may need to draw more than one polygon to represent the PMU if the PMU is bisected by a road or has an area of infrastructure or other highly degraded area (see Section 3.c. above) in the middle of it. Record the confirmed size of each PMU on your paper datasheets and in the MEC CVM Tool based on the size of this polygon, in ha (under the 'PMUs' tab). Add the sizes of all contiguous PMUs (i.e., those that are part of the same proposed area), and confirm the size of each Proposed area on your paper datasheets.

   c. Attribute the transect points with 'transect' in Arc GIS.

   d. Confirm that all buffer areas selected by the land manager are of a sufficient width. If any are too narrow, adjust the boundaries on your GIS file such that only buffer areas of sufficient width are included in the BMU, and decrease the % perimeter of the PMU buffered via that management action in the MEC CVM Tool under the 'Managements' tab.

   e. Draw a polygon(s) around all areas that will be managed using any of the buffer management actions. This total area is the BMU for that PMU. Note that since different management actions may be applied around different parts of the PMU perimeter, this area may be oddly shaped. Here are some possible examples in which the PMU is hashed and the BMU is in grey. All of the grey bits around each PMU constitute a single BMU:

      Label this BMU.

   f. For wooded communities, confirm that distances (edge-to-edge) from the PMU to other patches to be connected with connectivity management are no greater than 1.5 km. Confirm that none of the gaps in the connectivity areas are >165 m. (If some patches are too far away or some gaps are too large, you will need to inform the land manager that the connectivity

[***] These instructions are not yet complete. See Appendix 6 Part B for more information on integrating additional instructions and protocols.

management you talked about is not available based on your reassessment of the region.)

g. Draw polygons around all areas to be managed for connectivity (just the connectivity, not including patches being connected). This total area is the CMU for that PMU.

h. Draw polygons around the other patches of native woody vegetation in the landscape that are connected to the PMU via connectivity management. Label these polygons, determine their areas and confirm the total area of woody vegetation connected (in ha) in the MEC CVM Tool (under the 'Managements' tab). Remember: this ***does not*** include the area of the CMU, but it ***does*** include the area of the PMU and the patches it is connected to, and it ***does*** include any woody areas that are contiguous with the PMU and are thus automatically connected without the need for specific connectivity management[2].

i. Finally, draw polygons so you can calculate the total area of land per site that is being managed as either a BMU, a CMU, or both. This means that if a given bit of land is to be managed as both, it should only be counted once in this area calculation, not twice. Enter this total area in the MEC CVM Tool in the bottom half of the 'Bid data' tab, then hit enter on your keyboard. The Tool should then automatically calculate the total area of land being managed (by summing this with the total area of all PMUs).

j. Save this shape file with all polygons drawn and file it electronically (as per filing system determined by delivery agents).

10. Preparation of site material and draft management plan to be sent to landholder as the basis for preparing a bid:

a. Use the 'Record of visit' function in the MEC CVM Tool to produce the details for each site, including the list of potential management actions compared to the list of actions actually selected.

b. Use this list along with your GIS file and notes about options and details related to management actions as the basis for preparing a draft management plan for the site using the templates and information provided by ESS in the field officer training manual.

c. Be sure that the draft management plan includes an aerial image/printout from GIS that clearly indicates which management the land manager has proposed in which paddocks (i.e., ensure that the management plan is spatially explicit). Note that the BMU for each PMU may actually involve several different paddocks with different widths and management actions in each of them, so simply note which management applies in which parts of which paddocks. The GIS file you prepared in step #9 above was NOT that spatially explicit.

d. Send the 'Record of visit' pdf from the MEC CVM Tool (generated by opening the Tool and clicking on 'Record of visit') to the land manager for double-checking, asking the land manager to focus on the list of management actions adopted. Follow up with the draft management plan documents (including the aerial image) along with any other necessary materials so they can prepare/cost the bid.

More detailed RAP instructions as required

1. Marking potential buffer management area

First, draw a line 20 m out from the boundaries of the proposed area (or PMU), then draw a second line either 100 m (for SA) or 150 m (for NSW) out from the boundaries of the proposed area (or PMU). If any of these lines intersects with the property boundary (i.e., only a portion of the proposed buffer area is owned/managed by the land manager), then draw a perpendicular line from the intersection of the buffer line and the property boundary to the edge of the proposed area or PMU (see figure at end of Glossary). This defines the portion of the total buffer area that can be managed by the land manager (because he/she controls management of the land) – in other words, the potential buffer management area. Note that the buffer management unit (BMU) will be the portion of this potential area over which the land manager actually chooses to implement any of the additional buffer management actions.

2. Identifying potential patches that could be connected via connectivity management

These instructions only apply to the woodland communities (BGGW, BGGW DNG, WMW, and PBGW). Connectivity management is not available for the natural grassland communities.

Look for any patches in addition to the proposed area (or PMU) that have a minimum woody vegetation cover that meets the definition for woodlands (no gaps between canopies (measured edge of canopy to edge of canopy) >75 m). Note that there is no maximum allowable woody vegetation cover. Exclude any patches that are clearly planted and/or are composed of non-native tree species (based on colour and uniformity, such as pine plantations, saltbush paddocks, etc.), and exclude areas that are narrower than 100 m (i.e., corridors rather than patches). To qualify as potential woody patches to be connected to the proposed area (or PMU), they must have an edge that is within 1.5 km of the edge of the proposed area (or PMU) and they must be at least 5ha in size in NSW and 2ha in size in SA.

Other patches that are contiguous with the PMU (i.e., where the minimum gap between the two is <75 m) are automatically deemed connected to the PMU with no connectivity management required by the land manager. If the other patches are not contiguous, evaluate whether appropriate structural connectivity currently exists between the proposed area (or PMU) and these other patches. "Appropriate" connectivity consists of either: 1) a woody corridor (i.e., mostly continuous strip of trees or shrubs) of any width in which there are no gaps >165 m (measured edge of canopy to edge of canopy), 2) scattered trees and/or shrubs in which most gap distances are no more than 100 m and there are no gaps >165 m, or 3) a combination of 1) and 2). There may be multiple possible connections to multiple possible other patches for any given PMU. Any portion of these areas that is under the land manager's control is a potential connectivity management area and should be noted on the map for the management discussion with the land manager. Note that the connectivity management unit (CMU) will be the total area (possibly involving multiple connections) over which the land manager actually chooses to implement the additional connectivity management action.

3. Verifying the presence of the TTEC

Specific questions must be answered to confirm the presence of the TTEC. These are provided in the training manual and can also be viewed by clicking the 'Further information' button on the 'Proposed areas' tab in the MEC CVM Tool. Note that these protocols need to be based on gross visual estimates and should *not* involve any quantitative vegetation methods, such as setting up plots or transects.

4. Verifying that a proposed area should be considered a single PMU and that its boundaries are appropriate

Answer the following questions to ensure the proposed area can be treated as a single PMU and/or does not need its boundaries adjusted. Note that there should VERY RARELY be a need to divide into multiple PMUs – the MEC Project is designed to avoid dividing or 'zoning' into multiple PMUs as much as possible.

A. Does the proposed area consist of at least 80% of the TTEC in question (i.e., no more than 20% consists of another vegetation community)? If yes, go to question B. If no, go to question C.

B. Does at least 80% of the proposed area roughly appear to be in the same state and/or has had a similar management history (i.e., no more than 20% appears to be in a different state and/or has been managed quite differently)? If yes, then treat the proposed area as a single PMU and no boundaries need to be adjusted. If no, go to question C.

C. Is the 'other' part of the proposed area (i.e., the stuff that is over 20% that caused you to answer no to either of the questions above) another state of the same TTEC that is eligible for the MEC Project or another TTEC in the MEC Project also in an eligible state? If yes, go to D. If no, then adjust the boundaries of the proposed area in consultation with the land manager to exclude enough of this 'other' such that it is now <20% of the total area – this is now a single PMU. Verify that the PMU still meets the minimum size requirements for the TTEC in question and that you can answer yes to questions A and B based on the new PMU boundaries.

D. Create boundaries for two PMUs (or more, if necessary) – one for each state of each TTEC. Verify that you can answer yes to questions A and B for each of these PMUs, and that the total contiguous area for PMUs of each TTEC meets the minimum size requirements. Proceed by evaluating each of the PMUs separately but as part of the same site.

5. Scoring presence/absence of internal threats

Based on your own observations while touring the PMU, your knowledge of the common threats in the region, and discussions with the land manager about what he/she has observed within the past year, score the following threats as present or absent WITHIN THE PMU based on the relatively detailed definitions provided:

Proliferation of Exotic Herbaceous Plants – Non-aggressive: presence of any exotic (including native exotic – i.e., native to Australia but not to that region) herbaceous plant species that is not thought to proliferate rapidly or aggressively, particularly in the absence of significant human disturbance (such as cultivation, etc.)

Proliferation of Exotic Herbaceous Plants – Aggressive: presence of any exotic (including native exotic) herbaceous plant species that tends to proliferate rapidly and/or aggressively but is not legally required to be managed within the PMU (i.e., certain classes of noxious weeds in NSW) except those noxious species also classified as Weeds of National Significance, OR, if no or few signs are observed, knowledge that the land manager is already engaged in an extensive control program

Proliferation of Exotic Shrubs - Aggressive: presence of any exotic (including native exotic) shrub species that tends to proliferate rapidly and/or aggressively but is not legally required to be managed within the PMU (i.e., certain classes of noxious weeds in NSW) except those noxious species also classified as Weeds of National Significance, OR, if no or few signs are observed, knowledge that the land manager is already engaged in an extensive control program

Feral Grazing: obvious presence of feral grazing species (rabbits, goats, deer, etc.) as determined by common observation of individuals, scat, active warrens, species-specific grazing evidence, or bedding down areas (taking into consideration whether any of these species are known problems in the region and thus very likely to be present in the PMU even if not observed) OR, if no or few signs are observed, knowledge that the land manager is already engaged in an extensive control program

Soil Disturbance by Feral Species: obvious presence of feral species that dig and disturb soil (rabbits, pigs) as determined by common observation of individuals, scat, active warrens, or recent diggings (taking into consideration whether any of these species are known problems in the region and thus very likely to be present in the PMU even if not observed), OR, if no or few signs are observed, knowledge that the land manager is already engaged in an extensive control program

Excessive Grazing by Native Species: obvious presence of native grazing species (kangaroos, euros, etc.) as determined by common observation of individuals, scat, or bedding areas PLUS signs of heavy grazing pressure (must be both, not one or the other), OR, if no or few signs are observed, knowledge that the land manager is already engaged in an extensive control program

6. Scoring presence/absence of external threats

Based on your own observations of paddocks adjoining the proposed PMU, your general knowledge of threats that are commonly present in the region, and discussions with the land manager about what he/she has observed within the past year, score the following threats as present or absent IN AREAS ADJOINING THE PMU, based on the relatively detailed definitions provided. Note that these threats could also be present in the PMU, but they might not be – this scoring is *independent* of what is present in the PMU.

Invasion of Exotic Herbaceous Plants – Aggressive: presence anywhere within ~500 m of the boundaries of the PMU of any exotic (including native exotic) herbaceous plant species that tends to proliferate rapidly and/or aggressively but is not legally required to be managed to prevent proliferation (i.e., most classes of noxious weeds in NSW) except those noxious species also classified as Weeds of National Significance

Invasion of Exotic Shrubs - Aggressive: presence anywhere within ~500 m of the boundaries of the PMU of any exotic (including native exotic) shrub species that tends to proliferate rapidly and/or aggressively but is not legally required to be

managed to prevent proliferation (i.e., most classes of noxious weeds in NSW) except those noxious species also classified as Weeds of National Significance

Wind Transport of Nutrients/Herbicides/Pesticides: presence of any cultivation and/or fertilisation anywhere within ~500 m of the boundaries of the PMU, even if only every several years as part of a mixed enterprise

Water Transport of Nutrients/Herbicides/Pesticides: presence of any cultivation and/or fertilisation *upslope from* and anywhere within ~100 m of the boundaries of the PMU, even if only every several years as part of a mixed enterprise

Disturbance of Roots (that extend outside PMU) – only for woodland communities: presence of any cultivation in a paddock within ~30 m of the boundaries of the PMU, even if only every several years as part of a mixed enterprise

7. Selecting a representative 50m x 20m plot

Use a combination of your on-ground observations as well as the aerial image to select a representative plot. Pay particular attention to canopy cover for those TTECs where it needs to be quantified. If there is a canopy cover, the transect needs to be at least partially under canopy, but how much will depend on the spacing and heterogeneity of tree distribution, which is where selecting a plot based on the aerial image may be particularly helpful. As a suggestion only, you might wish to quickly glance at the aerial image and roughly imagine 5 or more 50m transects randomly placed throughout the PMU, count the number of canopies or partial canopies intersected by those transects and average that number to give you an indication of how many canopies or partial canopies your sampling transect should intersect.

8. Plot Assessment Protocols to assign each PMU to a state

Collect the relevant ecological data for the TTEC as follows:

For Box-Gum Grassy Woodland (non-derived states):

Variables to quantify and use to assign state:

- Presence of 5 tree age classes (mature, adult, pole, sapling, seedling)
- % projected foliage cover of canopy
- # native plant species in 0.1 ha
- % nativeness of groundcover <1m tall (based on % crown cover)
- % bare ground (based on % crown cover of ground plants)

1. Run an additional 20 m tape at the start of but perpendicular to the transect (with the 10 m middle of the tape at the start of the 50 m transect) to define the 20 m edge of the sampling plot.
2. At the start of the transect, look around the PMU and score presence/absence *in the PMU* of the 5 tree age classes, considering only tree species that are part of the TTEC. (Mature = with sizable hollows, Adult = with spread crown, Pole = pole-like trunk with tighter crown, Sapling = between pole and seedling, Seedling = <1 m tall)
3. Conduct a 10-minute timed walk *in the 50 m x 20 m plot* and count the total number of native plant species observed, remembering that this should include

trees and shrubs as well as ground plants. Spend the first minute standing still to get your eye in and notice the most common species.

4. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native plant <1 m tall (herbaceous or shrub), an exotic plant <1 m tall (herbaceous or shrub), or neither. If it passes through crowns of both native and exotic species, record both. If you are unsure whether the species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by 'other' (e.g., litter, rock, unidentified plant, etc.). Sum the number of native and exotic crowns recorded. If this number is <25, shift the transect 50 m further along the same direction and repeat the process until 25 records of plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness by dividing the number of native crowns recorded by the sum of the number of native and exotic crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].
5. At 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50 m along the transect, look directly up through a tube similar in diameter and length to a toilet paper roll (standard items to be used by all field officers and delivery agents) and estimate the % projected foliage cover of the canopy. First estimate the % area covered by some patchy form of vegetation (including branches and trunks) – in other words, the area NOT completely dominated by open sky. Then record an estimate of the % foliage cover of areas that DO have patchy vegetation as determined by comparison to the set of printed references. The calculation spreadsheet will multiply these two numbers for each point and then average these 10 values to generate the % projected foliage cover of canopy.

For Box-Gum Grassy Woodland (derived states):

Variables to quantify and use to assign state:

- # native plant species in 0.1 ha
- % nativeness of groundcover <1 m tall (based on % crown cover)
- % bare ground (based on % crown cover of ground plants)

1. Run an additional 20 m tape at the start of but perpendicular to the transect (with the 10 m middle of the tape at the start of the 50 m transect) to define the 20 m edge of the sampling plot.
2. Conduct a 10-minute timed walk *in the 50 m x 20 m plot* and count the total number of native plant species observed, remembering that this should include shrubs as well as ground plants. Spend the first minute standing still to get your eye in and notice the most common species.
3. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native plant <1 m tall (herbaceous or shrub), an exotic plant <1 m tall (herbaceous or shrub), or neither. If it passes through crowns of both native and exotic species, record both. If you are unsure whether the species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by something else (litter, rock, unidentified plant, etc.).

Sum the number of native and exotic crowns recorded. If this number is <25, shift the transect 50 m further along the same direction and repeat the process until 25 records of plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness by dividing the number of native crowns recorded by the sum of the number of native and exotic crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].

For Weeping Myall Woodland:

Variables to quantify and use to assign state:

- Presence and relative abundance of 4 tree age classes (mature, adult, sapling, seedling)
- % projected foliage cover of canopy
- % nativeness of herbaceous plant groundcover (based on % crown cover)
- % nativeness of shrub and sub-shrub cover (based on % crown cover)
- % bare ground (based on % crown cover of ground plants)

1. At the start of the transect, look around the PMU and score relative abundance (present, scattered only, or absent) of mature and adult Myall and presence/absence of sapling and seedling Myall *in the PMU*. (Mature = >8 m tall, Adult = 4-8 m tall, Sapling = 1-4 m tall, Seedling = <1 m tall)
2. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native herbaceous ground plant, an exotic herbaceous ground plant, a native shrub or sub-shrub, an exotic shrub or sub-shrub, or neither. If it passes through crowns of more than one of these categories, record all that are applicable. If you are unsure whether the species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by something else (litter, rock, unidentified plant, etc.). Sum the number of native and exotic herbaceous crowns recorded. If this number is <25, shift the transect 50 m further along the same direction and repeat the process until 25 records of herbaceous plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness of herbaceous plants by dividing the number of native herbaceous crowns recorded by the sum of the number of native and exotic herbaceous crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will do the same for shrubs and sub-shrubs if at least 10 shrub crowns were recorded on the transect (i.e., at least 20% shrub cover). Finally, it will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].
3. At 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50 m along the transect, look directly up through a tube similar in diameter and length to a toilet paper roll (standard items to be used by all field officers and delivery agents) and estimate the % projected foliage cover of the canopy – first estimate the % area covered by some patchy form of vegetation (including branches and trunks), then record an estimate of the % foliage cover of areas that DO have patchy vegetation as determined by comparison to a set of printed references. The calculation spreadsheet will

multiply these two numbers for each point and then average these 10 values to generate the % projected foliage cover of canopy.

For Basalt and Alluvial Grassland:

Need to quantify:

- # native perennial grass species in 0.1 ha
- % nativeness of herbaceous plant groundcover (based on % crown cover)
- % bare ground (based on % crown cover)

1. Run an additional 20 m tape at the start of but perpendicular to the transect (with the 10 m middle of the tape at the start of the 50 m transect) to define the 20 m edge of the sampling plot.
2. Conduct a 10-minute timed walk *in the 50 m x 20 m plot* and count the total number of native perennial grass species observed. Spend the first minute standing still to get your eye in and notice the most common species.
3. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native herbaceous ground plant (i.e., no shrubs), an exotic herbaceous ground plant, or neither. If it passes through crowns of more than one of these categories, record all that are applicable. If you are unsure whether an herbaceous ground species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by something else (litter, rock, unidentified plant, shrub, etc.). Sum the number of native and exotic herbaceous crowns recorded. If this number is <25, shift the transect 50 m further along the same direction and repeat the process until 25 records of herbaceous plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness by dividing the number of native crowns recorded by the sum of the number of native and exotic crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].

For Peppermint Box Grassy Woodland:

Need to quantify:

- Presence of tree age classes (mature, adult, sapling, seedling)
- # native plant species in 0.1 ha
- % nativeness of groundcover <1m tall (based on % crown cover)
- % bare ground (based on % crown cover)

1. Run an additional 20 m tape at the start of but perpendicular to the transect (with the 10 m middle of the tape at the start of the 50 m transect) to define the 20 m edge of the sampling plot.
2. At the start of the transect, look around PMU and score presence/absence *in the PMU* of the 4 tree age classes, considering only tree species that are part of the TTEC. (Mature = with sizable hollows, Adult = with spread crown, Sapling = between adult and seedling, Seedling = <1 m tall)

3. Conduct a 10-minute timed walk *in the 50 m x 20 m plot* and count the total number of native plant species observed (remembering that this should include trees and shrubs as well as ground plants, but not mosses, lichens, etc. which are too difficult to identify to species). Spend the first minute standing still to get your eye in and notice the most common species.
4. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native plant <1 m tall (herbaceous, shrub, moss or lichen), an exotic plant <1m tall (herbaceous or shrub), or neither. If it passes through crowns of both native and exotic species, record both. If you are unsure whether the species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by something else (litter, rock, unidentified plant, etc.). Sum the number of native and exotic crowns recorded. If this number is <25, shift the transect 50m further along the same direction and repeat the process until 25 records of plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness by dividing the number of native crowns recorded by the sum of the number of native and exotic crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].

For Iron-grass Grassland:

Need to quantify:

- # native herbaceous plant species in 0.1 ha
- % nativeness of groundcover <1 m tall (based on % crown cover)
- % bare ground (based on % crown cover)

1. Run an additional 20 m tape at the start of but perpendicular to the transect (with the 10 m middle of the tape at the start of the 50 m transect) to define the 20m edge of the sampling plot.
2. Conduct a 10-minute timed walk *in the 50 m x 20 m plot* and count the total number of native herbaceous plant species observed (i.e., no shrubs, mosses or lichens). Spend the first minute standing still to get your eye in and notice the most common species.
3. At each metre along the transect (beginning at 1 and ending at 50), record whether a stick dropped straight down to the ground at that point passes through the crown of a native plant <1m tall (herbaceous, shrub, moss or lichen), an exotic plant <1m tall (herbaceous or shrub), or neither. If it passes through crowns of both native and exotic species, record both. If you are unsure whether the species is native or exotic, record neither. If you record neither, record whether the ground at that point is bare or is covered by something else (litter, rock, unidentified plant, etc.). Sum the number of native and exotic crowns recorded. If this number is <25, shift the transect 50m further along the same direction and repeat the process until 25 records of plant crowns have been obtained. You will enter these data into a calculation spreadsheet that will calculate nativeness by dividing the number of native crowns recorded by the sum of the number of native and exotic crowns recorded and multiplying by 100% [#N/(#N+#E)*100%]. It will also calculate the % bare ground [(# bare hits/# point samples taken)*100%].

Once these data are entered into the MEC CVM Tool by selecting the appropriate categories for each field attribute, the MEC CVM Tool will then determine what state the PMU is in. It does this using the following rules:

a. A PMU with >50% bare ground AND <60% nativeness of herbaceous/ground plants is automatically considered to be in a low enough state that it is ineligible for the MEC Project.

b. Otherwise, for Basalt and Alluvial Grasslands, a condition state is assigned if both of the other field attributes (nativeness and species richness) correspond to that condition state. Otherwise, the PMU is deemed to be along the continuum between those condition states and is assigned an initial value halfway between the values for the two states that each field attribute indicated it was in (e.g., it will be assigned State 1.5 or State 2.5).

For all the other communities, a PMU is assigned to the lowest state that any of the field attributes indicate it is in. However, if it is placed in that lower state due to ***only one*** field attribute, the Tool checks whether the management history (in terms of grazing, fertilisation, and inputs of nutrients from adjacent areas) best corresponds to that lower state or to one state higher. The PMU will then be assigned to the state to which the management history best corresponds.

A.5 Outline of the Mock Auction exercise

A.5.1 Summary of the workshop

A mock auction exercise was held with members of the Environmental Stewardship Evaluation Panel and ESS officers on May 21st. The objective of the mock auction was a combination of testing parts of the MEC CVM and process, present the calculated CVS, and briefings on the recommended design specifications and implementation process. The following documents supporting the mock auction exercise are inserted below:

- Agenda
- Outline of mock auction exercise (participant notes); and
- One of three hypothetical farms constructed for the exercise.

Conclusions from exercise

The overall mock auction process was a success. It allowed all participants a detailed insight into the complexity of designing and implementing a tender under Environmental Stewardship that incorporates actions beyond the TTEC in the form of buffer management (BMU) and connectivity management (CMU). Exercise participants were able to complete and submit a hypothetical bid in the simulation. The resultant hypothetical bid curve demonstrated the heterogeneity of the hypothetical farms and the effectiveness of the exercise (including a quick note of a spreadsheet error!).

Effective communication of the mock auction exercise was more complicated than expected. This was largely due to the combination of three heterogeneous models farms and the inclusion of management activities beyond the PMU. The BMU and CMU inclusions did provide an additional challenge for participants in the exercise and demonstrated the complexity of communicating additional dimensions to land managers. While the mock auction exercise cannot be directly translated to the Environmental Stewardship field settings a number of lessons can be drawn for effective implementation:

- It is essential to communicate the desired bid opportunities and parameters. In particular it is critical to spell out the opportunity for land managers to supply BMUs and CMUs to protect their proposed site (PMU) against external threats. Communication of buffer and connectivity will be difficult in part because CMUs only apply to woodland communities;
- Communicating the relative value of different management actions, particularly when some (such as BMU and CMU activities) may be relatively expensive, will allow land managers to make an informed judgement about which management actions to offer;
- A mock auction exercise was effective in communicating the design problem and the structure of the proposed approach to participants; and
- Any field implementation of a hypothetical auction approach will need to carefully revise the design to minimise complexity while retaining the critical management elements that land managers will need to consider in preparing and submitting tenders to the Environmental Stewardship MEC Project.

More details are available from the team on any aspect of the exercise.

A.5.2 Outline of Mock Auction Workshop

Multiple Ecological Communities Conservation Value Metric Mock Auction

Agenda

Date: Friday 21 May 2010

Agenda Item 1: General introduction and an overview of the mock auction

Presenter: Emma Burns - DEWHA

Objective: To provide an update on the CVM and an overview of the mock auction process.

Agenda Item 2: Auction game

Presenter: Stuart Whitten

Objective: To run through a simulated bid as a training exercise for the panel. We will walk through all components of the auction to present a chronology of participation of the site assessment from the landholders' perspective. This will involve consideration of:

1. A hypothetical property with several potential management areas, assumed ecological starting states and ecological communities
2. Selection of areas to include in the bid
3. The minimum management package
4. A selection of additional management actions
5. Buffering and connectivity
6. Costing and submitting a bid

Agenda Item 3: Feedback: ranking and overview of bids

Presenter: Stuart Whitten

Objective: to provide a general explanation of how the bids were scored, which ones were successful, which ones were not and why.

Agenda Item 4: Detailed discussion of metric and implications

Presenter: Veronica Doerr and Stuart Whitten

4a: Revisit chronology of participation

Objective: to provide workshop participants with additional information about the process of submitting a bid from a landholders' perspective and to recap on the chronology of participation for people joining the workshop at this session.

4b: Presentation of metric form

Objective: to explain how the data from the different parts of the site assessment will be aggregated by the metric to generate the final score.

4c: Discussion of implications of metric form for CVS scoring

Objective: to discuss the scores generated by the metric in the context of different communities, ecological starting states, primary and secondary management units, threats, management actions, landholder costs and their implications for the selection of bids.

Agenda Item 5: Open discussion and questions

Presenter: Stuart Whitten

Agenda Item 6: Discussion of the guiding principles and processes to facilitate the evaluation of bids

Presenter: Stuart Whitten, Emma Burns

Objective: to discuss and clarify the guiding principles, processes and support information required to facilitate the evaluation panels evaluation of bids for the Environmental Stewardship Program MEC project.

A.5.3 Example materials from Mock Auction Exercise

Participant notes

MEC Mock Auction Workshop – May 2010

The aim of this workshop is to familiarise you with the MEC tender process and some of the issues that landholders might need to consider before submitting a bid. The idea is to give you a feeling of how these tenders work. The actual MEC Tender is a little different.

The workshop is intended to simulate a cut down version of the MEC process. It essentially merges some aspects of the site visit with the bid preparation process. The field officer will give the landholder more specific advice on sites, management, buffering and connectivity than we can provide you in this exercise. The field officer will not offer advice on costing bids. In our experience, individual landholders are best placed to know the costs and impacts of proposed management commitments.

The Auction Game / Practice Tender Process

Each participant will be given a map of a hypothetical farm that is conceptually similar to properties in various MEC regions. You will be asked to submit a tender on behalf of the owner of this hypothetical farm. The hypothetical farm map shows the threatened ecological communities targeted by the practice auction for management. Table 1 shows the costs of establishing and managing revegetation for each hypothetical farm. These costs are illustrative and should not be regarded as realistic estimates.

You will need to decide the **bid price** on behalf of the farm owner by considering the costs in Table 1. That is, you decide how much money the owner of this farm would need to be paid to be willing to make these changes. These costs include:

- Any activities to manage the threatened ecological community on the property including activities such as pest and weed control, additional management costs, fencing and so on. Note: only some costs are listed in this exercise.
- Any production that would be lost each year.
- Management of any proposed buffers to the community.
- Management of connectivity to other areas (if relevant).

Use the bid calculation sheet to help estimate how much it would cost to implement the management actions you have selected. You would want to ensure that your bid price is **at least** as much as it will cost to make the changes. However, a higher price will reduce your chances of success in the tender.

The winning bids will be the ones that offer the best value for money. That is, the winning bids will be those which manage the condition and extent of the threatened ecological communities (including buffer and connected area) most effectively for the bid price. Please use your property map and the calculation sheet to work out what area you would be willing to manage, and how much money you would require to do it.

Property: Albion

Owner: Angelina Jolie

Angelina is eligible to submit a bid in this practice tender. The tender mechanism offers Angelina the choice and flexibility to choose which and how much of her threatened ecological communities she is prepared to manage. Crucially she also chooses how much

she needs to be paid (the bid price) in order to carry out the management actions. At the end of the day, if she is not happy with the tender process or the management actions required, she can choose not to participate.

Please work out a bid on behalf of Angelina for part or all of the target ecological community on Albion.

There are no existing conservation management agreements or covenants on Angelina's property.

Steps:

1. Work out a management plan for Angelina. You can decide:
    - Which areas of the threatened ecological communities on Angelina's property will be offered for management? You can offer as much or as little of these areas as you choose. Larger areas will receive higher management scores but incur higher costs. Whether to offer a buffer around part or the entire management unit.
    - If relevant – whether to offer to manage connectivity with other areas of native vegetation.
1. Work out how much it will cost Angelina to implement this management plan. This includes the initial costs of fencing, ongoing management costs such as pests and weeds, any lost production and costs of buffer or connectivity management. Whether or not you offer a buffer and whether you new fences are required or to set aside the paddocks in which the community is located.
2. Decide on a bid price, and complete the bid form. Remember that the bid price should be at least as much as the costs otherwise Angelina will make a loss.

In this tender, there will be no cash payments, just chocolates!

Management plan options for this exercise:

These are the management options recommended for your property and the associated costs. The costs include opportunity costs of lost grazing under the minimum management package, buffer management costs and connectivity management costs where relevant. . These are only a sub-set of the potential actions that a farm owner may undertake. In the actual MEC tender there are likely to be many more management actions available to the farm owner.

Management Option (within community)	***Description***	Angelina's ***Costs***			***Selection***
		$ / Ha State 1	***$ / Ha State 2***	***$/ Ha State 3***	
Minimum management package	**No:** destructive livestock grazing; cultivation; fertiliser; planting species that are not native to the TTEC; intentional burning outside of a management plan **Retain:** all native vegetation (alive or dead); bush rocks. **Do:** All other actions associated with legal "duty of care" (e.g., control listed noxious weeds, etc.)	60	200	250	✓
Manage herbaceous weeds – non-aggressive	Monitoring and managing exotic herbaceous plants – non-aggressive via crash grazing	N/A	4043	5262	
Feral animals	Manage foxes, rabbits and pigs – all deemed to be present.	3	8	25	
Buffer management options					
Large buffer (150m IGG/PBW; 300m WMW)	Reduce threat of weed invasion and wind transport of nutrients or chemicals by offering a buffer.	40	120	180	
Small buffer (50m for this exercise)	Prevent water transport of nutrients or chemicals and, root disturbance from cultivation by establishing a dense sward of native perennial grasses.	100	290	430	
Connectivity Management Options — Available to Woodlands Only		***Cost per Ha is not related to state***			
Connectivity (doubles as buffer) (minimum 100 m width connection)	Foster native understorey and regenerate trees (through no fertilisation or cultivation. PLUS, use conservation grazing or fence trees 10m outside edge of crown. OR, restrict grazing during expected tree establishment and fence seedlings)	N/A			
Other management costs		***Cost per unit***			
Fencing	Any new fences required (cost per metre).	26			
New water points	Any new water points required per unit (e.g. if the paddock is divided and stock no longer have access to existing watering points)	1900			

Practice MEC Tender Calculation

Site 1 (PMU1): Community: _____ State: _____

	Cost (/ unit)	How many units? (Ha, m, waters)	= Total
A. Minimum package			
B. Manage herbaceous weeds			
C. Mange feral animals			
D. Buffers – large / small			
E. Buffers – large / small			
F. Buffers – large / small			
G. Fencing			
H. Water points			
Site 1 TOTAL = sum (A – F)			

Site 2 (PMU2): Community: _____ State: _____

	Cost (/ unit)	How many units? (Ha, m, waters)	= Total
I. Minimum package			
J. Manage herbaceous weeds			
K. Mange feral animals			
L. Buffers – large / small			
M. Buffers – large / small			
N. Buffers – large / small			
O. Fencing			
P. Water points			
Site 2 TOTAL = sum (G – L)			

Connectivity

	Cost (/ Ha)	How many Ha?	= Total
Q. Connectivity			

Total Costs (Site 1 + Site 2 + connectivity)	

Practice MEC Tender Bid

BID SHEET

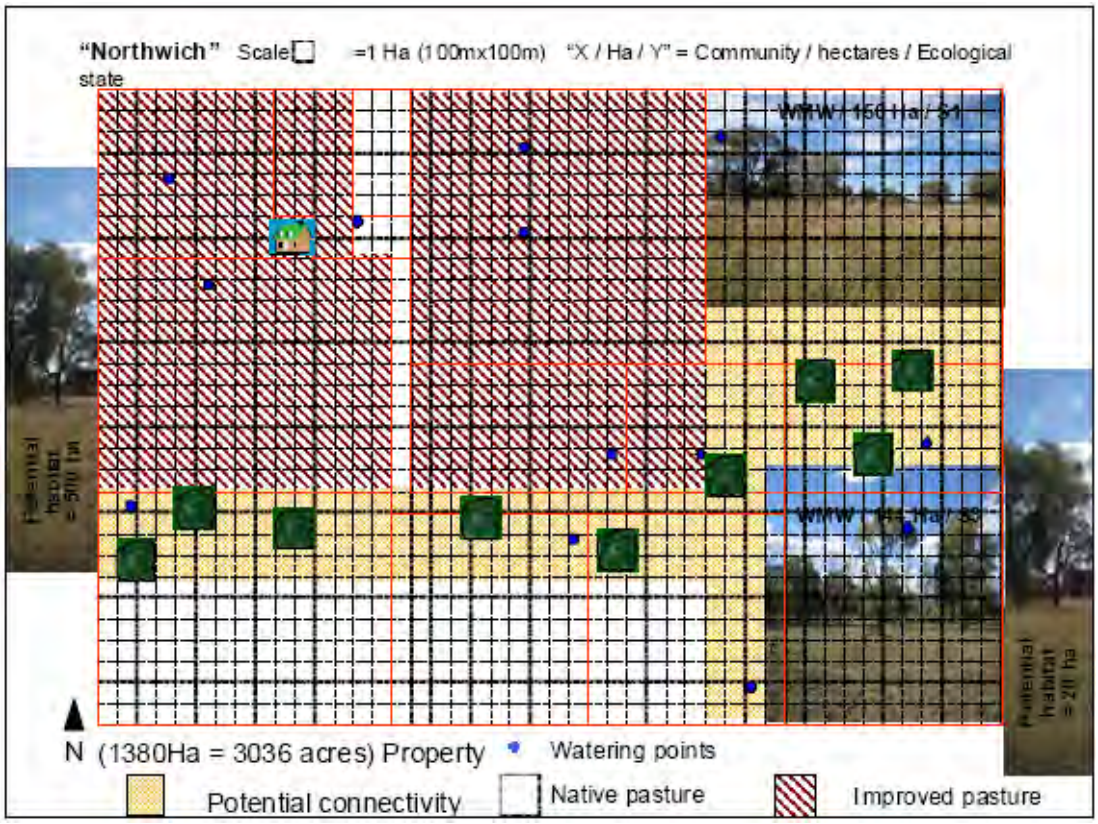
Property: Albion

Owner: Angelina Jolie

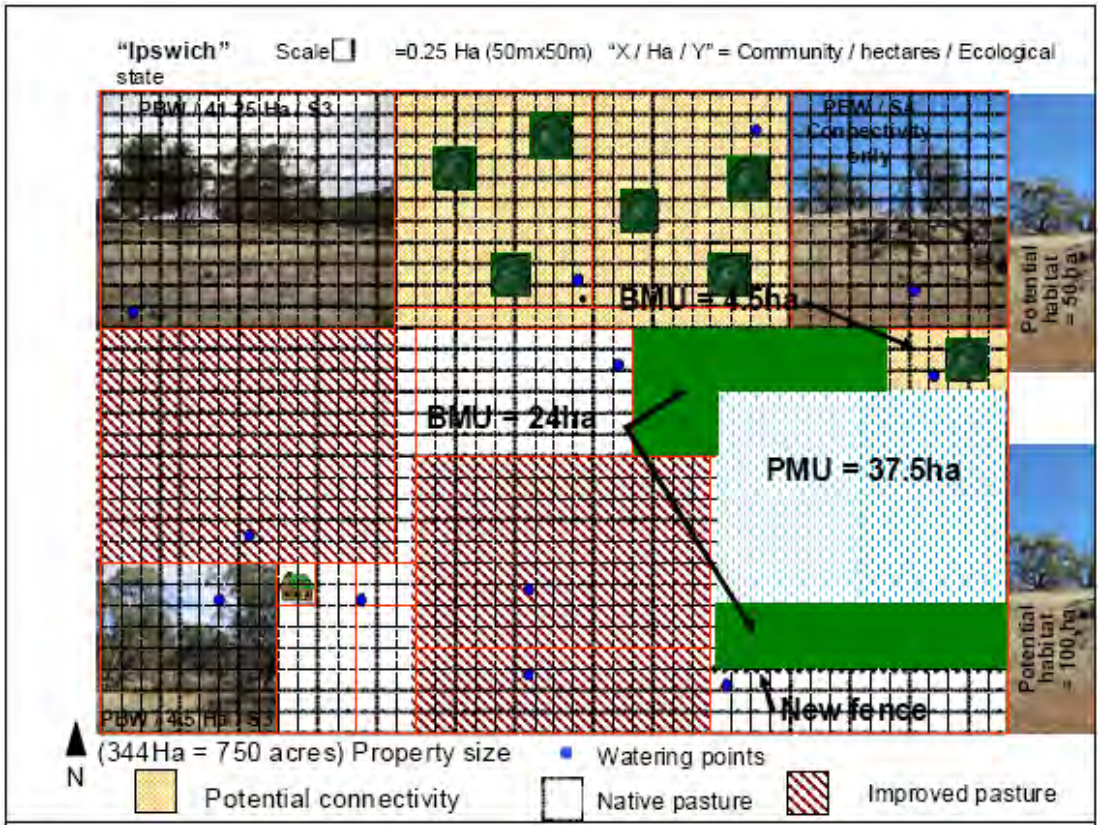
Threatened vegetation community	Current state	Site (Ha)	Small buffers (Ha)	Large buffers (Ha)	Connectivity buffers (Ha)
1.					
2.					
3.					
Connectivity: Calculate total vegetation that is linked (Ha) (do not include hectares of connectivity – only the TEC and linked areas)					

Bid price: $_____

Example of hypothetical farms for mock auction



Example with PMU and BMU added.



A.6 Summary discussions and note of items requiring checking/revision for implementation

A6.1 Part A: Log of discussions underpinning key decisions

This part of the appendix provides a link to many of the discussions during the course of the project. It will allow the discussions underpinning some of the key decisions to be sourced and further information to be found if needed. It is intended to provide a log of outcomes and to note where discussions or outcomes may be ongoing (either between CSIRO and DEWHA or within DEWHA). Ongoing discussions are marked by an arrow.

State and transition models and their role in the MEC CVS

Additional States in BAG S&TM

Email from CSIRO on 27/5 provides rationale for the additional states in the BAG S&TM:

- Additional states (e.g., 1.5 and 2.5) represent the simplest way to achieve the *intent* of allowing continuous variation within the eligible BAG management state. The effect of these additional states is that a BAG area that has one attribute associated with State 1 and one attribute associated with State 2 will receive a score that is in effect the average of the scores for those two states (i.e., is State 1.5).
- Because the RAP for BAG does not use history questions to help determine state, all states have to be completely specified in terms of all the possible combinations of attribute classes. Thus, states designated a or b were necessary to reflect the situation in which different attributes were associated with one state higher and one state lower. For example, 1.5a may occur when the number of native perennial grasses corresponds to State 1 and the nativeness corresponds to State 2, while 1.5b may occur when the number of native perennial grasses corresponds to State 2 and the nativeness corresponds to State 1.
- All additional states beyond 1, 2, 3 and 4 were developed purely as an efficient way to achieve continuous variation among states 1, 2 and 3 within the structure of the MEC CVM Tool. Thus, these additional states do not need to be communicated in any way to stakeholders (e.g., not to delivery agents, field officers, or land managers).

Restructuring of the BGGW S&TM:

Email from DEWHA on 27/05 confirms that restructuring the BGGW S&TM is an appropriate solution and summarises the changes to the BGGW S&TM.

- The non-linear nature of the BGGW S&TM and the possibility for multiple transition pathways between the grassy woodland form of the TTEC and the derived grassland form presented conceptual and practical difficulties. The multiple transition possibilities would have made the equations for determining the CVS an order of magnitude more complicated and programming the tool to account for this would have been significantly more complicated than the alternative, which was to split the BGGW S&TM into its grassy woodland and derived native grassland components.
- Treating the grassy woodland and derived native grassland components of the BGGW S&TM separately in the tool does not mean that they need to be treated

separately in communications with stakeholders. The BGGW S&TM was restructured for pragmatic rather than ecological or other conceptual reasons.

CVM / CVS underpinnings and mechanics

Link between relative values and EPBC condition classes:

Email from DEWHA on 31/5 summarises:

- DEWHA concerns that EPBC listings were not designed to provide comparisons between communities and should not be used as such; and,
- CSIRO concerns that this approach had been signed off in the Interim report, that relative values are DEWHA's responsibility and that despite the limitations of the EPBC listing categories, they are the best available information that can be used to make comparisons across communities.
- DEWHA email confirms that the final relative values for use in the metric are DEWHA's responsibility. Set of relative values supplied by DEWHA used in final report and notes on conceptual framework provided in feedback.

Threats and Management Actions

Final list of threats and management actions:

Email from CSIRO on 12/05 states the following changes to threats and management actions in the ecological report and gives reasons:

- The management of all feral species (cats, rabbits, foxes, pigs etc) was combined into a single management action to ensure that all feral species are managed and landholders do not selectively manage particular species. This is because management of one feral and not others may lead to perverse outcomes. For example, management of foxes but not rabbits can lead to an increase in rabbit populations, and management of rabbits but not foxes can cause foxes to exert additional predation pressure on native prey species.
- Feral predation was removed as a threat as it is never likely to lead to a decline in state on its own so it will not influence the site score.
- Proliferation of exotic shrubs (non-aggressive) was removed as a threat because all of the exotic shrubs that are remotely common in these communities and which pose any kind of real threat will be covered by the "aggressive" category.
- Biomass control was added to the management actions to allow actions to reduce dominance by a single native species, with a range of techniques to be included.

  ➔ DEWHA to ensure that the conditions under which 'biomass control' is permitted are clearly defined

Email from DEWHA 17/5 agrees that direct drilling should not be included and includes CSIRO reasoning for this decision.

- Direct drilling is an "*action that will only increase the density of things that are already there and aren't likely to have an impact on state*"

Changes to final list of threats and management actions:

Note that changes to threats and management actions may require significant amounts of work on the RAP and the MEC Tool.

- Email from DEWHA on 28/5: flooding is not to be included in the management actions

- Email from DEWHA on 21 June: DEWHA is "*confident (now with extra emphasis on planting tree species) that the complete list of management actions for the metric is final. So we do not anticipate any other changes or additions (other than additional tree planting) to the management actions in the metric.*"
- Email from CSIRO on 21 June: "*We have absolutely no expert opinion to base the new probabilities (tree planting) on. We can base them purely on our list of general principles, but they won't be nearly as broadly grounded in multiple sources of expert opinion as the other probabilities*" & "*Second, I just want to make sure DEWHA are aware that the probabilities will be quite low (a fair bit of fiddling on everyone's part for something that will always come up as a low priority option, will usually be expensive, and thus probably rarely be selected) and there are real risks that need to be managed in the wording of the management action itself."*
- Email from DEWHA on 25/6: After receipt of CSIRO advice on tree planting, DEWHA advised that they no longer required that tree planting be available for wooded sites.

Thus, the last list of linked threats and management actions provided by DEWHA before/on 21 June is considered the final list. This includes threats and management actions that occur in buffers.

MEC CVM Tool parameters and discussions

Use of MEC CVM Tool to score bids:

- Data Extraction to inform the evaluation panel and for CVI and other calculations.
- The exact data that DEWHA requires and what the Tool can feasibly provide have been discussed. The final specifications are provided as Attachment C.

Use of MEC Tool to perform Calculations:

Email from CSIRO on 24/5 notes discrepancy between the RAP and the MEC Tool specifications. Concerns were also raised at MEC CVM Tool meeting at CSE on 8/6.

- The tool has been designed so that it can be updated by DEWHA. DEWHA does not have the capacity to update the program code that would be required if the tool were to perform calculations for some elements of the RAP. Thus, some RAP calculations must sit outside the Tool.
- The RAP has been rewritten so that the MEC tool is not required to perform calculations. See the notes in Appendix 6, Part B.

Adjustments to buffer widths and the isolation threat curves:

Email from CSIRO on 31/5 states that adjustments to the buffer width were made to encourage participation and that similar small adjustments will be made to the isolation threat curve and that these changes will be noted in this section of the final report. Concerns about buffers and connectivity/isolation relate to:

- The large size of effective buffers and the high cost of providing them;
- Limited control of landholders over the landscape; and
- Desire to make sound ecological investments and encourage participation

Spread of relative values BAG:

- The spread of values for BAG is small relative to other communities.

- Because they represent a different type of state, State 3 areas are more valuable in BAG than in other communities. While this may reflect ecological reality, it has implications for scoring.

Emails from CSIRO on 17/6 provided advice on spread of BAG scores.

- Scores will cluster and size and price will be the only factors distinguishing bids. Also noted possible confusion between potential for recovery and the spread in relative values.
- Scores are all so high that it creates an imbalance when comparing sites AMONG communities. However, the scores reflect the field ecology.

Email from DEWHA on 17/6 advised CSIRO not to change BAG scores.

Other outstanding issues

Preparation of Management Plans

Length of Conservation Grazing Period:

Email from DEWHA on 17/05 confirms that conservation grazing will be 3 days grazing and 28 days rest rather than 7 days grazing and 28 days rest with a sward height safety net.

- Discussion was around the potential impacts of crash grazing over the longer time period, particularly in the growing season versus the ability of absentee landholders requirement for a longer time period to allow them to move their stock between weekends.

Intellectual Property in the MEC Tool:

Email from CSIRO on 27/05 in response to a phone call from DEWHA states that: "*although they* [DEWHA] *acknowledge that we won't be implementing the recording of RFSA data and bid legal data they want people in ERIN to modify the code in the tool to implement the above stuff for this implementation*." A. Langston's suggestion that CSIRO could modify the tool after handover was declined.

➔ DEWHA and CSIRO to finalise procedure for updating MEC Tool to record RFSA data and bid legal data in light of IP concerns. Note that this may affect details in the RAP (see Part B below).

A6.2 Part B: Items that Require Checking and/or Revision by the Implementation Team

CSIRO has developed the MEC CVM Tool and associated materials such as the RAP, in conjunction with the ESS Technical Team with relatively little direct contact with the ESS Implementation Team. However, many aspects of the design of the CVM and associated materials involved explicit assumptions (or recommendations) about exactly how the MEC Project will or should be implemented. This is particularly true for the RAP, which is the detailed set of instructions that field officers need to follow to execute their components of project implementation.

Thus, if the assumptions and recommendations we have made about project implementation are not followed (as there may be very good reasons for the Implementation team to design things differently as they are the implementation experts), then details of the RAP and possibly also the MEC CVM Tool will need to be reviewed and changed by DEWHA before these materials are presented to the delivery agents.

Furthermore, some aspects of the CSIRO-produced materials are quite flexible to different approaches to implementation, but the approach to be used in the MEC Project was not yet confirmed by the time CSIRO was required to deliver the final versions of these materials. Thus, as specific decisions about implementation are signed off, associated details in the RAP and possibly also the MEC CVM Tool will need to be added by DEWHA.

This part of Appendix 6 is intended to facilitate this process, by providing a checklist of items that we *know* will need to be reviewed and possibly changed either because they depend on specific assumptions about implementation or because they depend on specific implementation decisions that have not yet been made. This list may not be completely comprehensive, but we have tried to make it so. We strongly encourage the Implementation Team to use this checklist *as a starting point* in verifying compatibility between their other implementation documents and protocols and the RAP and the MEC CVM Tool. Note also that some actions may be completed or superseded by other decisions as this report was completed.

Assumptions or recommendations implicit in RAP and CVM Tool

This section sets out the assumptions or recommendations that CSIRO and DEWHA Technical Team have made about implementation that influence details in the RAP and/or MEC CVM Tool:

1. At the land manager workshops, land managers will be strongly encouraged to submit some type of imagery (even if it's just a mud map) with their RFSAs in which both the boundaries of any TTECs they will be proposing for stewardship and the boundaries of their properties are clearly marked. These marked images will greatly help field officers prepare for site assessments. (Note that the exact type of imagery is yet to be confirmed/communicated to CSIRO, so this appears in the next list.)
2. At land manager workshops, information should be provided not just on the process of putting in a bid, but also on the TTECs themselves. In particular, land managers should be educated about where these communities are and are not (e.g., BGGW does not occur on rocky ridge tops), as well as basic identification of each TTEC to reduce the chances that land managers will put forward ineligible communities.
3. Separate detailed GIS instructions will be provided to delivery agents and their field officers to ensure all layers have the same geo-referencing, polygons are labelled the same way, etc.
4. In the RAP, field officers are asked to evaluate aerial images to determine whether other patches of woodland or forest exist in the landscape and whether appropriate structural connectivity exists, but we don't want them to spend lots of time evaluating these things in a quantitative way. Thus, it would be helpful to provide them with some reference images that show appropriate woodland (maximum gap distance <75m) and forest patches as well as things that are too sparse to be considered patches but fit the requirements for connectivity (i.e., average gap distances <100m and maximum gap distance <165m).
5. Because tree age classes (seedling, sapling, pole, adult, mature) are botanically (silviculturally) defined, field officers should be provided with definitions and

possibly pictoral examples. See R. G. Florence (1996) *Ecology and silviculture of eucalypt forests* (CSIRO Publishing) and M. R. Jacobs (1955) *Growth habits of the eucalypts* (Forestry and Timber Bureau, Canberra) for relevant discussion. Note that Florence uses slightly different terminology and refers to juvenile, sapling, pole, mature and over-mature stages, but with the same meanings as we have used.

- Seedlings are generally <1m without a clear trunk.
- Saplings have shedding lower branches which is how they begin to develop a trunk.
- Poles have a well-developed trunk that looks like a pole and they stop shedding their lower branches which begin to develop into a proper crown.
- Adults have a full crown that has spread outwards rather than just up.
- Matures have developed a patchy crown through shedding of significant branches and thus also have substantial hollows (i.e., not just tiny hollows suitable for pardalotes).

6. Note that reference images for % projected foliage cover will need to be provided. The same one that was in the previous BGGW booklet is fine.
7. Management actions like monitoring & managing exotic plants, ferals & native grazers, plus biomass control have been written into the CSIRO-produced documents only in the most general of terms. More detailed descriptions of these actions will need to allow for lots of flexibility and provide community-specific and thus problem-plant-specific guidance about appropriate methods, which can include burning and conservation grazing options. Much of this detailed information for each community and its most common exotic plants can be sourced from EcoLogical's S&TM report. When biomass control is intended to manage *Vachellia* in BAG (and possibly also WMW), it must be clear in the information materials for both field officers and land managers that a PVP would need to be developed and approved.
8. A few examples of non-aggressive vs. aggressive exotic herbaceous plants for each community should be provided, but a comprehensive list is not expected.
9. A comprehensive list of the noxious weeds which land managers already have a legal duty-of-care to manage on site (because of the noxious weed class they are assigned to in NSW – see list below) but that are not WONS (i.e., weeds that DEWHA will not pay land managers to manage) should be provided for each community. If it varies across local government regions and/or if the legislative language and requirements are different in SA, at the very least instructions need to be provided to field officers for acquiring such a list.
10. It will be important for land managers to be encouraged to use some degree of adaptive management rather than feel locked into only the management actions in their contracts. In particular, if any threats crop up as problems in the next 15 years that were not initially identified during site assessment and land managers wish to implement additional management actions, they should be encouraged to implement these actions (but only the ones the MEC CVM Tool associates with the identified threat). They will simply need to be aware

that their stewardship payments cannot be adjusted accordingly – any additional actions they take will need to be at their own expense.

Details not yet incorporated due to unconfirmed implementation decisions

In this section we set out details that are not yet incorporated into CSIRO-produced documents because implementation decisions had not yet been confirmed.

(Note that all of these things are mentioned in the RAP (and where necessary in the MEC CVM Tool), but in very general terms. Thus, it is possible to either revise the RAP (and/or Tool where necessary) to replace the general terminology with greater detail, or provide separate detailed instructions and simply add a reference to these more detailed instructions after the existing general terminology.)

11. We recommended that RFSAs should include a tick box for land managers to indicate whether they had been to a land manager workshop or not, as this would help field officers in preparing for site visits. If this happens, the RAP should advise field officers to pay attention to this and expect to spend more time at a site visit where the land manager did not go to a workshop since many of the details of the program will need to be explained.
12. Whether aerial images will be provided to land managers at the workshops (topo maps or satellite image printouts) or whether they will simply be asked to submit whatever they already have (even if it's a mud map) was possibly not fully resolved by the submission of this document. Thus, details of exactly how preparations should be made for the workshops and details in the RAP about what field officers can expect to receive in terms of marked imagery and how they will use it (or whether additional information will need to be obtained over the phone from land managers) will need to be completed (generally step #2 in the RAP).
13. Instructions will need to be provided for verifying all the things on the RFSA that need to be verified prior to site assessment. The RFSA has been designed with a 'verified' column associated with most data. It should be clear to delivery agents how these data are to be verified. Data entry and verification from the RFSA is step #1 in the RAP, so this is where more detailed instructions should be provided.
14. The intention is that sites will be assessed on a first-come first-served basis, and thus that RFSAs are NOT to be used to prioritise site visits, but ARE to be used to eliminate sites that are clearly ineligible prior to an on-ground visit. However, this requires that delivery agents be provided with instructions on how to use RFSA forms to determine eligibility. At the moment, the RAP considers this to be part of verification of RFSA data (step #1) and the only instruction provided is simply to enter the data in whatever tool it will be collected in.
15. It would be helpful for the RAP to refer delivery agents/field officers directly to the names of software/tools to be used to record data from the RFSAs as well as to appropriate data storage protocols. We understand that IP concerns mean that DEWHA are considering changing their minds and wanting the capability to enter all RFSA data in the MEC CVM Tool. Whatever the final decision is, the RAP (step #1) should tell field officers where to enter RFSA data and how to store it appropriately.

16. In addition to #15 above, because the RFSAs are not yet confirmed, it is difficult to know exactly which data from the RFSAs might ALSO need to be entered into the Tool, in addition to being entered in whatever software will be used to do the desktop analysis of eligibility. There is space in the Tool to include site eligibility and TTEC eligibility questions, but these may not be used. Step #1 of the RAP will need to be refined once it is clear what WILL be entered from the RFSAs.
17. As highlighted in 3. above, detailed protocols for preparation of GIS files associated with each site were not yet available at the time we developed the RAP. Thus, the RAP includes only broad general instructions on preparing these files. The detailed GIS protocol needs to be completely consistent with the RAP and the MEC CVM Tool, as a good deal of spatial data need to be entered into the Tool from the GIS files and the RAP needs to contain instructions that complement and do not contradict the GIS protocol. Thus, the GIS protocol needs to be developed with good knowledge of the spatial data required for the Tool, and the RAP may need to be revised (in step #8) to be consistent with the GIS protocol.
18. It would be helpful for the RAP to refer delivery agents/field officers directly to the names of software/tools used for viewing site photos (in step #8) and recording plot-based field data (in step #6). The RAP should also be revised to include file-naming and data storage instructions for GIS files, site photos, and spreadsheets and paper data sheets from plot assessment (in step #8). At the moment, it simply refers to doing these things 'as per filing system determined by delivery agents'.
19. As alluded to in 9. above, the precise descriptions of how field officers are supposed to determine the presence/absence of threats associated with exotic plants depends on which exotic plants land managers already have a duty-of-care to manage *in ways that are consistent with stewardship*, and thus DEWHA would not pay for their management. In NSW, we believe this means that DEWHA would NOT pay for management of classes 1-4 of noxious weeds unless they are declared WONS. This is because classes 1-4 require management to reduce the population of the noxious weed *on site*. Classes 5-6 are believed to be associated with management merely to reduce spread to other areas. However, these class definitions have not yet been verified by DEWHA, nor do we know whether the same system applies in SA. Thus, the RAP and also the descriptions of these threats in the MEC CVM Tool are deliberately worded in a general fashion. Once details of the classes of noxious weeds included vs. excluded in the program are confirmed, these general descriptions will need to be revised to provide more accurate information to field officers.
20. Specific names of threats and particularly management actions need to be provided by DEWHA. Our names (which appear both in the RAP and in the MEC CVM Tool) reflect our attempt to match them as closely as possible to management actions from previous rounds of BGGW stewardship, but may also include additional wording to convey intent. For example, the description of how to manage isolation may not need to be so long, but it was important to indicate that the specific actions required are *intended* to foster a native understorey and promote regeneration of trees. This was necessary because the

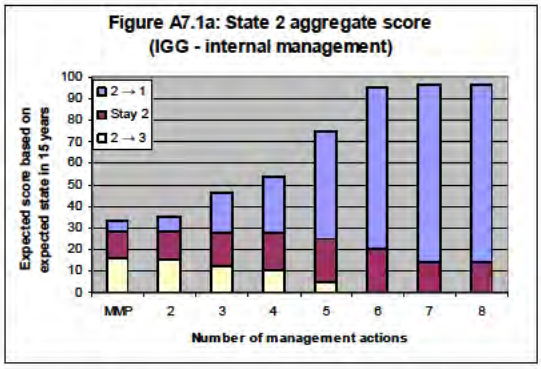
detailed descriptions of management actions were being developed separately, yet their precise effects are modelled as part of the CVM. Thus, we needed to convey intent while still allowing DEWHA to develop the more complete descriptions. If DEWHA are happy with our names, that's fine, but if they feel the need to change them, those changes will need to be made within the RAP and the MEC CVM Tool. Note also that it would be wise to have CSIRO review the final descriptions of management actions to ensure they align with our design intent.

21. It is possibly still unclear how DEWHA would like field officers to collect plot data and perform necessary calculations (e.g., of % nativeness). At the time of completion of these documents, it seemed that plot data are to be collected on paper data sheets but where a calculation is required, those data are to be entered into a spreadsheet which will perform the calculation. The calculated number will then be entered on the paper data sheet, which will then be the only thing the field officer needs to consult while entering the data in the MEC CVM Tool. The RAP was written with this approach in mind. If this changes, and if and when the calculation spreadsheet is available, the RAP may need to be revised to provide more detailed instructions for using this spreadsheet.

A.7 Analysis of CVS performance for all TTECs

Iron-grass Natural Temperate Grassland of South Australia (IGG)

Figure A7.1: IGG aggregated internal threat management score examples



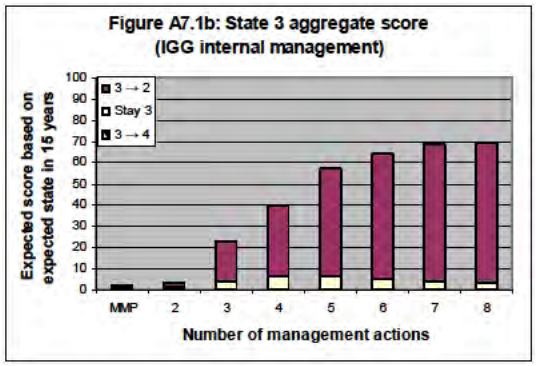
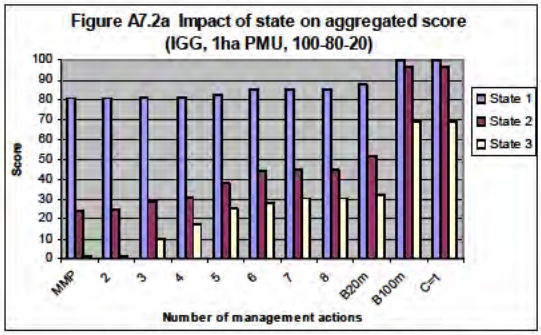
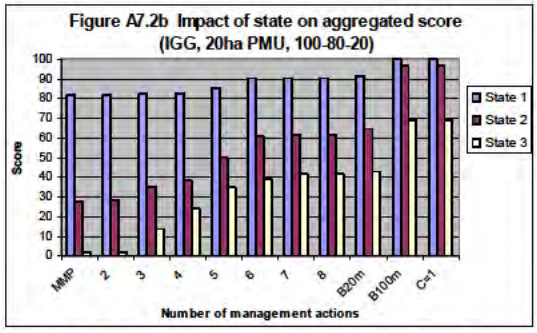


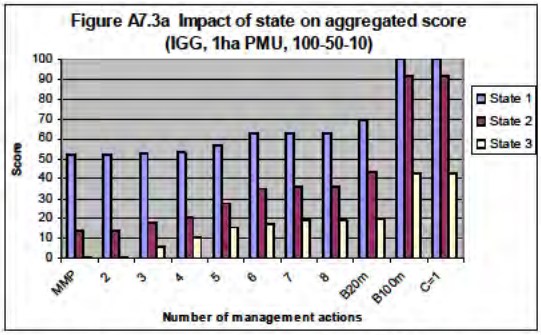
Figure A7.2: All inclusive aggregated PMU_{15} for IGG for two PMU sizes

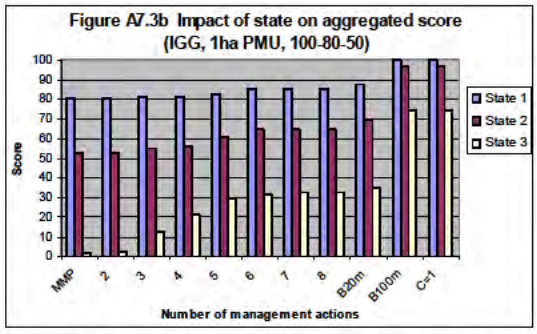




Note: scores estimated assuming all threats present. Connectivity management is not offered in IGG. Buffering in Figure A7.2 is cumulative to other management actions.

Figure A7.3: IGG impact of spread of state scores on PMU_{15}

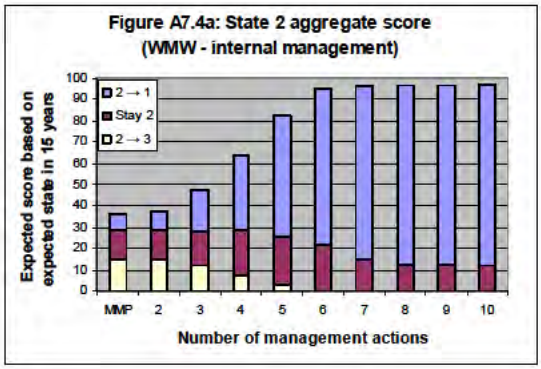




Note: scores estimated assuming all threats present. Connectivity management is not offered in IGG. Buffering is cumulative to other management actions.

Weeping Myall Woodlands (WMW)

Figure A7.4: WMW aggregated internal threat management score examples



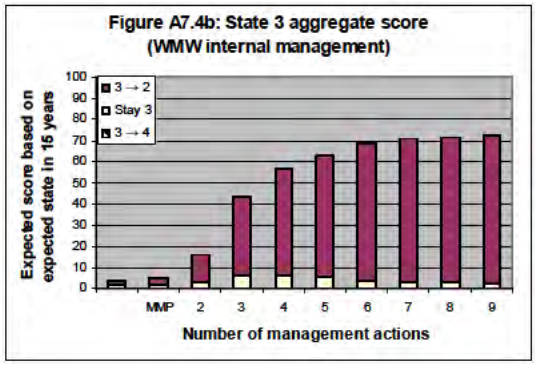
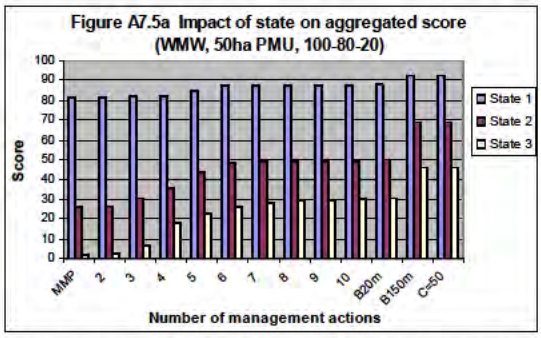
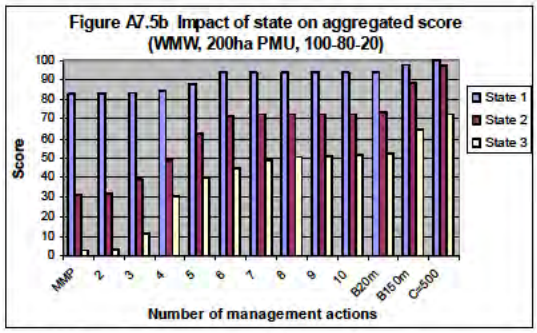


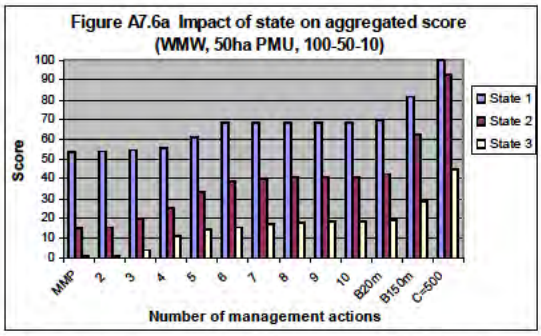
Figure A7.5: All inclusive aggregated PMU_{15} for WMW for two PMU sizes

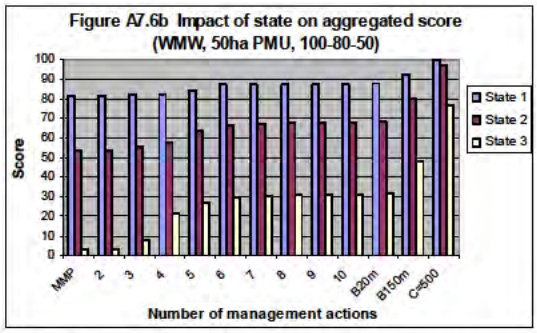




Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Figure A7.6: WMW impact of spread of state scores on PMU_{15}

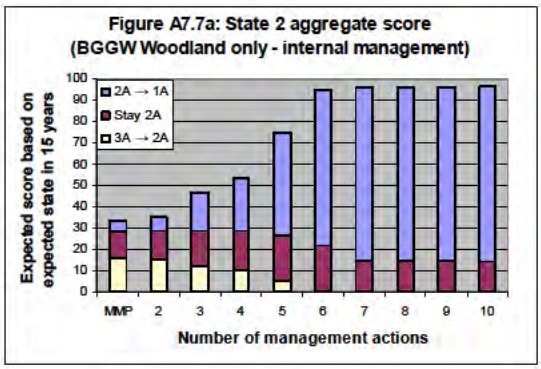




Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Box Gum Grassy Woodlands (BGGW) – woodlands only

Figure A7.7: BGGW woodlands aggregated internal threat management score examples



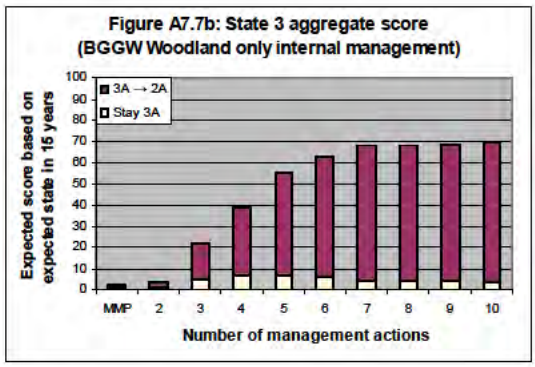
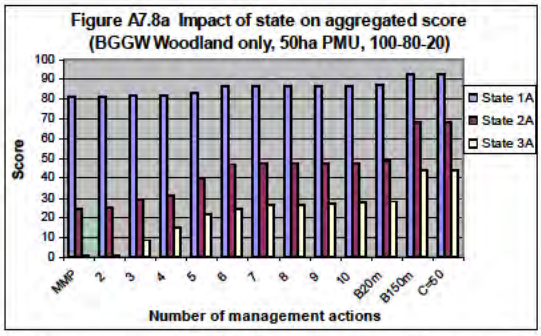
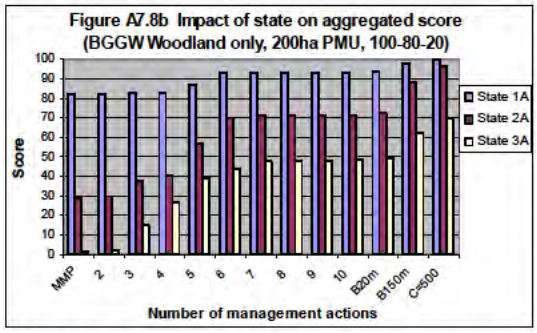


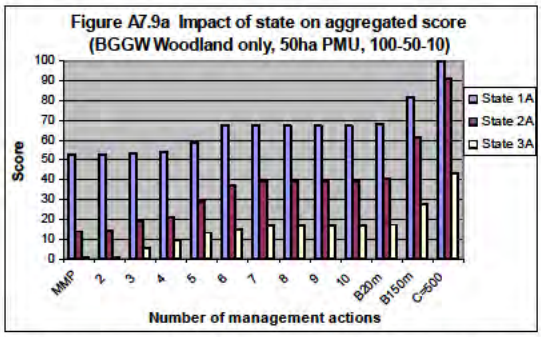
Figure A7.8: All inclusive aggregated PMU_{15} for BGGW woodlands only

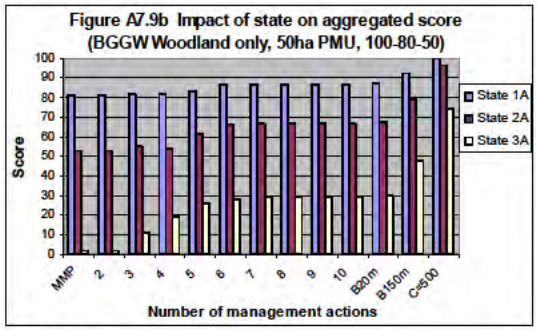




Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Figure A7.9: BGGW woodlands only impact spread of state scores on PMU_{15}

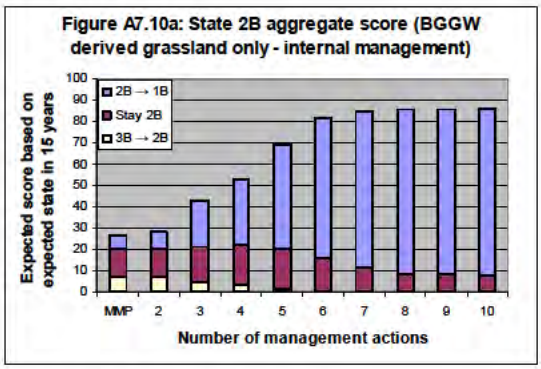




Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Box Gum Grassy Woodlands (BGGW) – Derived grasslands only

Figure A7.10: BGGW derived grasslands aggregated internal threat management score examples



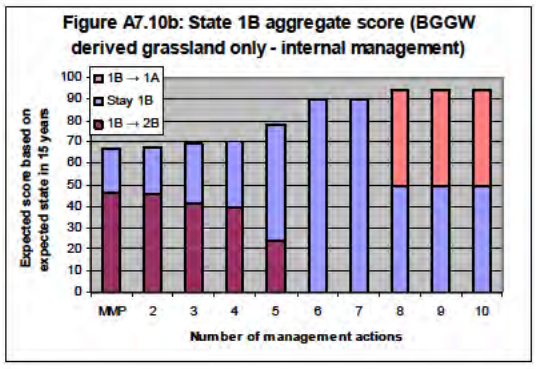
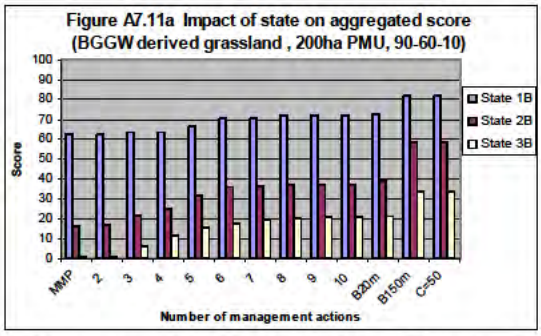
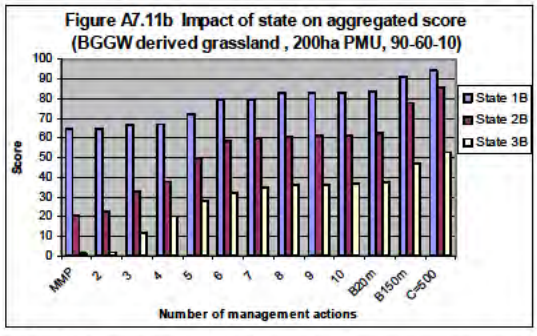


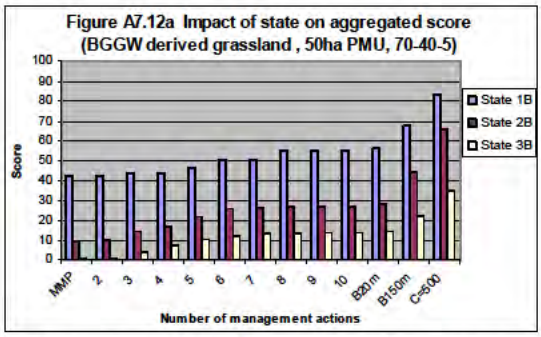
Figure A7.11: All inclusive aggregated PMU_{15} for BGGW derived grasslands only

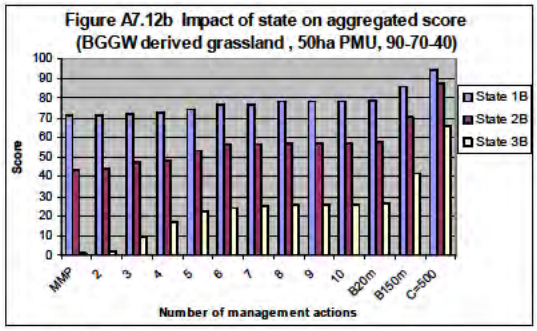




Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Figure A7.12: BGGW derived grasslands only impact of state scores on spread



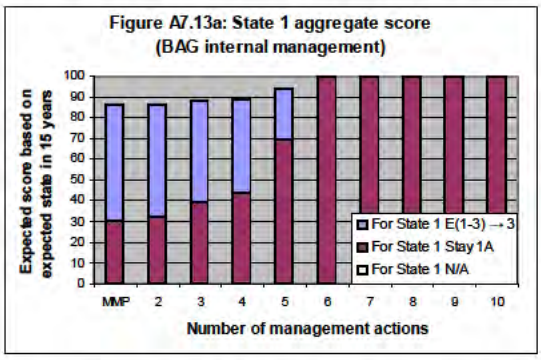


Note: scores estimated assuming all threats present. Buffering is cumulative to other management actions.

Note that BGGW derived has a maximum within stream score of 100. It also allows planting trees to deliver a state change from 1B to 1A and cross into the BGGW woodland S&TM (illustrated in right panel Figure A7.10b).

Natural Grasslands on Basalt and Fine-textured Alluvial Plains of Northern New South Wales and Southern Queensland (BAG)

Figure A7.13: BAG aggregated internal threat management score examples



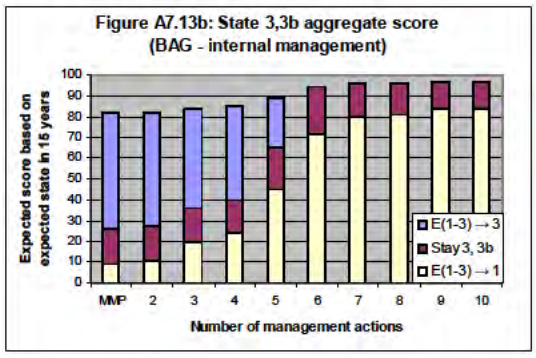
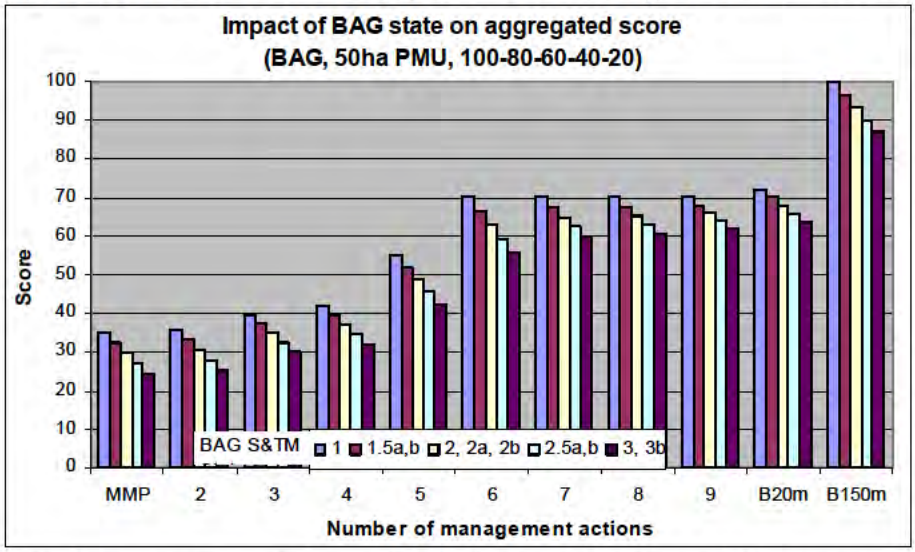


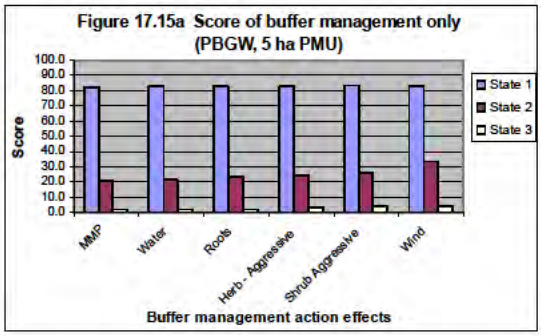
Figure A7.14: All inclusive aggregated PMU_{15} impact of state scores on spread

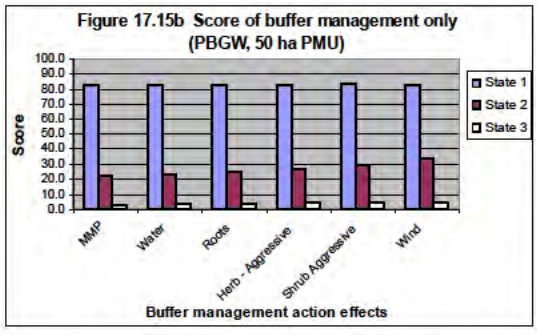


Note: Note: scores estimated assuming all threats present. Connectivity management is not offered in BAG. Buffering is cumulative to other management actions. Recommended spread 100-95-90-85-80.

Additional detail on buffering for PBGW

Figure A7.15: Impact of external threats abated via buffering on PBGW scores





Note that Figure A7.15 is constructed assuming that all threats are present but that only external threats are managed (i.e. internal and isolation threats are not abated nor are any internal enhancement actions undertaken). Hence the management impact on the score is limited to external management only. Impacts of external management on other TTECs will be similar and are not shown here. Note particularly that the impact

of the 20m buffer (Water and Roots) has some effect for small sites (where the internal penetration of the threat remains a significant threat to that site). Note that even though the proportionate impact on the site is small, the absolute impact (in terms of area of TTEC that is likely to be in a higher state) the impact becomes larger as the PMU increases (so for a large site, of 50ha, perimeter of nearly three kilometres, the area protected becomes approximately 6 ha). Note also that these figures do not separate out an A and B management option for nutrients (only the A option is shown) – this would introduce an additional action with no change to the conclusions.

A.8 Worked examples

In this Appendix we provide several worked examples of the CVS for illustrative purposes. They are set out as a hypothetical example of a TTEC for which a subset of the potential threats has been identified and consequently a subset of the recommended management actions has been selected by the land manager. For each we set out the components of PMU_{15} and their aggregation into the CVS. The final example (Worked example 4: example of a multiple PMU site) illustrates the case where more than one PMU is identified on site (and the way in which the aggregate CVS can be deconstructed to provide for individual PMU scores). Note that in the worked examples we use the following terms:

Raw: for probabilities that are not adjusted for PMU size or landholder choice;

Size adjust: for raw probabilities adjusted for PMU size in the case of buffer management actions; and

Realised: for probabilities that are adjusted for landholder choice.

Worked example 1 – calculations

The CVS is calculated as per Equation (1) where PMU_{15} is set out in Equation (2) (both repeated below):

$$MEC\ CVS = PMU_{15} * A_{PMU} * D * S \quad (1)$$

$$PMU_{15} = PMU_{I-1} *(P_{lossAll})+PMU_{I} *(1-P_{lossAll})*(1-P_{gainAll}) +PMU_{I+1}*(1-P_{lossAll})*(P_{gainAll}) \quad (2)$$

PMUi are the relevant investment values for the specified TTEC and state and $P_{lossAll}$ is calculated set out as in Equation (4). $P_{gainAll}$ is calculated per an equivalent equation for gains.

$$P_{lossAll} = 1 – [(1 - P_{loss1})*(1 - P_{loss2})*(1 - P_{loss3})*….*(1 - P_{lossN})] \quad (4)$$

Each individual P_{loss} is calculated by Equation (3) (repeated below) for the identified threats:

$$P_{loss} = P_{threat} * P_{degrade} * (1 - P_{abate}) \quad (3)$$

Where the land manager agrees to manage the threats these are considered fully abated with the exception of partial abatement. Partial abatement occurs when buffer management is offered for some proportion of the perimeter of a PMU or where connected habitat is less than the relevant threshold value for woodland communities – thus generating a realised threat probability. Hence, only threats that are not abated realised partially abated threats remain to be included in $P_{lossAll}$ calculations. P_{loss} for external threats are calculated as follows using Equation (6) (repeated below) where P_{threat} = 1 for identified threats and adjustment reflects the proportion of the PMU that is buffered. The calculated P_{loss} represents the adjusted probability for the entire PMU.

$$P_{loss} = P_{threat} * P_{degrade} * [(W_{EE} * (Perimeter – 4 * W_{EE}) / 10{,}000) / A] * [1- (P_{abate} * BP / Perimeter)] \quad (6)$$

In worked example 1, there are two different external threats (150m and 20m) and buffering has been agreed for one 150m threat (wind transport) and not the other (exotic shrubs). The realised threats are:

$P_{loss\ E\text{-}shrubs} = 1 * 0.1 * [(150 * (2200 – 4 * 150) / 10{,}000) / 32] * [1- (1 * 0 / 2200)] = 0.08$

$P_{loss\ wind} = 1 * 0.5 * [(150 * (2200 – 4 * 150) / 10{,}000) / 32] * [1- (1 * 1100 / 2200)] = 0.19$

$P_{loss\ water} = 1 * 0.5 * [(20 * (2200 – 4 * 20) / 10{,}000) / 32] * [1- (1 * 1100 / 2200)] = 0.03$

The landholder has also agreed to manage a number of the remaining identified threats (e.g. herbaceous exotics, feral animals) for which each P_{loss} is now 0. The resulting $P_{lossAll}$ is calculated as:

$P_{lossAll} = 1 – [(1 – P_{loss\ E\text{-}shrubs})*(1 – P_{loss\ wind})*(1 – P_{loss\ water})*(1 – P_{isolation})]$

$P_{lossAll} = 1 – [(1 - 0.08)*(1 – 0.19)*(1 – 0.03)*(1 – 0.03)] = 0.30$

Worked example 1: BGGW derived grassland

Table A8.1: Worked Example 1 data

Target Threatened Ecological Community	***Higher state score (State 1A)***		***State Score (State 1B)***	***Lower State Score (State 2B)***
BGGW State 1B, 32 Ha PMU, 2.2km perimeter	100		90	60
Duration (years)	13			
Security (conservation covenant offered)	No			
Identified Threats - internal	***Probability of state loss***		***Abated (see below)***	***Realised threats for abatement***
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.05		Y	0
Feral Grazing Pressure (Rabbits, Goats)	0.4		Y	0
Feral Soil Disturbance (Pigs, Rabbits)	0.05		Y	0
Identified Threats – External (see estimation below)	***Raw***	***Size adjust***		
Invasion of Exotic Shrubs – Aggressive	0.1	0.08	N	0.08
Wind Transport of Nutrients/Herbicides/Pesticides	0.5	0.38	Y- 50% perimeter	0.19
Water Transport of Nutrients/Herbicides/Pesticides	0.5	0.07		0.03
Identified Threats - isolation				
PMU part of 55 Ha patch =((1- 55ha / 500ha size for no isolation)^3 * 0.5	0.35		Part (305ha)	0.03

Management of threats	***Priority (advice)***	***Agree to manage?***	***Probability state gain***	
Management options - internal			***Raw***	***Realised***
Minimum Management Package	Compulsory	Y	0	0
M&M Herbaceous exotics - non aggressive	low	Y	0	0
M&M Feral species	high	Y	0	0
Broad-scale or No-Till Sow Native Perennials	low	N	0	0
Plant Target Tree Species	high	Y	0.45	0.45
Add Fallen Timber	low	N	0	0
Reduce Dominance by a Single Native Species	low	N	0	0
Management options - external				
BMU against exotic shrubs – aggressive (150m)	medium	N	N/A	
BMU abating wind transport (150m) Option B	high	Y	N/A	
BMU abating water transport (20m)	high	Y	N/A	
Management options - isolation				
CMU to connect to 250ha of additional patches (=305ha)	high	Y	N/A	

In worked example 1 planting trees is the only gain option available (from state 1B to 1A). The resultant combined $P_{gainAll}$ is calculated as:

$P_{gainAll} = 1 – [(1 – P_{plant\ trees})]$

$P_{gainAll} = 1 – [(1 – 0.45)] = 0.45$

The PMU_{15} for worked example 1 is calculated by inserting the relevant state investment scores as:

PMU_{15} = State 2B *($P_{lossAll}$) + State 1B * (1 - $P_{lossAll}$)*(1 - $P_{gainAll}$) + State1A * (1 - $P_{lossAll}$)*($P_{gainAll}$)

$PMU_{15} = 60 * 0.30 + 90 * (1 – 0.30)*(1 – 0.45) + 100 * (1 – 0.28)*0.45 = 84.15$

The aggregated CVS score, where: Duration is 13 out of 15 year maximum and no covenant is offered, is calculated as:

MEC CVS = (84.97 * 32) * 13/15 * 1 = **2333.76**

(Note: CVS is from rounded answers at each step – no rounding yields: 2338.65)

Worked example 2: BGGW woodland

Note that the relevant equations are not set out again in this example (as they were for worked example 1) only the relevant calculated scores are presented along with explanations.

Table A8.2: Worked Example 2 data

Target Threatened Ecological Community	***Higher state score (State 1A)***		***State Score (State 2A)***	***Lower State Score (State 3A)***
BGGW State 2A, 65 Ha PMU, 5.1km perimeter	100		80	20
Duration	15			
Covenant	No			
Identified Threats - internal	***Probability of state loss***		***Abated (see below)***	***Realised threats for abatement***
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.1		Y	0
M&M Herbaceous Exotics - Aggressive	0.4		Y	0
Feral Grazing Pressure (Rabbits, Goats)	0.25		N	0.25
Identified Threats - External	***Raw***	***Size adjust***		
Invasion of Exotic Shrubs - Aggressive	0.15	0.09	Y- 75% perim	0.02
Wind Transport of Nutrients/Herbicides/Pesticides	0.35	0.20	Y- 25% perim	0.15
Water Transport of Nutrients/Herbicides/Pesticides	0.35	0.03	Y- 50% perim	0.02
Identified Threats - isolation				
PMU is a 65 Ha patch =((1- 65ha / 500 ha) ^3) * 0.5	0.33		Part (305ha)	0.03

Management of threats	***Priority (advice)***	***Agree to manage?***	***Probability state gain***	
Management options - internal			***Raw***	***Realised***
Minimum Management Package	Compulsory	Y	0.25	0.25
M&M Herbaceous exotics - non aggressive	low	Y	0.05	0.05
Invasion of Exotic Herbaceous Plants - Aggressive	medium	Y	0.25	0.25
M&M Feral species	medium	N	0.25	0
Broadscale or No-Till Sow Native Perennials	high	N	0.3	0
Add Fallen Timber	low	Y	0.01	0.01
Reduce Dominance by a Single Native Species	low	N	0.05	0
Management options - external				
BMU against exotic shrubs - aggressive	medium	Y-part	N/A	
BMU abating wind transport (Option B)	high	Y-part	N/A	
BMU abating water transport	low	Y-part	N/A	
Management options - isolation				
CMU to connect to 240ha of additional patches (=305ha)	high	Y	N/A	

Worked example 2 – calculations

In worked example 2, there are three different external threats (2 * 150m and 1 * 20m) and buffering has been agreed for different perimeter lengths for each. The realised threats are:

$P_{loss\ E\text{-}shrubs} = 1 * 0.15 * [(150 * (3100 – 4 * 150) / 10{,}000) / 65] * [1- (1 * 2325 / 3100)] = 0.02$

$P_{loss\ wind} = 1 * 0.35 * [(150 * (3100 – 4 * 150) / 10{,}000) / 65] * [1- (1 * 784 / 3100)] = 0.15$

$P_{loss\ water} = 1 * 0.35 * [(20 * (3100 – 4 * 20) / 10{,}000) / 65] * [1- (1 * 1550 / 3100)] = 0.02$

The landholder has also agreed to manage a number of the remaining identified threats (e.g. herbaceous exotics) for which each P_{loss} is now 0. The resulting $P_{lossAll}$ is calculated as:

$P_{lossAll} = 1 – [(1 – P_{loss\ feral\ grazing})* (1 – P_{loss\ E\text{-}shrubs})*(1 – P_{loss\ wind})*(1 – P_{loss\ water})*(1 – P_{isolation})]$

$P_{lossAll} = 1 – [(1 - 0.25)*(1 – 0.02)*(1 – 0.15)*(1 – 0.02)*(1 – 0.03)] = 0.41$

In worked example 2 the managed internal threats allow for potential state gain (from state 2 to 1). An enhancement option (add fallen timber) has also been offered. The resultant combined $P_{gainAll}$ is calculated as:

$P_{gainAll} = 1 – [(1 – P_{MMP})*(1 – P_{aggressive\ exotics})*(1 – P_{non\text{-}aggressive\ exotics})* (1 – P_{fallen\ timber})]$

$P_{gainAll} = 1 – [(1 – 0.25)*(1 – 0.05)*(1 – 0.25)*(1 – 0.01)] = 0.47$

The PMU_{15} for worked example 1 is calculated by inserting the relevant state investment scores as:

$PMU_{15} = State\ 3A *(P_{lossAll}) + State\ 2A * (1 - P_{lossAll})*(1 - P_{gainAll}) + State\ 1A * (1 - P_{lossAll})*(P_{gainAll})$

$PMU_{15} = 20 * 0.41 + 80 * (1 – 0.41)*(1 – 0.47) + 100 * (1 – 0.41) * 0.47 = 60.95$

The aggregated CVS score, where: Duration is the 15 year maximum and no covenant is offered, is calculated as:

MEC CVS = (60.95 * 65) * 15/15 * 1 = **3961.75**

(Note: CVS is from rounded answers at each step – no rounding yields: 3981.89)

Worked example 3: IGG

Note that the relevant equations are not set out again in this example (as they were for worked example 1) only the relevant calculated scores are presented along with explanations.

Table A8.3: Worked Example 3 data

Target Threatened Ecological Community	***Higher state score (State 2)***		***State Score (State 3)***	***Lower State Score (State4)***
IGG State 3, 2 Ha PMU, 650m perimeter	80		20	0
Duration	15			
Covenant	Yes			
Identified Threats - internal	***Probability of state loss***		***Abated***	***Adjusted threats for abatement***
Proliferation of Exotic Herbaceous Plants - Non-aggressive	0.2		Y	0
Proliferation of Exotic Shrubs - Aggressive	0.4		Y	0
Feral Soil Disturbance (Pigs, Rabbits)	0.2		Y	0
Excessive Native Grazing Pressure (Kangaroos)	0.05		N	0.05
Identified Threats - External	***Raw***	***Size adjust***		
Invasion of Exotic Herbaceous Plants - Aggressive	0.35	0.35	Y- 50% perimeter	0.18
Invasion of Exotic Shrubs - Aggressive	0.2	0.20		0.10
Wind Transport of Nutrients/Herbicides/Pesticides	0.1	0.10		0.08

Management of threats	***Priority (advice)***	***Agree to manage?***	***Probability of state gain***	
Management options - internal			***Raw***	***Realised***
Minimum Management Package	Compulsory	Y	0.25	0.25
M&M Herbaceous exotics - non aggressive	medium	Y	0.05	0.05
M&M Exotic shrubs - Aggressive	high	Y	0.1	0.1
M&M Feral species	medium	Y	0.2	0.2
Excessive Native Grazing Pressure (Kangaroos)	low	N	0.2	0
Broadcast or No-Till Sow Native Perennials	high	Y	0.3	0.3
Reduce Dominance by a Single Native Species	low	N	0.01	0
Management options - external				
BMU against exotic herbaceous - aggressive	medium	Y-part	N/A	
BMU against exotic shrubs - aggressive	high	Y-part	N/A	
BMU abating wind transport (Option A)	high	Y-part	N/A	

Worked example 3 – calculations

In worked example 3, there are three different external threats (all 100m) and buffering has been agreed for the same perimeter length for each. The small site area means that we apply the maximum constraint to Equation 6. i.e. "W_{EE} * (*Perimeter* – 4 * W_{EE})/10,000) / *A*" is greater than 1 and is therefore limited to 1. The realised threats are:

$P_{loss\ E\text{-}herb} = 1 * 0.35 * 1 * [1- (1 * 325 / 650)] = 0.18$

$P_{loss\ E\text{-}shrubs} = 1 * 0.2 * 1 * [1- (1 * 325 / 650)] = 0.10$

$P_{loss\ wind} = 1 * 0.1 * 1 * [1- (1 * 325 / 650)] = 0.05$

The landholder has also agreed to manage a number of the remaining identified threats (e.g. herbaceous exotics) for which each P_{loss} is now 0. The resulting $P_{lossAll}$ is calculated as:

$P_{lossAll} = 1 – [(1 – P_{loss\ native\ grazing})* (1 – P_{loss\ E\text{-}herb})*(1 – P_{loss\ E\text{-}shrubs}) *(1 – P_{loss\ wind})]$

$P_{lossAll} = 1 – [(1 - 0.05)*(1 – 0.18)*(1 – 0.1)*(1 – 0.05)] = 0.33$

In worked example 3 the managed internal threats allow for potential state gain (from state 3 to 2). An enhancement option (broadcast or no-till sow native perennials) has also been offered. The resultant combined $P_{gainAll}$ is calculated as:

$P_{gainAll} = 1 - [(1 - P_{MMP}) * (1 - P_{non\text{-}aggressive\ exotics}) * (1 - P_{aggressive\ shrubs}) * (1 - P_{ferals}) * (1 - P_{natives})]$

$P_{gainAll} = 1 - [(1 - 0.25) * (1 - 0.05) * (1 - 0.1) * (1 - 0.2) * (1-0.3)] = 0.64$

The PMU_{15} for worked example 1 is calculated by inserting the relevant state investment scores as:

PMU_{15} = State 4 $*(P_{lossAll})$ + State 3 * $(1 - P_{lossAll}) * (1 - P_{gainAll})$ + State 2 * $(1 - P_{lossAll}) * (P_{gainAll})$

$PMU_{15} = 0 * 0.33 + 20 * (1 - 0.33) * (1 - 0.64) + 80 * (1 - 0.33) * 0.64 = 39.13$

The aggregated CVS score, where: Duration is the 15 year maximum and in addition permanent protection via a conservation covenant is offered, is calculated as:

MEC CVS = (39.13 * 2) * 15/15 * 1.8 = **140.87**

(Note: CVS is from rounded answers at each step – no rounding yields: 141.01)

Worked example 4: CVS calculated for multiple PMUs

Finally, we present a worked example in the case where there are multiple PMUs offered within a single bid. Where multiple PMUs are included then (1) becomes:

$$MEC\ CVS = [\sum_{i=1-n} (PMU_{i,15} * A_{PMUi})] * D * S \quad (10)$$

Using worked examples 1 and 2 for simplicity the relevant $PMU_{i,15}$ and A_{PMUi} are shown in Table A8.4.

Table A8.4: Worked Example 4 data

Attribute	***Source***	***Calculated***
$PMU_{1,15}$	PMU_{15} from Worked Example 1	84.15
A_{PMU1}	Area PMU Worked Example 1	32
$PMU_{2,15}$	PMU_{15} from Worked Example 2	60.946
A_{PMU2}	Area PMU Worked Example 2	65
	Duration	Years
	Covenant	No
CVS		6654.29

Note that the area of habitat connected across Worked Examples 1 and 2 is identical which effectively assumes that they connectivity between the two sites is managed and to additional patches either on or off property. The Duration of both PMUs is 15 years in this example (not the 13 year period in worked example 1).

The expanded form of Equation (10) for 2 PMUs is:

$MEC\ CVS = [(PMU_{1,15} * A_{PMU1}) + (PMU2_{,15} * A_{PMU2})] * D * S$

$MEC\ CVS = [(84.15 * 32) + (60.946 * 65)] * 15/15 * 1 = 6654.29$

Attachments:

A: Interim Report

B: Rapid Assessment Protocol Report

C: MEC CVM Tool specifications

D: A draft CVM in MS Access format

Note: Agreement to vary RFQ 2.6, (c) and (d) from MS Excel Spreadsheet to MS Access was reached in agreeing to the MEC CVM Tool specifications as set out in Attachment C.

Appendix D – ESP Management Actions and Outcomes

Actions within Threatened Ecological Communities remnants

Livestock Grazing Management

Strategic grazing/Conservation grazing; to enable grazing sensitive species to regenerate, enhance biomass of dominant understorey native species, increase diversity of native plant species, reduce browsing impact on palatable native plants, reduce nutrient inputs, improve litter and soil condition and facilitate natural regeneration.

Native Herbivore Management

Monitor & manage total grazing pressure/Monitor & manage grazing pressure from native species/Monitor & manage native herbivores; to reduce browsing impact on palatable native plants, to maintain native species diversity, to reduce overgrazing thus weed infestation, to improve litter and soil condition and to facilitate natural regeneration.

Feral Animal Management

Monitor and manage feral animals; to reduce browsing impact on palatable native plants, to maintain native species diversity, to reduce overgrazing leading to weed infestation, to improve litter and soil condition, to facilitate natural regeneration and to reduce predation on local native fauna.

Weed Management

Monitor and manage herbaceous exotic plants/shrubs (non-aggressive/aggressive); to reduce exotic plant cover thereby reducing competition with native plants, to reduce non-aggressive plant biomass, to create more gaps to facilitate regeneration of native groundcover species.

Biomass Control Measures

No intentional burning outside of a management plan; to maintain habitat structure and high quality habitat for reptiles and fire-sensitive plants.

Biomass control to reduce dominance of single native plant species; to reduce biomass of overly dominant species, to enhance native plant life-form richness, to enhance vegetation structure, to improve soil health and to reduce fire hazard.

No new additional permanent infrastructure

No new additional permanent infrastructure; to increase protection of the ecological community through minimal disturbance. Including dams, roads and sheds.

Regeneration/Revegetation

No planting of non-native species in the ecological community; to maintain the ecological integrity of the community.

Re-establish perennial native grass species / understorey shrubs / overstorey tree species; to enhance plant life-form diversity, to enhance vegetation structure, to restore degraded sites and to increase ‘nativeness’.

No planting of non-native species in the ecological community; to maintain the ecological integrity of the community.

Retention and Restoration of Habitat Features

Retain standing trees/No removal or disturbance of native vegetation (alive or dead); to retain habitat for native fauna, to provide seed-stock for native regeneration, to provide protected areas for plants to regeneration and to improve soil condition.

Retain all bush rock; to maintain habitat for native wildlife including reptiles, invertebrates, amphibians,

small mammals and ground-foraging birds, provide habitat for mosses and lichens and a number of smaller native plants, particularly in areas where grazing occurs and to reduce soil disturbance.

Add coarse woody debris; to provide habitat for ground-dwelling fauna, provide protected areas for plants to regenerate and to improve soil condition.

Control of Agrochemicals

No fertilisation/Reduce wind borne agrochemicals/reduce water borne agrochemicals; to reduce the cover of exotic species, to increase native plant cover and richness, to prevent enrichment of soils in PMU and to prevent microbial impacts associated with chemical spray drift/water borne agrochemicals.

Tree Root Disturbances

Reduce disturbance to tree roots; to improve tree health by minimising disturbance to tree roots.

Actions outside of Threatened Ecological Community remnants

Connectivity; to reduce isolation through encouraging natural regeneration of native canopy species in designated corridor areas, and thus long-term performance of functional corridors in reducing isolation of remnant communities.

Option 1 – Corridors: No fertilisation, no cultivation and grazing in designated corridor areas.

Option 2 – Paddock Trees; No fertilisation, no cultivation and fencing at least 30% of paddock trees 10m from drip line.

Monitor and manage grazing pressure from domestic livestock in designated corridor areas as per the adjoining management unit; to improve the survival and germination of native plants, improve the viability of the ecological community and improve habitat for native species across the landscape.

No cultivation; to maintain or improve understorey composition and structure, to reduce soil disturbance and to reduce exotic plant infestation.

Buffering; (either 20m or 100m)

No cultivation; to maintain or improve understorey composition and structure, to reduce soil disturbance and to reduce exotic plant infestation.

No fertilisation / Reduce wind borne agrochemicals / reduce water borne agrochemicals; to reduce the cover of exotic species, to increase native plant cover and richness, to prevent enrichment of soils in PMU and to prevent microbial impacts associated with chemical spray drift/water borne agrochemicals.

Reduce disturbance to tree roots; to improve tree health by minimising disturbance to tree root

No planting of non-native species in the ecological community; to maintain the ecological integrity of the community.

No intentional burning outside of a management plan; to maintain habitat structure and high quality habitat for reptiles and fire-sensitive plants.

Quantifying best practice woodland stewardship management

Final Monitoring Protocol Report for the Environmental Stewardship Program

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1. Aim of monitoring/survey:

The overarching aim of the monitoring program will be to quantify change in condition of all BGGW investment sites managed under BGGW LM Project and LHQS Project'. This report outlines: **(1)** a statistically robust survey design, **(2)** a set of accompanying field protocols, including the stratification of sites and frequency of field sampling, **(3)** the proforma for detailed vegetation measurements to be completed at all field sites, **(4)** data storage procedures, and, **(5)** methods of statistical analyses of field data. The report also contains an outline of an experiment to demonstrate the effectiveness of best practice management under the BGGW investment program.

2. Overall survey design:

A permanent field survey site will be established within BGGW investment sites on each of the 150 farms in the overall monitoring program. Each survey site will be comprised of a 200 m long permanent transect with star pickets at the 0m, 100m and 200m points (see Figure 1). This will be the unit of measurement for all sites in the overall study. The locations of each plot point on each transect will be permanently documented by GPS locators. The site-level design comprising a 200m long transect has been selected to match that used in other woodland studies that we have established since 1998 on the biodiversity of temperate woodlands (Cunningham et al., 2007; Cunningham et al., 2008; Montague-Drake, Lindenmayer & Cunningham, 2009) and replanted woodlands in agricultural regions formerly dominated by temperate woodlands (Lindenmayer et al., 2007) (Lindenmayer et al., 2009). This will allow datasets from past work to be more readily combined with extensive new data gathered under the BBGW monitoring to quantify larger region-wide trends as well as facilitate the analysis of long-term trends (e.g. Lindenmayer et al., unpublished data) – a key part of understanding the status of various biotic groups in temperate woodland environments (see Lindenmayer, Bennett & Hobbs, 2010b).

A spatial control site will be established on at least 70% of the 150 farms. A spatial control is essential to help determine if the observed changes are due to ESP management on the BBGW investment sites rather than factors operating at larger spatial scales (e.g. climate, local population fluctuations, large scale wildfire Lindenmayer & Likens, 2010). Spatial control sites will be matched with BBGW investment sites on the basis of vegetation type, vegetation condition, and a suite of other characteristics such as landform, patch size and patch connectivity. The key difference between the spatial control sites and the BGGW investment sites is that the former will not be subject to best practice management interventions. That is, the spatial control sites will be subject to "business-as-usual" farm management (e.g. grazing) practices.

The spatial control sites have been identified by careful and systematic reconnaissance of BGGW investment farms as well as through other means such as landholder interviews and aerial

photography. The spatial control sites will be established and subsequently surveyed in precisely the same way as the sites located in the BGGW investment areas.

2.1. Alterations in the initial number of spatial control sites

In the initial contract it was planned to have 80% of farms with spatial controls. However, we note that the minimum of 70% of matched control sites is based on very detailed field reconnaissance of entire study regions that we have already completed to date. That is, sites on ~30% of farms do not have appropriate sites available for matching as a spatial control because of major differences in vegetation type between the BBGW site and other areas on a given farm or even neighbouring farms. The use of inappropriately matched spatial controls would significantly confound treatment and other effects and render results from the monitoring program both invalid and nonsensical.

3. Vegetation benchmarking/monitoring approach:

We will gather detailed vegetation data at all 265 field sites (i.e. BGGW investment sites and the spatial controls). The detailed vegetation proforma for the vegetation survey work is attached. The suite of vegetation attributes gathered will serve several key purposes but three in particular are: **(1)** to assess vegetation state and condition prior to Stewardship intervention, **(2)** to help quantify temporal changes in vegetation condition as stewardship intervention progresses over time, and, **(3)** to provide a suite of covariates for use in developing statistical models of the relationships between vegetation condition, treatment intervention and biotic responses (e.g. responses of reptiles and birds).

The suite of vegetation attributes gathered will include appropriate measurements from other condition-based approaches such as Habitat hectares, BioMetric and other sources, in particular, our own previous extensive vegetation surveys completed in grassy box-gum woodland environments since 1998 (e.g. see Cunningham et al., 2008; Lindenmayer et al., 2008). The vegetation proforma has been developed in close consultation with the architects of some of these metrics (e.g. Dr. P. Gibbons) as well as from field-trials of vegetation survey protocols by other ANU field staff (Crane, Montague-Drake, Michael) in past major vegetation surveys.

Vegetation surveys will be conducted along the length of the 200m transect to estimate cover abundance of vegetation groups. In addition, measures of species richness will be completed within a 20 m x 20 m plot at the 100 m point of the site transect, and two 50 x 20 m plots will be used to assess broader vegetative components (Figure 1). In addition there will be site and transect level measures for various attributes to give appropriate measures at a series of nested hierarchical scales.

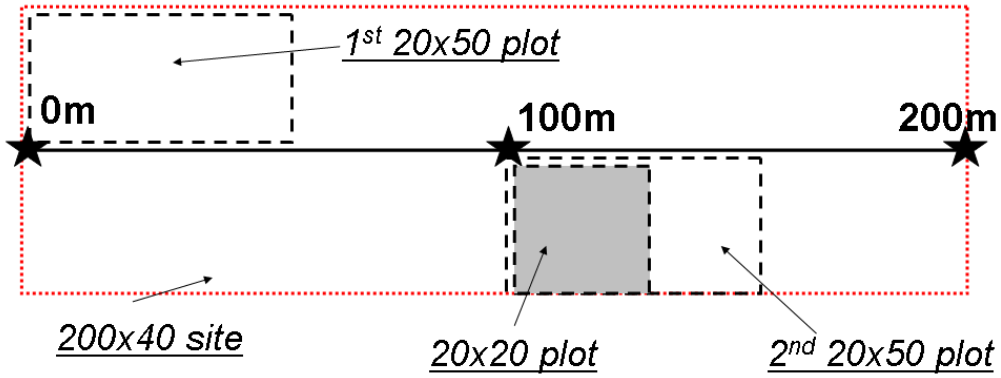

Figure 1: Schematic of site vegetation monitoring plan.

3.1. Vegetation proforma

The vegetation measuring protocol for the BGGW Stewardship program will be as follows:

3.1.1. The entire 200x40m site.

1) Initially, the aspect of a site will be measured (for comparison against GIS dataset) as an important driver in vegetation assemblage, as well as number of vegetation strata as a simple measure of structural diversity of woodland condition.
2) Important disturbance and site information will be assessed (e.g. soil disturbance, fire, tree plantings) to form a basis for later interviews with landholders to gain a robust picture of site condition history. Establishing this initial information is essential for interpreting the results of future analyses (especially statistical outliers).
3) Rock type is assessed for comparison against GIS dataset as well as to create a shortlist for future more targeted measurements of rock condition for reptile responses.
4) Major surrounding land use to the survey site is measured for further landscape context-related analyses. Initially this will be done in the field. However, it is intended that Google Earth or similar programs will be used for more comprehensive spatial analysis, as well as in field analyses used to validate spatial interpretations.
5) Surrounding vegetation of non-National Environmental Significance (under EPBC Act definition) will be recorded for interpretation of site quality and subsequent ecosystem and ecological responses.
6) Species richness of overstorey and midstorey species will be also recorded as part of quantifying longitudinal change in stand structure and vegetation composition.

7) Photo points will be established at both the 0m and 100m posts on each site for visual assessment of condition change (primarily for reporting purposes).

3.1.2. The 50 x 20m sites

8) Key woodland attributes known to contribute to important habitat values will be recorded and include: number of hollow-bearing trees, number of clumps of mistletoe, and total length of coarse woody debris present. Further, number of dead overstorey and midstorey species will be recorded to monitor senescent or self-thinning stands.

9) The number of different species of saplings (<5cm Diameter at Breast Height) will be recorded so that stand dynamics and regeneration of particular overstorey and midstorey species can be observed. In addition, the overall proportion of overstorey or midstorey found to be regenerating at the site will be measured, where 2 species of sapling regenerating out of 3 overstorey species is 2/3.

10) Canopy health and presence of dieback will be assessed to quantify condition change.

11) Size class of trees within plots will be recorded to monitor changes in stand basal area for carbon-storage analyses (to be used in conjunction with soil and biomass estimates conducted during biodiversity surveys). Carbon biomass analyses will be completed with the assistance of Dr. Heather Keith using the methods recently developed by (Keith et al., 2010).

3.1.3. The 20 x 20m site

12) Species richness of several understorey groups (e.g. exotic vs native, perennial vs annual) are assessed to observe any change in diversity of pasture / vegetation.

13) Slope of site is also recorded.

The way the field data are gathered will result in high quality information on plant species composition, vegetation structure, vegetation state, vegetation condition, plant species richness (e.g. Shannon-Weiner diversity index and other diversity measures), species evenness (e.g. Pielou's evenness index), and a range of other response measures in relation to management interventions and other factors. There will be detailed plot level datasets for each BGGW investment site and spatial control site. This will allow for subsequent data analyses to be at the plot-level or for data to be aggregated to the overall site level depending on particular questions and which response groups are being targeted for data analyses (e.g. reptiles versus birds). This is critical as we have found in previous analyses (e.g. for birds) that data and covariates at a series of hierarchically-nested spatial scales can be important explanators of the response of biota to particular interventions (e.g.

Cunningham et al., 2008; Montague-Drake, Lindenmayer & Cunningham, 2009). Similar findings have been identified for reptiles (Cunningham et al., 2007).

We will gather additional data on the landscape context of each site (e.g. extent of surrounding vegetation cover, number of paddock trees) and use these data in detailed statistical analyses. We will use field reconnaissance, aerial photography, and information from Google Earth to gather landscape context measures. Such data have been found to be critically important in understanding the responses of woodland biota in previous studies (.e.g. Cunningham et al., 2008; Lindenmayer et al., 2009) and hence it will be critical to gather corresponding kinds of information for this BGGW monitoring program. In addition, we plan to develop a range of measures of heterogeneity at the paddock and farm scale (see Cunningham et al., 2008 for an example) to use in statistical analyses of the combined influence of plot, site and landscape context effects.

3.2. Statistical analyses

The nature of statistical analyses will vary depending on key questions, response variables, data types, and other factors (e.g. whether the data show a normal distribution or other etc). Response variables in the statistical modelling will encompass (but not be limited to) species richness, diversity, abundance, biomass, life form diversity/richness/assemblage composition. In most cases, a statistical model will be developed from data analyses. We will employ a range of advanced statistical methods to examine particular questions. These include: Generalized Linear Modelling for aggregate species richness and the responses of individual taxa (including newly developed H-clim approaches for nested hierarchical data (Lee, Nelder & Pawitan, 2006; McCullagh & Nelder, 1989), and, Correspondence Analysis (Greenacre, 2007) for species assemblages. We also plan to employ RLQ (left corner) analysis (Doledec et al., 1996) to link functional group responses and sets of life history attributes to generalized response patterns .

It is notable that the emphasis will be on the collection of raw data so that data can be aggregated where needed and datasets can be manipulated according to the kinds of questions that need to be addressed. For example: Are changes in vegetation condition in ESP sites due primarily to ESP management interventions or some other factors such as broader-scaled landscape or regional factors?

3.3. Databasing

We will collect field data on paper sheets – the best way to ensure long-term data storage. Datasheets will be copied with one set stored at Gundagai and a second in our raw data archive at ANU. Data will then be coded into MicroSoft Access database – the same framework we currently use to assemble and digitally store large datasets. Note that we are currently part of a new study with the ANU Super Computer Facility to create a streamlined databasing system.

4. Bird monitoring:

Woodland birds will be surveyed repeatedly on BGGW field sites. This group has been selected because past work has indicated that some elements of the bird biota responds strongly to various attributes of vegetation condition (e.g. Montague-Drake, Lindenmayer & Cunningham, 2009). Thus, bird counts will be conducted to determine if management intervention leads to changes in vegetation condition, and this in turn is reflected in changes in bird assemblages.

The bird counting protocols will entail repeated 10 minute point interval counts (Pyke & Recher, 1983)) at the 0m, 100m and 200m points along the permanent BGGW investment site and the spatial control site on each farm. Each site will be counted twice by a different observer on a different day to limit day and observer effects (see Field, Tyre & Possingham, 2002; Lindenmayer, Wood & MacGregor, 2009). This approach will provide high quality presence-absence, as well as detection frequency data from bird survey work. Only highly experienced ornithologists will participate in these surveys. We will record birds by both sight and call with distances estimated to individual birds for the following categories – 0-25m, 25-50m, 50m-100m, >100m. Bird surveys will take place in spring 2010 and 2012. These protocols are identical to those already employed in our long-term bird studies in woodlands (Cunningham et al., 2008; Lindenmayer et al., 2008; Montague-Drake, Lindenmayer & Cunningham, 2009). Again, this enables comparisons to be made with new datasets gathered in the BGGW program with pre-existing long-term work.

We will gather data on all birds seen and heard on all sites. This will enable data to be analysed at the single species, community assemblage, guild, functional group and species richness levels.

A key part of the study will be to quantify relationships between birds and woodland condition state, vegetation covariates, spatial context variables, and measured covariates reflecting management treatments and interventions. For example, part of the analysis will explore relationships between bird assemblages and landscape context measures (e.g. percentage cover of native vegetation, percentage cover of matrix land uses, density of paddock trees in given radii, ‘hard’ and ‘soft’ edges in given radii, and landscape heterogeneity). We will measure these variables because we have found these kinds of covariates to be significant explantors in earlier

studies (Cunningham et al., 2008; Lindenmayer et al., 2009) and they are therefore likely to be important in the BGGW monitoring program.

The way the monitoring protocol has been planned and designed means that it will be possible to link vegetation data with bird data and quantify relationships between vegetation condition and treatment intervention and between bird responses, vegetation condition, and treatment intervention. This provides a very powerful framework for quantifying the effectiveness of management practices, in not only improving specific condition parameters of the ecological community in question, but also in determining how such changes may influence other taxa of functional and conservation significance.

As in the case of analyses of vegetation, we will employ a range of advanced statistical methods to examine particular questions..

5. Reptile monitoring:

Woodland reptiles will be surveyed repeatedly on BGGW field sites. This group has been selected because past work has indicated that some elements of the reptile biota respond strongly to various attributes of vegetation condition (e.g. Cunningham et al., 2007; Michael, Cunningham & Lindenmayer, 2008). Thus, reptile counts will be conducted to determine if management intervention leads to changes in vegetation condition, and this in turn is reflected in changes in bird assemblages.

As part of our work, we will establish reptile substrates at the 0m, 100m and 200m points along the permanent 200m transect established at each of the 265 BGGW and spatial control sites. Three kinds of artificial substrates will be established for reptile surveys at each of the plot points along each of the permanent transects – 2 layers of corrugated iron, 4 roofing tiles, and 4 red gum sleepers. In addition to checking the artificial substrates for reptiles, a 30 minute time-constrained active search for reptiles will be completed at each BGGW investment site and spatial control site. Only high experienced herpetologists will participate in these surveys. We plan to complete surveys of reptiles in winter 2010 and winter 2012. The protocol for surveys of reptiles will be used because of its effectiveness in helping to gather high quality data in past studies and also because the same protocols have been employed in woodland reptile surveys that we have been conducting since 1998 (e.g. Cunningham et al., 2007; Michael & Lindenmayer, 2010) thereby enabling links to be made between the BGGW project and other ongoing woodland studies.

We will gather data on the abundance of all species of reptiles. This will enable empirical data to be analysed at the single species, community assemblage, guild, functional group and species richness levels.

A key part of the study will be to quantify relationships between reptiles and woodland condition state, vegetation covariates, spatial context variables, and measured covariates reflecting management treatments and interventions. For example, part of the analysis will explore relationships between reptile assemblages and landscape context measures (e.g. percentage cover of native vegetation, percentage cover of matrix land uses, density of paddock trees in given radii, 'hard' and 'soft' edges in given radii, landscape heterogeneity).

The way the monitoring protocol has been planned and designed means that it will be possible to link vegetation data with reptile data and quantify relationships between vegetation condition and treatment intervention and between reptile responses, vegetation condition, and treatment intervention. This provides a very powerful framework for quantifying the effectiveness of management practices in not only improving specific condition parameters of the ecological community in question, but also in determining how such changes may influence other taxa of functional and conservation significance.

As in the case of analyses of vegetation and birds, we will employ a range of advanced statistical methods to examine particular questions

6. **Experimental work:**

The management of Box Gum Grassy Woodland (BGGW) Stewardship sites is based on what is thought to be 'best practice' management. One of the key practices central to the management of BGGW is grazing and it is widely considered to be a key driving factor to woodland condition (reviewed by Lindenmayer, Bennett & Hobbs, 2010a; Lunt et al., 2007). However, to date there is only limited information regarding which of the currently available suite of grazing practices available to landholders constitutes 'best practice' and, in turn, the relationships between different grazing regimes and both: (1) vegetation condition, and, (2) the responses of particular groups of biota – birds, reptiles and plants. This is a potential weakness of the current BGGW Stewardship Program and this has been communicated to us by both landholders and members of the scientific fraternity. We plan to tackle this key knowledge gap with a replicated grazing experiment. In compliance with the Federal Government's overriding commitment of monitoring change in condition, we have designed an experiment which quantifies the effects that different grazing regimes have on vegetation condition, pasture condition, and various groups of biota – reptiles, birds and plants. The experiment will take place at two key spatial scales – the patch or site level and the farm level. The experiment has been designed in consultation with Professor Ross Cunningham and Professor Alan Welsh. A proof-of-concept review of the experiment has been completed in the field in April 2010 by Professor Richard Hobbs, Professor Charles Krebs and Professor Gene Likens.

6.1. Experimental design

The experiment will provide important information relating to best practice grazing management of individual stewardship sites within farms and between farms. It will be replicated and blocked and comprise 10-12 farms classified as "business as usual" production farms and 10-12 farms classified as "rotational grazing" farms. "Business as usual" production farms will be those that have been subject to conventionally set-stocking grazing regimes for the past 10 years. "Rotational grazing" farms will be those that have practiced 'short-duration high-intensity' grazing for over 10 years.

The experiment will encompass 20-24 farms with a minimum of 10 business-as-usual farms and 10 rotational grazing farms. Note that we plan to have approximately 2 reserve farms in the Murrumbidgee CMA and 2 farms in the Lachlan CMA to counter contingencies such as a change of landholder who may decide to drop out of the experiment. On each farm, we will select three matched sites where grazing treatments will be applied. On one site there will be no grazing, on a second there will be Stewardship grazing, and a third there will be 'business as usual' grazing. This third treatment (business as usual grazing) will differ between the two broad categories of farms; that is, depending upon whether the farm upon which it is located is a business as usual grazing farm or a rotational grazing farm. Thus, the three treatments will be nested within a farm and the design will enable quantification of grazing-vegetation condition effects and grazing-biotic response effects at two important spatial scales: **(1)** Stewardship patch scale, and, **(2)** the farm scale.

Each of the 20-24 farms in the experiment will comprise an experimental block to make it possible to quantify both within-farm and between-farm effects for key biotic responses. Thus, there will be 20-24 blocks with 3 replicate sites within blocks. The blocking part of the design is important because, for example, if 'short-duration high-intensity' grazing is most effective, the relative ranking of the two kinds of farms should change in a predictable way over time, despite possible year-to-year differences in absolute terms. A blocked design is also critically important because our previous research has indicated that there are aspects of farm-level management and other currently unknown factors at the farm-level which appear to significantly influence some groups of biota (see Cunningham et al., 2007). In addition, farm-level grazing regimes will provide an important landscape spatial context perspective for inclusion as both a key design variable and a covariate in the statistical analysis. The over-arching hypotheses are that: **(1)** there will be a gradient of responses in vegetation condition and biotic responses from no grazing, stewardship grazing, rotational grazing through to set stocking grazing at the patch level, **(2)** that vegetation condition will be significantly better on farms that have practiced 'short-duration high-intensity' grazing for a

long time, and, **(3)** various elements of biodiversity will be significantly enhanced on farms that have practiced 'short-duration high-intensity' grazing for a long time.

The experiment will comprise 3 sites x 20-24 farms = 60-72 sites in total. We will quantify vegetation condition before management interventions and then repeatedly after management interventions on all 60-72 sites in the experiment. We also will complete detailed vegetation surveys as well as surveys of birds and reptiles in the experiment. The field protocols for measuring vegetation, bird and reptile populations will be identical to those outlined above for the main monitoring program at all 265 BBGW and spatial control sites. In addition, we **may** survey soil variables (compaction, infiltration, chemistry, (e.g. N, P, K, labile C), and some invertebrate groups (beetles, ants and butterflies). It is proposed that invertebrate responses would be quantified through a new post-doctoral study funded from sources such as the Australian Research Council Discovery Project Program and hence funding streams other than the Box Gum Grassy Woodland Stewardship Program. We note there may be potential for adding a further treatment such as the supplementary addition of fallen timber or rocks in a subset of sites on a subset of farms to add additional breadth to the experimental study.

The 20-24 farms in the experiment will be located within the Murrumbidgee and Lachlan Catchments. This is because (i) the majority of BGGW Stewardship sites are found in these two catchments, (ii) we have several field staff already positioned and working alongside many of these landholders to facilitate the establishment of the experiment. We also will ensure that a number of the farms are located sufficiently close to Canberra to facilitate site visits by appropriate Ministers and senior DEWHA officials.

As part of establishing woodland Stewardship monitoring and control sites to date, we have identified a set of potential candidate landholders who would be appropriate and supportive of the experiment and whom are located in the Murrumbidgee and Lachlan CMA's. These landhodler's properties would be ideal for the establishment of the grazing experiment. All are keen for the experiment to take place. Hence, the experiment has the potential to become a powerful longitudinal study in which ongoing data collection will occur for the length of contracts with landholders. At this stage we need to complete a sets of interviews with these landholders and then we can proceed with changes to the contracts via DEWHA staff.

6.1.1. Altered experimental design compared with what was previously proposed

The nature of the experiment has changed from early proposals because of statistical design problems with the previously canvassed subtraction experiment. These were highlighted in a field review in which Professor Richard Hobbs, Professor Charles Krebs and Professor Gene Likens

consulted extensively with Professor Ross Cunningham and David Lindenmayer on appropriate ecological questions and key attributes of associated experimental design.

7. Implications

The experiment will have the following implications.

- It is the only way to determine which key grazing interventions are most effective in management woodland sites as part of the BGGW Stewardship Program. It is therefore a critical part of providing the fundamental robust scientific justification underpinning the Program.
- It will explore the role 'alternative' grazing regimes can play in conserving and improving BGGW ecosystem condition compared with more conventional grazing methods.
- The experimental areas will provide ideal demonstration farms for showcasing the Box Gum Grassy Woodland Stewardship Program to a wide audience – landholders, policy-makers, politicians, and scientists.
- There will be no cost implications for DEWHA or any CMAs.
- Will require minor contract variations on the 20-24 farms.

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generated	ID	Site_Code	lat	lon	Survey_cor	Year	Transect_N	Per_Native	Per_Native	Native_Sut	Native_Per	Native_For	Native_Oth	Exotic_per	Exotic_sub	EXOTIC_AN	Bare_grou	Organic_lit	Cryptogam	Rock	St_Johns_V	Gorse	Coolatai_G	Serrated_T	Scotch_Thi	Chillian_Ne	Blue_Thistl	Blackberry	Prickly_Pea	African_Love_Grass
30/03/2017 16:37	4285	AARN-S	-33.5283	148.7471	Unestablisl	2010																								
30/03/2017 16:37	4288	AARN-S	-33.5283	148.7471	Y	2012	2	0	0	0	96	0	0	0	0	84	0	0	0	2	0	0	0	0	14	0	0	0	0	0
30/03/2017 16:37	4289	AARN-S	-33.5283	148.7471	Y	2012	1	10	0	0	82	6	0	26	0	50	0	0	0	0	0	0	0	0	16	0	0	0	0	0
30/03/2017 16:37	4292	AARN-S	-33.5283	148.7471	Y	2014	1	40	0	0	44	2	0	0	0	72	0	40	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4293	AARN-S	-33.5283	148.7471	Y	2014	2	0	0	0	60	0	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4296	AARN-S	-33.5283	148.7471	Y	2016	1	10	0	0	60	22	0	0	0	54	0	6	2	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4297	AARN-S	-33.5283	148.7471	Y	2016	2	0	0	0	74	4	26	0	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4298	AARN-SH1	-33.5234	148.7451	Unestablisl	2010																								
30/03/2017 16:37	4301	AARN-SH1	-33.5234	148.7451	Y	2012	2	0	0	0	100	4	0	0	0	28	0	0	0	0	0	0	0	0	26	0	0	0	0	0
30/03/2017 16:37	4302	AARN-SH1	-33.5234	148.7451	Y	2012	1	0	0	0	94	0	0	0	0	56	0	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4305	AARN-SH1	-33.5234	148.7451	Y	2014	1	0	0	0	14	0	0	0	0	92	0	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4306	AARN-SH1	-33.5234	148.7451	Y	2014	2	0	0	0	28	0	0	0	0	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4309	AARN-SH1	-33.5234	148.7451	Y	2016	1	0	0	0	18	12	62	0	0	70	0	2	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4310	AARN-SH1	-33.5234	148.7451	Y	2016	2	0	0	0	80	6	6	0	0	56	0	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4311	ABOW-C	-33.1733	148.8626	Y	2010	1	0	0	0	38	4	28	18	0	16	22	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4312	ABOW-C	-33.1733	148.8626	Y	2012	2	0	0	0	66	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4313	ABOW-C	-33.1733	148.8626	Y	2012	1	0	40	0	84	4	0	0	0	34	2	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4314	ABOW-C	-33.1733	148.8626	Y	2014	2	0	0	0	82	14	0	0	0	46	2	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4315	ABOW-C	-33.1733	148.8626	Y	2014	1	0	0	0	72	0	0	0	0	16	10	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4316	ABOW-C	-33.1733	148.8626	Y	2016	2	0	0	0	74	0	0	6	0	12	2	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4317	ABOW-C	-33.1733	148.8626	Y	2016	1	0	20	0	78	0	0	4	0	16	6	12	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4318	ABOW-S	-33.1772	148.8621	Y	2010	1	20	0	0	58	4	4	4	0	10	16	28	4	2	0		0	0		0		0	0	0
30/03/2017 16:37	4319	ABOW-S	-33.1772	148.8621	Y	2012	1	50	0	0	24	8	0	0	0	70	8	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4320	ABOW-S	-33.1772	148.8621	Y	2012	2	10	0	0	72	8	0	0	0	50	2	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4321	ABOW-S	-33.1772	148.8621	Y	2014	1	70	0	0	24	10	0	0	0	46	8	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4322	ABOW-S	-33.1772	148.8621	Y	2014	2	0	0	0	84	2	0	0	0	6	2	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4323	ABOW-S	-33.1772	148.8621	Y	2016	2	0	0	0	76	2	42	0	0	10	0	12	6	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4324	ABOW-S	-33.1772	148.8621	Y	2016	1	30	0	4	42	12	8	28	0	6	4	44	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4325	ADOW-C	-34.2761	148.5702	Y	2010	1	0	0	0	66	10	2	0	0	44	0	16	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4326	ADOW-C	-34.2761	148.5702	Y	2012	1	0	0	0	68	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4327	ADOW-C	-34.2761	148.5702	Y	2012	2	0	0	0	78	0	0	0	4	16	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4328	ADOW-C	-34.2761	148.5702	Y	2014	2	0	0	0	28	12	22	0	0	66	2	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4329	ADOW-C	-34.2761	148.5702	Y	2014	1	0	0	0	46	0	8	0	0	54	2	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4330	ADOW-C	-34.2761	148.5702	Y	2016	2	0	0	0	10	16	0	0	0	14	4	90	2	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4331	ADOW-C	-34.2761	148.5702	Y	2016	1	0	0	0	10	6	0	0	0	14	6	94	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4332	ADOW-S	-34.2787	148.5745	Y	2010	1	20	0	0	66	12	0	0	0	14	10	12	0	4	0		0	0		0		0	0	0
30/03/2017 16:37	4333	ADOW-S	-34.2787	148.5745	Y	2012	2	20	0	0	66	2	16	0	0	0	0	8	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4334	ADOW-S	-34.2787	148.5745	Y	2012	1	20	0	0	82	0	0	0	0	6	0	8	4	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4335	ADOW-S	-34.2787	148.5745	Y	2014	1	0	0	0	28	0	0	0	0	26	18	12	16	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4336	ADOW-S	-34.2787	148.5745	Y	2014	2	0	0	0	50	2	4	0	0	28	2	16	30	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4337	ADOW-S	-34.2787	148.5745	Y	2016	1	10	0	2	40	0	0	0	0	0	2	92	12	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4338	ADOW-S	-34.2787	148.5745	Y	2016	2	10	0	0	32	0	0	0	0	14	0	88	22	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4339	AJAR-S	-35.5877	149.3266	Y	2010	1	30	10	2	52	12	0	0	2	12	10	8	0	4	2		0	0		0		0	0	0
30/03/2017 16:37	4340	AJAR-S	-35.5877	149.3266	Y	2012	1	30	0	10	76	32	4	0	0	2	2	8	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4341	AJAR-S	-35.5877	149.3266	Y	2012	2	10	0	4	88	14	2	2	0	20	4	8	4	0	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	4342	AJAR-S	-35.5877	149.3266	Rotated ou	2014	1																							
30/03/2017 16:37	4343	AJAR-S	-35.5877	149.3266	Rotated ou	2014	2																							
30/03/2017 16:37	4344	AJAR-S	-35.5877	149.3266	Y	2016	2	0	0	10	92	18	2	8	2	14	2	6	0	0	2	0	0	6	0	0	0	0	0	0
30/03/2017 16:37	4345	AJAR-S	-35.5877	149.3266	Y	2016	1	30	10	24	96	4	2	0	0	6	2	14	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4346	AKNO-S	-32.4368	148.4092	Y	2010	1	10	0	0	4	4	2	0	0	22	14	20	28	0	0		0	0		0		0	0	0
30/03/2017 16:37	4347	AKNO-S	-32.4368	148.4092	Y	2012	1	30	10	2	100	4	0	0	0	10	0	50	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4348	AKNO-S	-32.4368	148.4092	Y	2012	2	0	0	0	90	12	12	0	0	20	2	32	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4349	AKNO-S	-32.4368	148.4092	Rotated ou	2014	2																							
30/03/2017 16:37	4350	AKNO-S	-32.4368	148.4092	Rotated ou	2014	1																							
30/03/2017 16:37	4351	AKNO-S	-32.4368	148.4092	Y	2016	2	0	0	0	86	0	22	0	0	0	0	96	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4352	AKNO-S	-32.4368	148.4092	Y	2016	1	50	0	0	60	2	0	0	0	0	0	94	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4353	ALEE-CG	-34.8341	149.3248	Y	2010	1	20	0	0	78	12	2	0	0	20	0	22	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4356	ALEE-CG	-34.8341	149.3248	Y	2012	1	20	0	0	50	0	0	0	0	2	16	54	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4357	ALEE-CG	-34.8341	149.3248	Y	2012	2	20	0	0	84	0	0	0	0	2	4	22	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4360	ALEE-CG	-34.8341	149.3248	Y	2014	1	10	10	0	10	0	0	0	0	20	30	34	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4361	ALEE-CG	-34.8341	149.3248	Y	2014	2	0	0	0	26	0	0	0	0	66	10	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4364	ALEE-CG	-34.8341	149.3248	Y	2016	1	20	0	0	64	0	0	0	0	0	10	38	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4365	ALEE-CG	-34.8341	149.3248	Y	2016	2	10	0	0	42	0	0	0	0	4	40	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4366	ALEE-S	-34.8234	149.3197	Y	2010	1	30	0	2	66	14	0	0	0	0	10	34	16	0	0		0	0		0		0	0	0
30/03/2017 16:37	4369	ALEE-S	-34.8234	149.3197	Y	2012	1	50	0	6	76	16	0	0	0	2	2	32	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4370	ALEE-S	-34.8234	149.3197	Y	2012	2	40	0	0	68	0	0	0	0	0	0	38	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4373	ALEE-S	-34.8234	149.3197	Y	2014	1	30	0	10	58	14	8	0	0	8	0	40	30	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4374	ALEE-S	-34.8234	149.3197	Y	2014	2	10	10	0	82	18	0	0	0	14	2	40	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4377	ALEE-S	-34.8234	149.3197	Y	2016	2	20	20	0	80	2	0	0	0	12	0	28	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4378	ALEE-S	-34.8234	149.3197	Y	2016	1	30	0	10	70	0	0	0	0	6	0	40	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4379	ALOW-S	-29.1139	151.7953	Y	2010	1	50	10	2	58	18	0	0	0	2	8	54	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	4380	ALOW-S	-29.1139	151.7953	Y	2012	1	10	0	0	88	24	4	6	0	26	24	76	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4381	ALOW-S	-29.1139	151.7953	Y	2012	2	70	0	38	100	70	0	0	0	12	8	92	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4382	ALOW-S	-29.1139	151.7953	Y	2014	1	0	0	18	94	36	2	0	0	2	0	8	4	0	0	0	2	0	0	0	0	0	0	0
30/03/2017 16:37	4383	ALOW-S	-29.1139	151.7953	Y	2014	2	10	0	6	92	20	2	0	0	0	6	2	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4384	ALOW-S	-29.1139	151.7953	Y	2016	1	0	0	0	62	4	0	0	0	2	36	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4385	ALOW-S	-29.1139	151.7953	Y	2016	2			2	72	12	0	0	0	0	6	32	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4386	AMCL-C	-34.7304	149.4125	Y	2010	1	20	0	0	50	0	0	0	0	16	6	6	18	28	0		0	0		0		0	0	0

30/03/2017 16:37	4387	AMCL-C	-34.7304	149.4125	Y	2012	2	90	0	2	44	4	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4388	AMCL-C	-34.7304	149.4125	Y	2012	1	30	0	2	62	2	4	0	0	0	6	24	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4389	AMCL-C	-34.7304	149.4125	Rotated ou	2014	1																					
30/03/2017 16:37	4390	AMCL-C	-34.7304	149.4125	Rotated ou	2014	2																					
30/03/2017 16:37	4391	AMCL-C	-34.7304	149.4125	Y	2016	1	20	10	4	72	0	0	0	0	2	2	20	22	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4392	AMCL-C	-34.7304	149.4125	Y	2016	2	30	40	0	74	4	4	0	0	2	2	52	4	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4393	AMCL-S	-34.7283	149.4181	Y	2010	1	20	0	0	72	4	0	0	0	4	24	28	8	0	0		0	0		0		0	0	0
30/03/2017 16:37	4394	AMCL-S	-34.7283	149.4181	Y	2012	1	50	40	0	42	10	0	0	0	16	4	22	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4395	AMCL-S	-34.7283	149.4181	Y	2012	2	50	0	0	56	6	8	0	0	4	8	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4396	AMCL-S	-34.7283	149.4181	Rotated ou	2014	2																					
30/03/2017 16:37	4397	AMCL-S	-34.7283	149.4181	Rotated ou	2014	1																					
30/03/2017 16:37	4398	AMCL-S	-34.7283	149.4181	Y	2016	2	40	10	0	60	0	0	0	0	0	4	62	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4399	AMCL-S	-34.7283	149.4181	Y	2016	1	50	0	2	78	2	0	0	0	14	4	38	4	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4400	AMOR-C	-32.5907	149.4285	Y	2010	1	0	0	0	74	14	0	0	0	10	14	2	6	14	0		0	0		0		0	0	0
30/03/2017 16:37	4401	AMOR-C	-32.5907	149.4285	Y	2012	2	0	0	0	88	34	12	0	0	22	6	4	12	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4402	AMOR-C	-32.5907	149.4285	Y	2012	1	0	0	0	100	28	14	0	0	28	0	4	4	0	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	4403	AMOR-C	-32.5907	149.4285	Y	2014	2	0	0	0	80	42	26	0	0	26	0	0	2	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4404	AMOR-C	-32.5907	149.4285	Y	2014	1	0	0	0	82	44	26	0	0	28	0	0	0	4	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	4405	AMOR-C	-32.5907	149.4285	Y	2016	2	0	0	0	58	2	4	0	0	6	10	80	8	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4406	AMOR-C	-32.5907	149.4285	Y	2016	1	0	0	0	60	8	0	0	0	0	2	82	6	0	0	0	0	6	0	0	0	0	0
30/03/2017 16:37	4407	AMOR-S	-32.6029	149.4272	Y	2010	1	0	0	0	72	50	0	0	0	10	8	8	8	2	0		0	0		0		0	0	0
30/03/2017 16:37	4408	AMOR-S	-32.6029	149.4272	Y	2012	2	10	10	0	100	62	2	0	0	24	0	10	0	0	18	0	0	0	0	0	0	0	0
30/03/2017 16:37	4409	AMOR-S	-32.6029	149.4272	Y	2012	1	0	0	0	100	30	4	0	0	24	0	0	2	2	18	0	0	0	0	0	0	0	0
30/03/2017 16:37	4410	AMOR-S	-32.6029	149.4272	Y	2014	2	0	0	0	66	94	2	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4411	AMOR-S	-32.6029	149.4272	Y	2014	1	0	0	0	84	68	24	0	0	22	0	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4412	AMOR-S	-32.6029	149.4272	Y	2016	2	0	0	0	36	4	2	0	0	10	12	60	0	6	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	4413	AMOR-S	-32.6029	149.4272	Y	2016	1	0	0	0	54	6	2	0	2	4	6	40	14	4	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	4414	AREA-C	-34.9964	147.9859	Y	2010	1	40	0	0	40	2	0	0	0		12	44	2	6	0		0	0		0		0	0	0
30/03/2017 16:37	4415	AREA-C	-34.9964	147.9859	Y	2012	2	0	0	4	66	28	0	0	0	24	4	6	4	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4416	AREA-C	-34.9964	147.9859	Y	2012	1	100	0	0	26	38	0	0	0	60	0	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4417	AREA-C	-34.9964	147.9859	Y	2014	2	0	0	2	20	8	0	0	0	60	6	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4418	AREA-C	-34.9964	147.9859	Y	2014	1	80	0	0	16	6	0	0	0	44	10	34	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4419	AREA-C	-34.9964	147.9859	Y	2016	1	20	0	0	2	2	0	0	0	42	8	62	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4420	AREA-C	-34.9964	147.9859	Y	2016	2	90	0	2	24	2	0	0	0	38	18	10	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4421	AREA-S	-35.0038	147.9729	Y	2010	1	50	0	0	12	0	0	6	0	6	10	12	10	36	0		0	0		0		0	0	0
30/03/2017 16:37	4422	AREA-S	-35.0038	147.9729	Y	2012	1	30	0	0	74	24	4	0	0	26	0	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4423	AREA-S	-35.0038	147.9729	Y	2012	2	70	10	0	48	16	8	0	0	0	4	50	24	16	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4424	AREA-S	-35.0038	147.9729	Y	2014	1	20	0	0	44	6	8	0	0	24	4	16	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4425	AREA-S	-35.0038	147.9729	Y	2014	2	40	10	0	16	0	0	0	0	16	16	22	0	34	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4426	AREA-S	-35.0038	147.9729	Y	2016	1	70	0	0	24	6	2	0	0	16	8	42	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4427	AREA-S	-35.0038	147.9729	Y	2016	2	50	0	0	16	0	0	0	0	10	16	30	2	36	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4428	ASYK-C	-34.7264	148.5694	Y	2010	1	0	0	0	4	0	0	2	0	42	56	96	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4429	ASYK-C	-34.7264	148.5694	Y	2012	1	60	0	54	42	0	0	2	0	66	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4430	ASYK-C	-34.7264	148.5694	Y	2012	2	80	0	0	36	0	0	0	0	82	2	50	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4431	ASYK-C	-34.7264	148.5694	Y	2014	2	20	0	0	8	4	0	0	0	92	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4432	ASYK-C	-34.7264	148.5694	Y	2014	1	0	0	0	8	2	0	0	2	100	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4433	ASYK-C	-34.7264	148.5694	Y	2016	1	60	0	0	0	0	0	0	0	8	6	94	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4434	ASYK-C	-34.7264	148.5694	Y	2016	2	80	0	0	0	0	0	0	0	8	4	96	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4435	ASYK-S	-34.73	148.5807	Y	2010	1	0	0	0	58	0	0	6	0	54	22	96	18	2	0		0	0		0		0	0	0
30/03/2017 16:37	4436	ASYK-S	-34.73	148.5807	Y	2012	1	80	0	0	54	0	0	20	0	28	0	32	6	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4437	ASYK-S	-34.73	148.5807	Y	2012	2	90	0	0	68	8	0	0	0	28	0	64	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4438	ASYK-S	-34.73	148.5807	Y	2014	2	60	0	0	72	2	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4439	ASYK-S	-34.73	148.5807	Y	2014	1	30	10	0	10	4	0	24	0	72	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4440	ASYK-S	-34.73	148.5807	Y	2016	2	100	0	0	4	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4441	ASYK-S	-34.73	148.5807	Y	2016	1	80	0	0	0	0	0	0	0	24	0	100	6	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4442	ATWY-C	-34.8479	148.0038	Y	2010	1	0	0	0	42	0	8	0	0	68	50	58	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4443	ATWY-C	-34.8479	148.0038	Y	2012	2	10	0	0	98	2	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4444	ATWY-C	-34.8479	148.0038	Y	2012	1	10	0	0	50	2	0	0	0	62	0	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4445	ATWY-C	-34.8479	148.0038	Y	2014	2	0	0	0	68	2	0	0	0	36	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4446	ATWY-C	-34.8479	148.0038	Y	2014	1	0	0	0	38	0	24	4	0	36	0	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4447	ATWY-C	-34.8479	148.0038	Y	2016	2	100	0	0	0	0	0	42	2	2	0	0	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4448	ATWY-C	-34.8479	148.0038	Y	2016	1	90	0	24	0	0	0	42	0	14	0	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4449	ATWY-S	-34.8581	148.0008	Y	2010	1	0	0	6	88	0	16	2	0	38	46	52	2	18	0		0	0		0		0	0	0
30/03/2017 16:37	4450	ATWY-S	-34.8581	148.0008	Y	2012	2	0	10	20	100	14	14	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4451	ATWY-S	-34.8581	148.0008	Y	2012	1	50	0	0	88	6	0	0	0	30	0	40	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4452	ATWY-S	-34.8581	148.0008	Y	2014	2	0	0	14	52	2	6	0	0	14	4	8	2	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4453	ATWY-S	-34.8581	148.0008	Y	2014	1	40	0	0	42	0	2	0	0	56	0	16	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4454	ATWY-S	-34.8581	148.0008	Y	2016	2	100	0	16	34	2	2	0	0	8	4	28	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4455	ATWY-S	-34.8581	148.0008	Y	2016	1	60	0	4	12	8	0	0	0	18	6	46	2	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4456	AWEB-C	-35.4395	147.7381	Y	2010	1	30	10	0	36	0	0	26	0	26	0	10	0	8	0		0	0		0		0	0	0
30/03/2017 16:37	4457	AWEB-C	-35.4395	147.7381	Y	2012	1	0	0	0	34	0	0	0	6	54	4	10	0	6	0	0	0	0	0	0	0	4	0	0
30/03/2017 16:37	4458	AWEB-C	-35.4395	147.7381	Y	2012	2	0	0	0	44	0	0	16	0	40	6	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4459	AWEB-C	-35.4395	147.7381	Y	2014	1	40	0	0	30	4	0	0	0	38	2	38	0	6	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4460	AWEB-C	-35.4395	147.7381	Y	2014	2	0	10	0	32	2	0	10	0	32	2	34	2	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4461	AWEB-C	-35.4395	147.7381	Ceased	2016	2																							
30/03/2017 16:37	4462	AWEB-C	-35.4395	147.7381	Ceased	2016	1																							
30/03/2017 16:37	4463	AWEB-S	-35.444	147.7703	Y	2010	1	20	0	8	46	6	0	0	0	12	22	26	14	2	0		0	0		0		0	0	0
30/03/2017 16:37	4464	AWEB-S	-35.444	147.7703	Y	2012	2	0	10	6	60	0	0	0	6	44	0	28	0	0	22	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4465	AWEB-S	-35.444	147.7703	Y	2012	1	20	0	10	40	4	0	0	0	32	20	26	18	4	16	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	4466	AWEB-S	-35.444	147.7703	Y	2014	1	0	30	0	52	0	2	0	0	52	4	6	0	0	6	0	0	0	0	0	0	0	0
30/03/2017 16:37	4467	AWEB-S	-35.444	147.7703	Y	2014	2	0	50	16	54	0	6	0	0	16	4	10	4	2	4	0	0	0	0	0	0	0	0
30/03/2017 16:37	4468	AWEB-S	-35.444	147.7703	Ceased	2016	2																					
30/03/2017 16:37	4469	AWEB-S	-35.444	147.7703	Ceased	2016	1																					
30/03/2017 16:37	4470	BBIN-S	-34.9039	149.0289	Y	2010	1	50	0	0	4	0	0	10	0	72	0	18	0	10	0		0	0		0		0	0	0
30/03/2017 16:37	4471	BBIN-S	-34.9039	149.0289	Y	2012	1	40	20	0	28	2	0	0	0	90	0	6	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4472	BBIN-S	-34.9039	149.0289	Y	2012	2	70	0	0	42	10	0	4	0	66	0	10	0	0	0	0	0	0	2	0	4	0	0	0
30/03/2017 16:37	4473	BBIN-S	-34.9039	149.0289	Rotated ou	2014	1																					
30/03/2017 16:37	4474	BBIN-S	-34.9039	149.0289	Rotated ou	2014	2																					
30/03/2017 16:37	4475	BBIN-S	-34.9039	149.0289	Y	2016	1	60	0	0	0	0	0	0	0	58	0	100	2	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4476	BBIN-S	-34.9039	149.0289	Y	2016	2	100	0	0	12	8	0	0	0	8	0	100	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4477	BCHO-C	-34.3865	149.1911	Y	2010	1	20	0	0	36	0	0	0	0	38	14	8	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	4478	BCHO-C	-34.3865	149.1911	Y	2012	2	40	20	0	36	6	2	0	0	16	8	46	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4479	BCHO-C	-34.3865	149.1911	Y	2012	1	0	0	0	68	0	0	0	0	36	8	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4480	BCHO-C	-34.3865	149.1911	Rotated ou	2014	2																					
30/03/2017 16:37	4481	BCHO-C	-34.3865	149.1911	Rotated ou	2014	1																					
30/03/2017 16:37	4482	BCHO-C	-34.3865	149.1911	Y	2016	1	0	0	0	42	0	0	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4483	BCHO-C	-34.3865	149.1911	Y	2016	2	40	0	0	8	0	0	0	0	0	10	62	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4484	BCHO-S	-34.3795	149.1937	Y	2010	1	10	0	0	76	0	0	0	0	16	2	4	4	2	0		0	0		0		0	0	0
30/03/2017 16:37	4485	BCHO-S	-34.3795	149.1937	Y	2012	1	0	10	0	72	0	4	0	0	20	0	2	22	20	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4486	BCHO-S	-34.3795	149.1937	Y	2012	2	0	0	0	92	0	0	0	0	26	0	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4487	BCHO-S	-34.3795	149.1937	Rotated ou	2014	1																					
30/03/2017 16:37	4488	BCHO-S	-34.3795	149.1937	Rotated ou	2014	2																					
30/03/2017 16:37	4489	BCHO-S	-34.3795	149.1937	Y	2016	1	20	0	0	20	0	0	0	0	0	2	66	42	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4490	BCHO-S	-34.3795	149.1937	Y	2016	2	0	10	0	24	0	0	0	0	0	8	72	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4491	BCOR-C	-35.8373	149.1586	Y	2010	1	0	0	0	58	6	0	74	0	2	6	0	4	0	0		0	0		0		0	0	72
30/03/2017 16:37	4492	BCOR-C	-35.8373	149.1586	Y	2012	2	0	0	0	40	12	0	66	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	70
30/03/2017 16:37	4493	BCOR-C	-35.8373	149.1586	Y	2012	1	0	10	0	52	8	0	58	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	58
30/03/2017 16:37	4494	BCOR-C	-35.8373	149.1586	Rotated ou	2014	1																					
30/03/2017 16:37	4495	BCOR-C	-35.8373	149.1586	Rotated ou	2014	2																					
30/03/2017 16:37	4496	BCOR-C	-35.8373	149.1586	Ceased	2016	1																					
30/03/2017 16:37	4497	BCOR-C	-35.8373	149.1586	Ceased	2016	2																					
30/03/2017 16:37	4498	BCOR-S	-35.8356	149.1523	Y	2010	1	10	0	0	36	10	0	22	0	12	4	10	6	0	0		0	0		0		0	0	80
30/03/2017 16:37	4499	BCOR-S	-35.8356	149.1523	Y	2012	2	0	0	0	14	14	0	84	0	4	2	2	0	0	0	0	0	0	0	0	0	0	0	84
30/03/2017 16:37	4500	BCOR-S	-35.8356	149.1523	Y	2012	1	30	30	8	22	26	2	44	0	0	10	48	10	0	0	0	0	0	0	0	0	0	0	44
30/03/2017 16:37	4501	BCOR-S	-35.8356	149.1523	Rotated ou	2014	2																					
30/03/2017 16:37	4502	BCOR-S	-35.8356	149.1523	Rotated ou	2014	1																					
30/03/2017 16:37	4503	BCOR-S	-35.8356	149.1523	Ceased	2016	1																					
30/03/2017 16:37	4504	BCOR-S	-35.8356	149.1523	Ceased	2016	2																					
30/03/2017 16:37	4505	BDON-S	-35.0091	147.4235	Y	2010	1	80	40	0	42	20	4	0	0	50	0	28	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	4506	BDON-S	-35.0091	147.4235	Y	2012	2	0	20	0	52	6	0	0	0	14	0	22	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4507	BDON-S	-35.0091	147.4235	Y	2012	1	70	0	2	30	16	0	0	4	4	6	46	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4508	BDON-S	-35.0091	147.4235	Rotated ou	2014	1																					
30/03/2017 16:37	4509	BDON-S	-35.0091	147.4235	Rotated ou	2014	2																					
30/03/2017 16:37	4510	BDON-S	-35.0091	147.4235	Y	2016	1	70	0	0	28	4	0	0	0	34	2	70	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4511	BDON-S	-35.0091	147.4235	Y	2016	2	60	20	4	6	0	0	0	0	70	2	50	6	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4512	BGAY-CG1	-33.7932	148.9695	Unestablisl	2010																								
30/03/2017 16:37	4515	BGAY-CG1	-33.7932	148.9695	Y	2012	2	50	0	0	54	22	0	26	0	34	4	52	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4516	BGAY-CG1	-33.7932	148.9695	Y	2012	1	70	0	0	96	8	0	0	0	56	0	44	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4519	BGAY-CG1	-33.7932	148.9695	Y	2014	2	60	30	0	88	0	2	0	0	2	2	56	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4520	BGAY-CG1	-33.7932	148.9695	Y	2014	1	70	10	0	84	4	0	0	0	12	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4523	BGAY-CG1	-33.7932	148.9695	Y	2016	1	90	10	0	38	0	0	0	0	58	0	56	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4524	BGAY-CG1	-33.7932	148.9695	Y	2016	2	70	10	0	32	0	0	0	0	16	12	56	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4525	BGAY-S	-33.7987	148.9685	Unestablisl	2010																								
30/03/2017 16:37	4528	BGAY-S	-33.7987	148.9685	Y	2012	2	10	0	0	88	26	38	0	0	6	0	42	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4529	BGAY-S	-33.7987	148.9685	Y	2012	1	70	10	0	72	64	8	0	0	4	0	68	22	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4532	BGAY-S	-33.7987	148.9685	Y	2014	2	40	0	0	80	0	0	0	0	14	0	38	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4533	BGAY-S	-33.7987	148.9685	Y	2014	1	60	20	0	64	2	6	0	0	18	0	52	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4536	BGAY-S	-33.7987	148.9685	Y	2016	2	30	0	2	78	0	0	0	0	20	0	32	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4537	BGAY-S	-33.7987	148.9685	Y	2016	1	50	0	0	58	2	4	0	0	6	0	56	18	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4538	BKER-C	-32.7071	148 528	Y	2010	1	10	0	0	56	6	2	0	2	24	4	0	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	4539	BKER-C	-32.7071	148 528	Y	2012	2	0	0	0	54	12	0	0	0	22	2	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4540	BKER-C	-32.7071	148 528	Y	2012	1	20	0	0	62	6	4	0	2	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4541	BKER-C	-32.7071	148 528	Y	2014	1	20	0	0	66	2	2	0	0	22	4	44	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4542	BKER-C	-32.7071	148 528	Y	2014	2	100	0	0	52	4	16	0	0	46	8	2	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4543	BKER-C	-32.7071	148 528	Y	2016	1	0	0	0	56	0	10	0	0	0	2	86	6	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4544	BKER-C	-32.7071	148 528	Y	2016	2	40	0	0	28	0	0	0	0	4	14	60	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4545	BKER-S	-32.7092	148.5363	Y	2010	1	0	0	0	62	4	0	0	0	16	2	0	2	12	0		0	0		0		0	0	0
30/03/2017 16:37	4546	BKER-S	-32.7092	148.5363	Y	2012	1	0	0	0	80	0	0	0	2	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4547	BKER-S	-32.7092	148.5363	Y	2012	2	30	0	0	62	6	4	0	0	4	12	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4548	BKER-S	-32.7092	148.5363	Y	2014	1	0	0	0	48	2	0	0	0	76	0	12	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4549	BKER-S	-32.7092	148.5363	Y	2014	2	20	0	2	46	6	6	0	0	34	6	32	4	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4550	BKER-S	-32.7092	148.5363	Y	2016	1	0	0	0	26	4	0	4	0	12	0	84	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4551	BKER-S	-32.7092	148.5363	Y	2016	2	30	0	0	38	0	6	0	0	6	0	74	14	20	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4552	BMAR-C	-33.5603	149.2025	Y	2010	1	50	0	0	76	6	0	0	0	0	10	46	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	4553	BMAR-C	-33.5603	149.2025	Y	2012	2	10	0	0	96	22	0	0	2	36	0	8	0	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4554	BMAR-C	-33.5603	149.2025	Y	2012	1	80	10	0	72	40	0	10	0	38	2	28	0	0	0	0	0	10	0	0	0	0	0	0
30/03/2017 16:37	4555	BMAR-C	-33.5603	149.2025	Y	2014	1	80	30	0	52	4	0	0	4	24	10	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4556	BMAR-C	-33.5603	149.2025	Y	2014	2	10	10	0	62	8	0	0	0	10	18	8	4	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	4557	BMAR-C	-33.5603	149.2025	Ceased	2016	1																			
30/03/2017 16:37	4558	BMAR-C	-33.5603	149.2025	Ceased	2016	2																			
30/03/2017 16:37	4559	BMAR-S	-33.5579	149.1953	Y	2010	1	60	0	0	26	10	2	0	0	2	14	70	14	0	0		0	0		0		0	0	0
30/03/2017 16:37	4560	BMAR-S	-33.5579	149.1953	Y	2012	1	50	0	0	70	44	2	0	2	46	0	34	6	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4561	BMAR-S	-33.5579	149.1953	Y	2012	2	40	0	0	82	46	0	0	0	32	0	50	32	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4562	BMAR-S	-33.5579	149.1953	Y	2014	1	50	0	0	22	4	0	0	0	20	16	32	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4563	BMAR-S	-33.5579	149.1953	Y	2014	2	40	30	2	32	8	0	0	0	18	16	20	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4564	BMAR-S	-33.5579	149.1953	Ceased	2016	2																							
30/03/2017 16:37	4565	BMAR-S	-33.5579	149.1953	Ceased	2016	1																							
30/03/2017 16:37	4566	BMED-CG1	-34.0417	148.8185	Y	2010	1	20	0	0	46	0	16	0	0	66	14	40	24	0	0		0	0		0		0	0	0
30/03/2017 16:37	4569	BMED-CG1	-34.0417	148.8185	Y	2012	2	30	0	0	40	4	0	0	0	38	8	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4570	BMED-CG1	-34.0417	148.8185	Y	2012	1	10	0	0	44	0	0	0	0	34	8	22	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4573	BMED-CG1	-34.0417	148.8185	Y	2014	1	0	0	0	68	0	0	0	0	42	0	18	34	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4574	BMED-CG1	-34.0417	148.8185	Y	2014	2	30	0	0	66	0	0	0	0	36	0	72	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4577	BMED-CG1	-34.0417	148.8185	Y	2016	1	80	0	0	12	0	0	0	0	14	30	34	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4578	BMED-CG1	-34.0417	148.8185	Y	2016	2	60	0	0	14	0	2	0	0	14	14	58	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4579	BMED-S	-34.0452	148.8192	Y	2010	1	10	0	0	76	24	2	0	0	40	4	36	26	2	2		0	0		0		0	0	0
30/03/2017 16:37	4582	BMED-S	-34.0452	148.8192	Y	2012	1	0	0	0	76	4	16	0	0	0	0	12	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4583	BMED-S	-34.0452	148.8192	Y	2012	2	10	0	0	66	2	0	0	0	0	22	12	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4586	BMED-S	-34.0452	148.8192	Y	2014	2	10	0	2	50	0	4	0	0	2	2	54	74	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4587	BMED-S	-34.0452	148.8192	Y	2014	1	0	0	32	76	0	0	0	0	44	0	14	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4590	BMED-S	-34.0452	148.8192	Y	2016	2	80	0	0	34	0	4	0	0	2	8	38	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4591	BMED-S	-34.0452	148.8192	Y	2016	1	100	0	0	22	0	24	0	0	12	2	28	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4592	BNEI-C	-35.3173	149.4956	Y	2010	1	10	0	4	56	4	2	0	0	0	22	24	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4593	BNEI-C	-35.3173	149.4956	Y	2012	2	0	0	12	84	12	2	0	0	0	0	10	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4594	BNEI-C	-35.3173	149.4956	Y	2012	1	0	0	0	90	28	0	0	0	8	2	10	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4595	BNEI-C	-35.3173	149.4956	Y	2014	2	0	0	12	54	4	2	0	0	0	32	12	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4596	BNEI-C	-35.3173	149.4956	Y	2014	1	0	0	4	78	8	0	0	0	0	8	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4597	BNEI-C	-35.3173	149.4956	Y	2016	1	0	0	2	74	2	0	0	0	2	2	58	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4598	BNEI-C	-35.3173	149.4956	Y	2016	2			6	54	2	0	0	0	0	30	30	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4599	BNEI-C	-35.3173	149.4956	Y	2016	2	0	0	6	54	2	0	0	0	0	30	30	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4600	BNEI-S	-35.3149	149.489	Y	2010	1	20	10	4	42	6	10	0	0	0	28	32	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	4601	BNEI-S	-35.3149	149.489	Y	2012	2	20	20	4	90	30	0	0	0	0	4	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4602	BNEI-S	-35.3149	149.489	Y	2012	1	20	0	6	74	16	0	0	0	0	0	14	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4603	BNEI-S	-35.3149	149.489	Y	2014	2	20	20	0	56	10	2	0	0	0	2	46	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4604	BNEI-S	-35.3149	149.489	Y	2014	1	60	0	4	58	8	6	0	0	0	28	14	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4605	BNEI-S	-35.3149	149.489	Y	2016	2	20	10	6	64	0	0	2	0	0	8	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4606	BNEI-S	-35.3149	149.489	Y	2016	1	40	0	10	52	0	0	0	0	2	12	62	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4607	BPOL-C	-35.3946	147.5506	Y	2010	1	40	0	0	36	0	0	0	0	50	10	22	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4608	BPOL-C	-35.3946	147.5506	Y	2012	1	10	0	0	56	0	0	0	0	50	0	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4609	BPOL-C	-35.3946	147.5506	Y	2012	2	50	0	0	18	0	0	0	0	58	18	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4610	BPOL-C	-35.3946	147.5506	Y	2014	1	60	0	0	28	0	0	0	0	58	0	24	0	0	2	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4611	BPOL-C	-35.3946	147.5506	Y	2014	2	60	0	0	8	4	0	0	0	24	4	76	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4612	BPOL-C	-35.3946	147.5506	Y	2016	1	30	0	0	8	2	0	0	0	40	8	60	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4613	BPOL-C	-35.3946	147.5506	Y	2016	2	90	0	0	10	0	0	0	0	0	0	88	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4614	BPOL-S	-35.3955	147.5568	Y	2010	1	50	0	0	34	8	2	0	0	54	0	22	0	0	0		0			0		0	0	0
30/03/2017 16:37	4615	BPOL-S	-35.3955	147.5568	Y	2012	2	40	0	0	56	0	0	0	0	32	10	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4616	BPOL-S	-35.3955	147.5568	Y	2012	1	100	0	0	24	0	0	0	0	56	2	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4617	BPOL-S	-35.3955	147.5568	Y	2014	1	100	0	0	2	0	0	0	0	6	4	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4618	BPOL-S	-35.3955	147.5568	Y	2014	2	60	0	2	36	4	2	0	0	34	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4619	BPOL-S	-35.3955	147.5568	Y	2016	1	90	0	0	0	0	0	0	0	40	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4620	BPOL-S	-35.3955	147.5568	Y	2016	2	100	0	8	20	8	0	0	0	6	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4621	BSPI-C	-34.8474	149.1103	Y	2010	1	0	0	0	96	0	0	0	0	16	12	2	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4622	BSPI-C	-34.8474	149.1103	Y	2012	1	0	0	0	90	6	2	2	0	12	0	0	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4623	BSPI-C	-34.8474	149.1103	Y	2012	2	0	0	0	92	6	4	0	0	18	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4624	BSPI-C	-34.8474	149.1103	Rotated ou	2014	2																							
30/03/2017 16:37	4625	BSPI-C	-34.8474	149.1103	Rotated ou	2014	1																							
30/03/2017 16:37	4626	BSPI-C	-34.8474	149.1103	Y	2016	1	0	0	0	10	0	0	0	0	22	2	98	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4627	BSPI-C	-34.8474	149.1103	Y	2016	2	0	0	0	6	0	0	0	2	8	4	92	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4628	BSPI-S	-34.8553	149.1105	Y	2010	1	10	0	0	90	0	0	0	0	24	16	2	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	4629	BSPI-S	-34.8553	149.1105	Y	2012	2	0	0	0	88	10	0	0	0	4	2	4	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4630	BSPI-S	-34.8553	149.1105	Y	2012	1	0	0	0	76	10	2	14	0	2	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4631	BSPI-S	-34.8553	149.1105	Rotated ou	2014	2																							
30/03/2017 16:37	4632	BSPI-S	-34.8553	149.1105	Rotated ou	2014	1																							
30/03/2017 16:37	4633	BSPI-S	-34.8553	149.1105	Y	2016	1	30	10	0	54	12	0	0	0	2	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4634	BSPI-S	-34.8553	149.1105	Y	2016	2	0	10	0	46	10	0	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4635	BTUR-CG	-34.7609	148.8704	Y	2010	1	70	0	0	52	16	0	0	0	48	2	40	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	4638	BTUR-CG	-34.7609	148.8704	Y	2012	1	50	0	0	46	0	0	22	0	6	0	42	0	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4639	BTUR-CG	-34.7609	148.8704	Y	2012	2	20	0	0	70	2	0	0	0	2	0	6	28	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4642	BTUR-CG	-34.7609	148.8704	Y	2014	1	50	0	0	40	0	0	0	0	46	8	14	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4643	BTUR-CG	-34.7609	148.8704	Y	2014	2	20	0	0	88	0	0	0	0	2	0	30	52	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4646	BTUR-CG	-34.7609	148.8704	Y	2016	2	20	0	0	46	0	0	0	0	4	10	30	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4647	BTUR-CG	-34.7609	148.8704	Y	2016	1	50	0	0	46	0	0	0	0	28	8	26	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4648	BTUR-S	-34.7569	148.8696	Y	2010	1	20	30	0	40	4	2	0	0	76	0	16	2	2	2		0	0		0		0	0	0
30/03/2017 16:37	4651	BTUR-S	-34.7569	148.8696	Y	2012	2	40	10	0	50	4	2	8	4	12	0	30	0	0	0	0	0	0	10	0	0	4	0	0
30/03/2017 16:37	4652	BTUR-S	-34.7569	148.8696	Y	2012	1	50	0	0	40	2	0	8	0	14	0	70	0	0	0	0	0	0	2	0	2	0	0	0
30/03/2017 16:37	4655	BTUR-S	-34.7569	148.8696	Y	2014	2	20	10	0	68	0	0	0	0	28	0	26	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4656	BTUR-S	-34.7569	148.8696	Y	2014	1	100	0	0	30	0	0	0	0	42	6	42	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4659	BTUR-S	-34.7569	148.8696	Y	2016	2	30	10	0	72	0	0	0	2	10	0	32	6	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	4660	BTUR-S	-34.7569	148.8696	Y	2016	1	60	0	0	38	0	0	0	0	12	2	44	18	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4661	BWAT-C	-33.5695	149.6684	Y	2010	1	10	0	0	76	20	0	0	0	38	2	2	2	14	0		0	0		0		0	0	0
30/03/2017 16:37	4662	BWAT-C	-33.5695	149.6684	Y	2012	2	0	0	0	98	20	0	0	0	66	0	22	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4663	BWAT-C	-33.5695	149.6684	Y	2012	1	10	0	0	68	8	2	2	0	72	0	6	0	8	0	0	0	0	0	0	0	0
30/03/2017 16:37	4664	BWAT-C	-33.5695	149.6684	Rotated ou	2014	2																					
30/03/2017 16:37	4665	BWAT-C	-33.5695	149.6684	Rotated ou	2014	1																					
30/03/2017 16:37	4666	BWAT-C	-33.5695	149.6684	Y	2016	2	0	0	0	78	0	20	6	0	14	0	8	2	2	0	0	0	6	0	0	0	0	0
30/03/2017 16:37	4667	BWAT-C	-33.5695	149.6684	Y	2016	1	10	10	0	54	2	16	0	0	4	0	18	12	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4668	BWAT-S	-33.5744	149.6687	Y	2010	1	20	0	0	36	4	0	6	0	58	0	0	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4669	BWAT-S	-33.5744	149.6687	Y	2012	1	40	0	0	30	2	0	30	0	94	0	2	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4670	BWAT-S	-33.5744	149.6687	Y	2012	2	30	0	0	82	18	0	0	0	76	2	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4671	BWAT-S	-33.5744	149.6687	Rotated ou	2014	2																					
30/03/2017 16:37	4672	BWAT-S	-33.5744	149.6687	Rotated ou	2014	1																					
30/03/2017 16:37	4673	BWAT-S	-33.5744	149.6687	Y	2016	2	30	0	0	54	0	0	0	0	10	0	50	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4674	BWAT-S	-33.5744	149.6687	Y	2016	1	30	0	0	32	0	0	0	0	24	4	42	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4675	CBAL-S	-34.6198	148.1421	Y	2010	1	40	0	0	28	0	0	0	0	54	14	46	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4676	CBAL-S	-34.6198	148.1421	Y	2012	2	60	0	0	54	4	0	0	0	28	8	58	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4677	CBAL-S	-34.6198	148.1421	Y	2012	1	90	0	0	8	2	0	0	0	96	0	4	0	2	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	4678	CBAL-S	-34.6198	148.1421	Rotated ou	2014	1																					
30/03/2017 16:37	4679	CBAL-S	-34.6198	148.1421	Rotated ou	2014	2																					
30/03/2017 16:37	4680	CBAL-S	-34.6198	148.1421	No Access	2016	2																					
30/03/2017 16:37	4681	CBAL-S	-34.6198	148.1421	No Access	2016	1																					
30/03/2017 16:37	4682	CBEN-C	-33.7588	148.6154	Y	2010	1	40	10	0	0	0	2	0	0	96	10	10	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4683	CBEN-C	-33.7588	148.6154	Y	2012	2	0	0	0	4	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4684	CBEN-C	-33.7588	148.6154	Y	2012	1	20	0	0	0	0	0	0	0	100	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4685	CBEN-C	-33.7588	148.6154	Y	2014	2	10	10	0	14	0	0	0	0	92	6	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4686	CBEN-C	-33.7588	148.6154	Y	2014	1	40	10	0	0	0	0	0	10	84	4	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4687	CBEN-C	-33.7588	148.6154	Y	2016	2	90	0	0	8	0	0	0	4	14	32	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4688	CBEN-C	-33.7588	148.6154	Y	2016	1	60	0	0	2	0	0	0	0	14	4	82	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4689	CBEN-S	-33.7734	148.6213	Y	2010	1	30	10	0	14	6	0	0	0	92	4	40	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4690	CBEN-S	-33.7734	148.6213	Y	2012	2	10	0	0	36	20	0	0	0	60	8	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4691	CBEN-S	-33.7734	148.6213	Y	2012	1	0	0	0	56	20	0	0	0	58	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4692	CBEN-S	-33.7734	148.6213	Y	2014	2	30	0	0	2	8	0	0	18	70	10	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4693	CBEN-S	-33.7734	148.6213	Y	2014	1	20	10	0	0	12	0	0	30	92	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4694	CBEN-S	-33.7734	148.6213	Y	2016	1	70	0	0	0	2	0	0	0	68	2	40	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4695	CBEN-S	-33.7734	148.6213	Y	2016	2	70	0	0	6	2	0	0	0	50	4	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4696	CHAR-C	-34.9578	148.9525	Y	2010	1	10	0	0	38	0	0	12	0	42	0	10	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4697	CHAR-C	-34.9578	148.9525	Y	2012	1	30	20	0	60	18	0	0	0	48	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4698	CHAR-C	-34.9578	148.9525	Y	2012	2	20	0	0	40	0	0	6	34	82	0	2	0	0	0	0	0	0	0	0	2	0	0	0
30/03/2017 16:37	4699	CHAR-C	-34.9578	148.9525	Y	2014	2	0	0	0	8	0	0	6	0	78	6	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4700	CHAR-C	-34.9578	148.9525	Y	2014	1	0	0	0	22	0	0	6	0	70	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4701	CHAR-C	-34.9578	148.9525	Y	2016	2	40	20	0	48	18	0	0	0	48	6	50	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4702	CHAR-C	-34.9578	148.9525	Y	2016	1	20	0	0	2	16	0	0	0	78	4	44	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4703	CHAR-S	-34.9553	148.9564	Y	2010	1	20	0	0	66	6	0	2	0	4	2	14	0	0	0		0	2		0		0	0	0
30/03/2017 16:37	4704	CHAR-S	-34.9553	148.9564	Y	2012	1	60	10	0	62	0	8	0	0	48	0	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4705	CHAR-S	-34.9553	148.9564	Y	2012	2	20	40	0	86	2	2	0	0	0	2	26	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4706	CHAR-S	-34.9553	148.9564	Y	2014	2	20	10	0	26	6	0	0	0	0	4	42	36	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4707	CHAR-S	-34.9553	148.9564	Y	2014	1	30	0	0	40	12	0	0	0	4	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4708	CHAR-S	-34.9553	148.9564	Y	2016	2	20	20	0	62	0	0	4	0	2	6	72	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4709	CHAR-S	-34.9553	148.9564	Y	2016	1	50	0	0	48	0	0	0	0	46	2	62	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4710	CHEC-CG	-34.9553	148.9564	Unestablisl	2010																								
30/03/2017 16:37	4713	CHEC-CG	-34.9553	148.9564	Y	2012	1	30	0	0	98	36	0	0	0	38	2	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4714	CHEC-CG	-34.9553	148.9564	Y	2012	2	0	0	0	98	0	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4717	CHEC-CG	-34.9553	148.9564	Y	2014	1	30	0	0	68	0	0	0	0	4	6	14	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4718	CHEC-CG	-34.9553	148.9564	Y	2014	2	0	0	0	70	0	0	0	0	2	14	8	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4721	CHEC-CG	-34.9553	148.9564	Y	2016	1	30	0	0	26	0	0	0	0	66	6	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4722	CHEC-CG	-34.9553	148.9564	Y	2016	2	0	0	0	68	0	0	0	0	26	8	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4723	CHEC-S	-34.9553	148.9564	Unestablisl	2010																								
30/03/2017 16:37	4726	CHEC-S	-34.9553	148.9564	Y	2012	1	0	0	0	98	0	0	0	0	42	2	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4727	CHEC-S	-34.9553	148.9564	Y	2012	2	20	0	0	86	60	6	0	0	22	2	12	0	6	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	4730	CHEC-S	-34.9553	148.9564	Y	2014	1	0	0	0	74	2	0	0	0	26	0	16	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4731	CHEC-S	-34.9553	148.9564	Y	2014	2	30	0	0	26	0	0	0	0	30	8	42	28	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4734	CHEC-S	-34.9553	148.9564	Y	2016	1	0	0	0	78	0	6	0	0	16	6	8	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4735	CHEC-S	-34.9553	148.9564	Y	2016	2	20	0	0	46	0	4	0	0	6	0	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4736	CKOM-C	-34.1124	148.8117	Y	2010	1	50	0	0	40	28	0	0	0	32	10	80	26	0	0		0	0		0		0	0	0
30/03/2017 16:37	4737	CKOM-C	-34.1124	148.8117	Y	2012	2	30	0	0	78	20	28	0	0	0	2	24	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4738	CKOM-C	-34.1124	148.8117	Y	2012	1	30	10	0	98	10	12	0	0	0	2	10	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4739	CKOM-C	-34.1124	148.8117	Y	2014	2	20	0	0	58	14	18	0	0	28	0	42	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4740	CKOM-C	-34.1124	148.8117	Y	2014	1	0	30	0	90	10	8	0	0	80	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4741	CKOM-C	-34.1124	148.8117	Y	2016	2			0	82	4	2	0	0	0	6	28	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4742	CKOM-C	-34.1124	148.8117	Y	2016	1	20	20	0	72	0	0	0	0	8	0	28	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4743	CKOM-S	-34.106	148 813	Y	2010	1	80	0	0	58	34	0	0	0	38	14	48	6	0	0		0	0	4	0		0	0	0
30/03/2017 16:37	4744	CKOM-S	-34.106	148 813	Y	2012	2	30	0	0	88	34	24	0	0	0	4	4	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4745	CKOM-S	-34.106	148 813	Y	2012	1	50	10	0	74	22	4	0	0	28	6	28	2	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4746	CKOM-S	-34.106	148 813	Y	2014	1	30	20	0	62	16	8	0	2	62	0	16	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4747	CKOM-S	-34.106	148 813	Y	2014	2	0	0	0	90	58	8	0	0	38	0	2	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4748	CKOM-S	-34.106	148 813	Y	2016	2	20	10	0	64	2	2	0	0	8	8	34	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4749	CLAR-S	-35.4092	149.2072	Y	2010	1	60	20	0	22	28	0	4	0	18	10	24	0	0	10		0	0		0		0	0	0
30/03/2017 16:37	4750	CLAR-S	-35.4092	149.2072	Y	2012	1	40	10	0	86	22	0	0	2	12	0	6	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	4751	CLAR-S	-35.4092	149.2072	Y	2012	2	20	10	0	70	34	2	0	0	40	0	8	0	0	16	0	0	0	0	0	0	0	0
30/03/2017 16:37	4752	CLAR-S	-35.4092	149.2072	Rotated ou	2014	2																					
30/03/2017 16:37	4753	CLAR-S	-35.4092	149.2072	Rotated ou	2014	1																					
30/03/2017 16:37	4754	CLAR-S	-35.4092	149.2072	Y	2016	2	10	10	0	86	16	2	0	0	26	2	16	0	0	12	0	0	0	0	0	0	0	0
30/03/2017 16:37	4755	CLAR-S	-35.4092	149.2072	Y	2016	1	30	10	0	92	2	0	0	0	16	0	12	4	8	4	0	0	0	0	0	0	0	0
30/03/2017 16:37	4756	CLOT-C	-34.6822	146.2813	Y	2010	1	60	40	0	46	20	0	0	0	30	46	50	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	4757	CLOT-C	-34.6822	146.2813	Y	2012	2	0	0	0	68	6	0	0	0	0	4	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4758	CLOT-C	-34.6822	146.2813	Y	2012	1	0	0	0	38	30	0	0	0	0	26	6	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4759	CLOT-C	-34.6822	146.2813	Rotated ou	2014	2																					
30/03/2017 16:37	4760	CLOT-C	-34.6822	146.2813	Rotated ou	2014	1																					
30/03/2017 16:37	4761	CLOT-C	-34.6822	146.2813	Y	2016	1	50	0	0	16	8	2	0	0	0	8	58	32	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4762	CLOT-C	-34.6822	146.2813	Y	2016	2	0	0	0	6	10	0	0	0	2	2	90	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4763	CLOT-S	-34.6791	146.2976	Y	2010	1	40	10	0	48	26	0	0	0	40	32	70	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4764	CLOT-S	-34.6791	146.2976	Y	2012	1	0	0	0	52	0	0	0	0	42	4	42	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4765	CLOT-S	-34.6791	146.2976	Y	2012	2	0	0	0	62	0	0	0	0	38	4	38	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4766	CLOT-S	-34.6791	146.2976	Rotated ou	2014	1																					
30/03/2017 16:37	4767	CLOT-S	-34.6791	146.2976	Rotated ou	2014	2																					
30/03/2017 16:37	4768	CLOT-S	-34.6791	146.2976	Y	2016	1	20	0	0	4	2	0	0	0	14	0	90	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4769	CLOT-S	-34.6791	146.2976	Y	2016	2	10	0	0	24	18	0	0	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4770	CROC-C	-30.3611	150.2908	Y	2010	1	0	0	0	86	12	0	2	0	18	0	8	12	12	0		0	0		0		0	0	0
30/03/2017 16:37	4771	CROC-C	-30.3611	150.2908	Y	2012	2	0	0	2	100	58	2	0	0	54	0	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4772	CROC-C	-30.3611	150.2908	Y	2012	1	0	0	4	94	64	6	2	0	56	0	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4773	CROC-C	-30.3611	150.2908	Ceased	2014	2																					
30/03/2017 16:37	4774	CROC-C	-30.3611	150.2908	Ceased	2014	1																					
30/03/2017 16:37	4775	CROC-C	-30.3611	150.2908	Ceased	2016	2																					
30/03/2017 16:37	4776	CROC-C	-30.3611	150.2908	Ceased	2016	1																					
30/03/2017 16:37	4777	CROC-S	-30.3549	150.2979	Y	2010	1	30	10	0	96	30	0	2	0	4	0	30	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4778	CROC-S	-30.3549	150.2979	Y	2012	2	0	10	0	88	44	4	0	0	68	6	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4779	CROC-S	-30.3549	150.2979	Y	2012	1	20	0	0	90	76	2	10	0	34	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4780	CROC-S	-30.3549	150.2979	Ceased	2014	2																					
30/03/2017 16:37	4781	CROC-S	-30.3549	150.2979	Ceased	2014	1																					
30/03/2017 16:37	4782	CROC-S	-30.3549	150.2979	Ceased	2016	1																					
30/03/2017 16:37	4783	CROC-S	-30.3549	150.2979	Ceased	2016	2																					
30/03/2017 16:37	4784	CTES-C	-28.4583	151.4994	Y	2010	1	10	0	0	48	18	2	0	0	0	38	14	0	24	0		0	0		0		0	0	0
30/03/2017 16:37	4785	CTES-C	-28.4583	151.4994	Y	2012	1	0	10	6	86	2	0	0	0	0	42	58	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4786	CTES-C	-28.4583	151.4994	Y	2012	2	30	0	0	82	14	0	0	0	0	32	68	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4787	CTES-C	-28.4583	151.4994	Y	2014	1	0	0	0	62	20	20	0	0	0	16	0	38	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4788	CTES-C	-28.4583	151.4994	Y	2014	2	30	0	0	62	4	6	0	0	4	6	0	54	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4789	CTES-C	-28.4583	151.4994	Y	2016	1	10	0	6	86	16	0	0	0	2	8	0	24	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4790	CTES-C	-28.4583	151.4994	Y	2016	2	20	0	6	66	16	0	0	0	2	18	8	20	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4791	CTES-S	-28.4506	151.5059	Y	2010	1	0	0	4	62	32	2	0	0	2	46	26	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	4792	CTES-S	-28.4506	151.5059	Y	2012	1	0	0	14	22	0	0	0	0	2	64	36	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4793	CTES-S	-28.4506	151.5059	Y	2012	2	0	0	0	28	0	0	0	0	0	92	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4794	CTES-S	-28.4506	151.5059	Y	2014	1	0	0	4	92	28	8	0	0	0	0	6	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4795	CTES-S	-28.4506	151.5059	Y	2014	2	0	0	4	86	24	6	0	0	8	0	42	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4796	CTES-S	-28.4506	151.5059	Y	2016	1	0	30	4	84	46	0	0	0	6	6	2	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4797	CTES-S	-28.4506	151.5059	Y	2016	2	10	0	8	78	24	0	0	0	8	4	14	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4798	CWHI-S	-35.5357	146.9438	Y	2010	1	40	0	0	20	6	0	0	0	58	2	16	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4799	CWHI-S	-35.5357	146.9438	Y	2012	1	40	0	0	16	0	0	0	0	80	0	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4800	CWHI-S	-35.5357	146.9438	Y	2012	2	0	0	0	68	0	0	0	0	28	0	54	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4801	CWHI-S	-35.5357	146.9438	Rotated ou	2014	1																					
30/03/2017 16:37	4802	CWHI-S	-35.5357	146.9438	Rotated ou	2014	2																					
30/03/2017 16:37	4803	CWHI-S	-35.5357	146.9438	Ceased	2016	2																					
30/03/2017 16:37	4804	CWHI-S	-35.5357	146.9438	Ceased	2016	1																					
30/03/2017 16:37	4805	CWIL-S	-31.2581	149.1814	Y	2010	1	90	0	2	66	16	4	0	0	14	2	76	8	2	0		0	0		0		0	0	0
30/03/2017 16:37	4806	CWIL-S	-31.2581	149.1814	Y	2012	1	60	10	0	100	90	8	0	0	10	0	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4807	CWIL-S	-31.2581	149.1814	Y	2012	2	20	20	0	76	66	8	0	0	2	2	52	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4808	CWIL-S	-31.2581	149.1814	Rotated ou	2014	1																					
30/03/2017 16:37	4809	CWIL-S	-31.2581	149.1814	Rotated ou	2014	2																					
30/03/2017 16:37	4810	CWIL-S	-31.2581	149.1814	Y	2016	1	30	20	4	26	10	0	0	0	0	12	50	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4811	CWIL-S	-31.2581	149.1814	Y	2016	2	20	0	10	8	36	0	0	0	0	44	4	4	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4812	DCHA-C	-35.3436	147.0542	Y	2010	1	40	10	0	20	0	0	0	0	50	12	32	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	4813	DCHA-C	-35.3436	147.0542	Y	2012	2	70	0	0	72	0	0	0	0	20	0	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4814	DCHA-C	-35.3436	147.0542	Y	2012	1	20	0	0	72	2	4	0	0	18	0	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4815	DCHA-C	-35.3436	147.0542	Y	2014	1	70	0	0	10	0	0	0	0	16	16	76	6	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4816	DCHA-C	-35.3436	147.0542	Y	2014	2	60	30	0	14	0	0	0	0	4	2	86	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4817	DCHA-C	-35.3436	147.0542	Y	2016	1	0	30	0	0	0	0	4	28	60		10	0	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4818	DCHA-C	-35.3436	147.0542	Y	2016	2	10	30	2	32	2	0	0	0	0	16	76	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4819	DCHA-S	-35.3435	147.0489	Y	2010	1	30	0	0	26	0	0	0	0	48	16	30	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	4820	DCHA-S	-35.3435	147.0489	Y	2012	1	0	40	0	52	2	0	0	0	24	0	56	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4821	DCHA-S	-35.3435	147.0489	Y	2012	2	10	0	0	82	0	0	0	0	26	0	60	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4822	DCHA-S	-35.3435	147.0489	Y	2014	1	40	10	0	10	0	2	0	0	40	2	94	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4823	DCHA-S	-35.3435	147.0489	Y	2014	2	30	10	0	20	0	0	14	0	32	2	60	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4824	DCHA-S	-35.3435	147.0489	Y	2016	2	20	0	0	0	0	0	0	2	94		0	24	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4825	DCHA-S	-35.3435	147.0489	Y	2016	1	20	20	0	12	0	0	0	0	0	8	84	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4826	DCOL-C	-31.1139	150.6683	Y	2010	1	90	0	0	36	26	0	0	0	0	24	14	4	12	0		0	0		0		0	0	0
30/03/2017 16:37	4827	DCOL-C	-31.1139	150.6683	Y	2012	1	0	0	0	66	34	0	44	0	0	0	14	0	0	0	0	44	0	0	0	0	0	0
30/03/2017 16:37	4828	DCOL-C	-31.1139	150.6683	Y	2012	2	0	0	0	98	46	0	0	0	6	0	4	0	4	0	0	4	0	0	0	0	0	0
30/03/2017 16:37	4829	DCOL-C	-31.1139	150.6683	Ceased	2014	1																					

30/03/2017 16:37	4830	DCOL-C	-31.1139	150.6683	Ceased	2014	2																			
30/03/2017 16:37	4831	DCOL-C	-31.1139	150.6683	Y	2016	2	0	0	0	50	12	2	34	0	0	8	4	2	0	0	0	36	0	0	0	0	0	0	0
30/03/2017 16:37	4832	DCOL-C	-31.1139	150.6683	Y	2016	1	0	0	0	40	6	2	46	0	0	6	14	4	4	0	0	46	0	0	0	0	0	0	0
30/03/2017 16:37	4833	DCOL-S	-31.11	150.6578	Y	2010	1	70	0	0	66	18	0	0	0	22	10	6	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	4834	DCOL-S	-31.11	150.6578	Y	2012	2	0	0	0	80	36	0	12	0	2	2	16	14	0	0	0	12	0	0	0	0	0	0	0
30/03/2017 16:37	4835	DCOL-S	-31.11	150.6578	Y	2012	1	20	0	0	92	44	0	0	0	10	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4836	DCOL-S	-31.11	150.6578	Ceased	2014	1																							
30/03/2017 16:37	4837	DCOL-S	-31.11	150.6578	Ceased	2014	2																							
30/03/2017 16:37	4838	DCOL-S	-31.11	150.6578	Y	2016	1	20	10	0	76	2	0	10	0	0	4	20	6	0	0	0	10	0	0	0	0	0	0	0
30/03/2017 16:37	4839	DCOL-S	-31.11	150.6578	Y	2016	2	20	0	0	70	0	0	2	0	0	16	10	6	0	0	0	2	0	0	0	0	0	0	0
30/03/2017 16:37	4840	DGRE-C	-33.566	149.0441	Y	2010	1	0	0	0	16	4	0	38	0	42	0	0	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4841	DGRE-C	-33.566	149.0441	Y	2012	1	0	0	0	88	2	0	48	0	70	0	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4842	DGRE-C	-33.566	149.0441	Y	2012	2	0	0	0	44	0	0	16	0	96	0	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4843	DGRE-C	-33.566	149.0441	Y	2014	1	0	0	0	2	0	0	8	0	98	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4844	DGRE-C	-33.566	149.0441	Y	2014	2	0	0	0	10	0	0	14	2	96	0	0	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4845	DGRE-C	-33.566	149.0441	Y	2016	1	0	0	0	6	0	0	0	0	4	4	86	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4846	DGRE-C	-33.566	149.0441	Y	2016	2	0	0	0	10	0	0	0	0	4	2	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4847	DGRE-S	-33.564	149.0443	Y	2010	1	0	10	0	6	14	0	24	0	48	0	4	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	4848	DGRE-S	-33.564	149.0443	Y	2012	2	0	0	0	22	0	0	50	0	98	0	0	0	0	0	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	4849	DGRE-S	-33.564	149.0443	Y	2012	1	20	0	0	40	0	0	34	0	88	0	2	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	4850	DGRE-S	-33.564	149.0443	Y	2014	2	0	0	0	6	0	0	10	8	98	0	0	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4851	DGRE-S	-33.564	149.0443	Y	2014	1	10	0	0	6	0	0	16	2	88	0	0	0	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4852	DGRE-S	-33.564	149.0443	Y	2016	1	20	0	0	2	0	0	0	0	2	2	76	0	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4853	DGRE-S	-33.564	149.0443	Y	2016	2	0	0	0	10	0	0	0	0	8	8	70	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4854	DKIT-S	-29.1652	151.2345	Y	2010	1	0	0	2	80	42	2	0	0	0	62	64	0	10	0		0	0		0		0	0	0
30/03/2017 16:37	4855	DKIT-S	-29.1652	151.2345	Y	2012	2	0	0	4	100	42	44	0	0	4	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4856	DKIT-S	-29.1652	151.2345	Y	2012	1	40	0	34	96	4	12	0	0	14	0	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4857	DKIT-S	-29.1652	151.2345	Y	2014	1	50	10	4	82	14	16	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4858	DKIT-S	-29.1652	151.2345	Y	2014	2	0	0	0	48	12	0	0	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4859	DKIT-S	-29.1652	151.2345	Y	2016	1	50	0	0	72	24	24	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4860	DKIT-S	-29.1652	151.2345	Y	2016	2	0	10	0	100	12	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	4861	DMER-C	-34.6195	147.8105	Y	2010	1	10	0	0	36	0	38	0	0	24	22	10	4	6	0		0	0		0		0	0	0
30/03/2017 16:37	4862	DMER-C	-34.6195	147.8105	Y	2012	1	0	0	0	90	12	6	0	0	30	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4863	DMER-C	-34.6195	147.8105	Y	2012	2	40	0	0	28	12	0	0	0	94	0	0	0	0	0	0	0	0	8	0	0	0	0	0
30/03/2017 16:37	4864	DMER-C	-34.6195	147.8105	Y	2014	1	0	0	0	12	0	0	0	0	84	0	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4865	DMER-C	-34.6195	147.8105	Y	2014	2	20	0	0	20	2	0	0	0	88	0	0	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4866	DMER-C	-34.6195	147.8105	Y	2016	1	100	0	0	2	0	0	8	0	28	6	56	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4867	DMER-C	-34.6195	147.8105	Y	2016	2	80	0	0	0	0	0	2	2	22	4	60	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4868	DMER-S	-34.621	147.7951	Y	2010	1	0	0	0	6	4	16	0	0	68	26	0	2	10	0		0	0	8	0		0	0	0
30/03/2017 16:37	4869	DMER-S	-34.621	147.7951	Y	2012	2	0	0	0	88	4	0	0	0	22	10	0	0	2	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	4870	DMER-S	-34.621	147.7951	Y	2012	1	0	0	0	76	4	0	0	0	26	8	0	2	6	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	4871	DMER-S	-34.621	147.7951	Y	2014	2	0	0	0	46	0	0	0	0	52	16	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4872	DMER-S	-34.621	147.7951	Y	2014	1	0	0	0	58	10	0	0	0	38	6	0	0	8	0	0	0	0	8	0	0	0	0	0
30/03/2017 16:37	4873	DMER-S	-34.621	147.7951	Y	2016	2	100	0	0	62	0	0	0	0	12	22	0	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4874	DMER-S	-34.621	147.7951	Y	2016	1	100	0	0	46	2	0	0	0	32	6	0	4	12	0	0	0	0	0	0	6	0	0	0
30/03/2017 16:37	4875	DMET-C	-34.8513	147.9874	Y	2010	1	0	0	2	94	0	0	0	0	76	16	32	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	4876	DMET-C	-34.8513	147.9874	Y	2012	2	10	0	0	64	2	0	0	0	54	4	12	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4877	DMET-C	-34.8513	147.9874	Y	2012	1	10	0	0	88	2	0	2	0	24	0	26	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4878	DMET-C	-34.8513	147.9874	Y	2014	1	0	0	0	50	0	0	0	0	30	18	6	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4879	DMET-C	-34.8513	147.9874	Y	2014	2	20	0	0	36	0	0	2	0	44	16	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4880	DMET-C	-34.8513	147.9874	Y	2016	2	80	0	2	2	0	0	26	22	14	0	0	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4881	DMET-C	-34.8513	147.9874	Y	2016	1	100	0	0	0	0	0	8	24	30	0	0	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4882	DMET-S	-34.8526	147.9991	Y	2010	1	0	0	0	78	0	12	0	0	28	38	70	6	24	0		0	0		0		0	0	0
30/03/2017 16:37	4883	DMET-S	-34.8526	147.9991	Y	2012	2	80	20	0	76	0	0	0	0	6	0	58	8	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4884	DMET-S	-34.8526	147.9991	Y	2012	1	50	10	0	72	40	0	0	0	24	0	42	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4885	DMET-S	-34.8526	147.9991	Y	2014	2	60	30	0	32	0	2	0	0	26	0	26	0	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4886	DMET-S	-34.8526	147.9991	Y	2014	1	30	40	2	20	0	4	0	0	14	22	50	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4887	DMET-S	-34.8526	147.9991	Y	2016	1	40	0	0	12	0	0	0	0	42	4	66	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4888	DMET-S	-34.8526	147.9991	Y	2016	2	40	0	0	26	0	0	0	0	22	6	44	0	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4889	DNAS-C	-33.2679	148.2465	Y	2010	1	10	0	0	20	0	0	14	0	2	36	6	4	18	0		0	0		0		0	0	0
30/03/2017 16:37	4890	DNAS-C	-33.2679	148.2465	Y	2012	2	30	0	0	72	10	2	2	0	10	20	24	0	0	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	4891	DNAS-C	-33.2679	148.2465	Y	2012	1	0	0	0	82	8	0	0	0	24	16	6	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4892	DNAS-C	-33.2679	148.2465	Y	2014	2	40	0	0	36	4	0	0	0	20	20	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4893	DNAS-C	-33.2679	148.2465	Y	2014	1	0	0	0	62	10	0	0	0	12	22	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4894	DNAS-C	-33.2679	148.2465	Y	2016	1	0	0	0	38	0	0	0	0	0	56	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4895	DNAS-C	-33.2679	148.2465	Y	2016	2	50	0	0	22	0	0	0	0	0	28	56	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4896	DNAS-S	-33.2699	148.2425	Y	2010	1	30	20	0	30	0	2	20	0	16	22	0	0	4	0		0	0		0		0	0	0
30/03/2017 16:37	4897	DNAS-S	-33.2699	148.2425	Y	2012	2	0	10	4	96	18	28	10	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4898	DNAS-S	-33.2699	148.2425	Y	2012	1	50	0	0	72	44	16	0	0	20	2	16	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4899	DNAS-S	-33.2699	148.2425	Y	2014	2	0	0	4	58	4	8	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4900	DNAS-S	-33.2699	148.2425	Y	2014	1	60	0	0	36	8	12	0	0	42	2	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4901	DNAS-S	-33.2699	148.2425	Y	2016	1	90	10	0	8	28	0	0	0	12	2	66	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4902	DNAS-S	-33.2699	148.2425	Y	2016	2	0	0	0	32	0	0	10	0	10	0	74	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4903	DNEW-C	-28.6979	151.7271	Y	2010	1	0	0	0	62	10	0	0	0	2	30	26	30	0	0		0	0		0		0	0	0
30/03/2017 16:37	4904	DNEW-C	-28.6979	151.7271	Y	2012	2	10	0	2	96	38	8	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4905	DNEW-C	-28.6979	151.7271	Y	2012	1	60	0	2	90	22	4	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4906	DNEW-C	-28.6979	151.7271	Y	2014	1	10	0	0	96	2	6	0	0	0	0	28	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4907	DNEW-C	-28.6979	151.7271	Y	2014	2	0	0	0	100	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4908	DNEW-C	-28.6979	151.7271	Y	2016	2	0	10	0	70	12	0	0	0	0	2	4	2	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	4909	DNEW-C	-28.6979	151.7271	Y	2016	1	70	0	0	46	6	0	0	0	0	30	74	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4910	DNEW-S	-28.7065	151.7419	Y	2010	1	30	0	0	76	16	0	0	0	0	10	52	6	2	0		0	0		0		0	0	0
30/03/2017 16:37	4911	DNEW-S	-28.7065	151.7419	Y	2012	1	10	0	0	100	36	6	0	0	0	6	94	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4912	DNEW-S	-28.7065	151.7419	Y	2012	2	20	0	6	100	50	2	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4913	DNEW-S	-28.7065	151.7419	Y	2014	1	0	0	0	100	6	2	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4914	DNEW-S	-28.7065	151.7419	Y	2014	2	10	10	0	92	10	0	0	0	0	0	44	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4915	DNEW-S	-28.7065	151.7419	Y	2016	2	50	10	0	66	4	0	0	0	0	4	38	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4916	DNEW-S	-28.7065	151.7419	Y	2016	1	20	0	0	62	18	0	0	0	0	18	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4917	DOSU-C	-35.3709	149.3134	Y	2010	1	50	30	2	46	0	16	0	0	0	10	22	8	0	0		0			0		0	0	0
30/03/2017 16:37	4918	DOSU-C	-35.3709	149.3134	Y	2012	1	20	10	0	52	10	0	0	0	0	6	34	16	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4919	DOSU-C	-35.3709	149.3134	Y	2012	2	20	10	0	80	12	2	0	0	4	0	28	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4920	DOSU-C	-35.3709	149.3134	Y	2014	2	20	0	0	48	2	0	0	0	0	10	46	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4921	DOSU-C	-35.3709	149.3134	Y	2014	1	20	10	0	40	6	0	0	0	0	24	26	2	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4922	DOSU-C	-35.3709	149.3134	Y	2016	2	60	0	0	44	2	0	0	0	16	2	72	10	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4923	DOSU-C	-35.3709	149.3134	Y	2016	1	60	20	0	38	2	0	0	0	4	14	64	16	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4924	DOSU-S	-35.3734	149.3127	Y	2010	1	50	10	0	44	14	0	0	0	0	6	32	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	4925	DOSU-S	-35.3734	149.3127	Y	2012	1	30	0	0	42	20	2	0	0	8	6	32	18	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4926	DOSU-S	-35.3734	149.3127	Y	2012	2	20	20	0	54	16	2	0	2	0	0	38	22	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4927	DOSU-S	-35.3734	149.3127	Y	2014	1	20	0	0	34	4	0	0	0	0	26	34	2	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4928	DOSU-S	-35.3734	149.3127	Y	2014	2	20	10	0	60	8	0	0	0	0	6	46	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4929	DOSU-S	-35.3734	149.3127	Y	2016	1	50	20	0	12	0	0	0	0	0	28	76	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4930	DOSU-S	-35.3734	149.3127	Y	2016	2	40	10	0	52	0	0	0	0	2	0	74	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4931	DREY-CG1	-34.3008	148.1938	Y	2010	1	40	10	0	72	0	0	0	0	66	0	4	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4934	DREY-CG1	-34.3008	148.1938	Y	2012	1	0	0	0	86	0	0	0	0	8	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4935	DREY-CG1	-34.3008	148.1938	Y	2012	2	20	10	0	96	0	0	0	0	4	0	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4938	DREY-CG1	-34.3008	148.1938	Y	2014	2	30	0	0	66	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4939	DREY-CG1	-34.3008	148.1938	Y	2014	1	0	0	0	70	0	0	0	0	30	0	8	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4942	DREY-CG1	-34.3008	148.1938	Y	2016	2	30	10	0	60	0	2	0	0	52	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4943	DREY-CG1	-34.3008	148.1938	Y	2016	1	0	10	0	64	0	0	0	0	24	4	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4944	DREY-S	-34.3064	148.2016	Y	2010	1	50	20	0	62	8	0	0	0	54	2	32	4	4	0		0	0		0		0	0	0
30/03/2017 16:37	4947	DREY-S	-34.3064	148.2016	Y	2012	2	0	0	0	82	4	0	4	4	48	0	2	0	0	0	0	0	0	12	0	0	0	0	0
30/03/2017 16:37	4948	DREY-S	-34.3064	148.2016	Y	2012	1	60	0	0	50	0	0	0	0	50	0	30	0	2	0	0	0	0	8	0	0	0	0	0
30/03/2017 16:37	4951	DREY-S	-34.3064	148.2016	Y	2014	1	10	0	0	60	0	0	0	0	64	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4952	DREY-S	-34.3064	148.2016	Y	2014	2	50	0	0	62	0	0	0	0	76	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4955	DREY-S	-34.3064	148.2016	Y	2016	2	30	0	0	42	0	2	0	2	64	2	12	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4956	DREY-S	-34.3064	148.2016	Y	2016	1	0	0	0	56	0	0	0	0	64	0	4	0	0	0	0	0	0	0	0	10	0	0	0
30/03/2017 16:37	4957	DROT-C	-33.6561	148.9139	Y	2010	1	20	0	0	60	10	0	0	10	4	10	6	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4958	DROT-C	-33.6561	148.9139	Y	2012	1	40	0	0	88	14	0	0	0	28	6	6	0	0	8	0	0	0	12	0	0	0	0	0
30/03/2017 16:37	4959	DROT-C	-33.6561	148.9139	Y	2012	2	0	0	0	78	16	0	0	0	64	0	0	0	0	4	0	0	0	14	0	0	0	0	0
30/03/2017 16:37	4960	DROT-C	-33.6561	148.9139	Y	2014	2	0	0	0	38	2	4	0	4	78	0	0	0	0	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4961	DROT-C	-33.6561	148.9139	Y	2014	1	40	0	0	64	4	0	2	0	26	6	14	0	0	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4962	DROT-C	-33.6561	148.9139	Y	2016	2	0	0	0	4	0	0	0	2	24	2	84	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4963	DROT-C	-33.6561	148.9139	Y	2016	1	50	0	0	22	2	0	0	0	8	18	72	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4964	DROT-S	-33.6672	148.9131	Y	2010	1	30	0	0	70	6	0	4	0	16	0	2	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4965	DROT-S	-33.6672	148.9131	Y	2012	2	30	0	0	92	26	0	12	0	32	0	0	0	0	0	0	0	6	2	0	0	0	0	0
30/03/2017 16:37	4966	DROT-S	-33.6672	148.9131	Y	2012	1	10	0	0	100	26	0	0	0	42	0	0	0	0	0	0	0	0	4	0	0	4	0	0
30/03/2017 16:37	4967	DROT-S	-33.6672	148.9131	Y	2014	2	20	0	0	10	18	8	0	0	80	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4968	DROT-S	-33.6672	148.9131	Y	2014	1	10	20	0	12	6	14	2	2	90	0	0	0	0	0	0	0	0	0	2	0	2	0	0
30/03/2017 16:37	4969	DROT-S	-33.6672	148.9131	Y	2016	2	40	0	0	14	2	0	0	0	32	2	90	0	2	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	4970	DROT-S	-33.6672	148.9131	Y	2016	1	10	50	0	10	0	0	0	0	24	2	86	0	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4971	DSAR-S	-34.5489	148.6363	Y	2010	1	0	0	0	84	0	0	0	0	2	50	88	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4972	DSAR-S	-34.5489	148.6363	Y	2012	1	40	10	0	84	18	0	0	0	12	0	62	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4973	DSAR-S	-34.5489	148.6363	Y	2012	2	60	0	0	54	4	0	0	0	14	2	72	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4974	DSAR-S	-34.5489	148.6363	Rotated ou	2014	2																							
30/03/2017 16:37	4975	DSAR-S	-34.5489	148.6363	Rotated ou	2014	1																							
30/03/2017 16:37	4976	DSAR-S	-34.5489	148.6363	Y	2016	2	10	10	0	32	0	0	0	0	6	16	64	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4977	DSAR-S	-34.5489	148.6363	Y	2016	1	30	30	0	66	0	0	0	0	14	2	62	20	0	0	0	0	0	0	0	2	0	0	0
30/03/2017 16:37	4978	DTOO-C	-35.4259	147.7172	Y	2010	1	0	0	0	64	2	4	0	0	36	0	2	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4979	DTOO-C	-35.4259	147.7172	Y	2012	2	0	0	0	64	0	0	0	0	40	0	58	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4980	DTOO-C	-35.4259	147.7172	Y	2012	1	0	0	0	32	0	0	0	0	56	14	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4981	DTOO-C	-35.4259	147.7172	Y	2014	1	0	0	0	50	0	0	0	0	22	18	4	6	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4982	DTOO-C	-35.4259	147.7172	Y	2014	2	0	0	0	56	4	0	0	0	38	2	2	6	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4983	DTOO-C	-35.4259	147.7172	Y	2016	1	0	10	0	24	0	0	0	0	10	24	46	16	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4984	DTOO-C	-35.4259	147.7172	Y	2016	2	0	0	0	30	2	0	0	2	10	2	56	26	2	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	4985	DTOO-S	-35.4294	147.7176	Y	2010	1	10	0	0	78	10	2	0	0	14	6	2	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	4986	DTOO-S	-35.4294	147.7176	Y	2012	2	0	0	0	100	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4987	DTOO-S	-35.4294	147.7176	Y	2012	1	0	0	0	90	0	0	2	0	18	0	42	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4988	DTOO-S	-35.4294	147.7176	Y	2014	2	0	0	0	64	0	0	0	0	40	0	0	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4989	DTOO-S	-35.4294	147.7176	Y	2014	1	0	0	0	66	0	10	0	0	26	0	4	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4990	DTOO-S	-35.4294	147.7176	Y	2016	1	50	0	0	44	10	0	0	0	10	0	94	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4991	DTOO-S	-35.4294	147.7176	Y	2016	2	0	0	0	36	2	0	0	2	44	2	72	2	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4992	DWAT-C	-35.3041	149.3772	Y	2010	1	20	0	0	62	8	10	2	0	10	8	16	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	4993	DWAT-C	-35.3041	149.3772	Y	2012	2	0	0	0	78	42	4	0	0	16	0	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4994	DWAT-C	-35.3041	149.3772	Y	2012	1	50	10	0	88	36	2	0	0	16	0	4	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4995	DWAT-C	-35.3041	149.3772	Y	2014	2	0	0	0	64	0	2	0	0	20	0	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4996	DWAT-C	-35.3041	149.3772	Y	2014	1	40	0	2	66	0	0	0	0	2	4	28	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4997	DWAT-C	-35.3041	149.3772	Y	2016	1	50	30	4	76	2	0	0	0	6	0	62	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4998	DWAT-C	-35.3041	149.3772	Y	2016	2	0	0	0	92	0	0	4	0	12	2	14	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	4999	DWAT-S	-35.3027	149.3731	Y	2010	1	30	0	2	58	6	2	2	0	0	4	26	0		0		0	0		0		0	0	0

30/03/2017 16:37	5000	DWAT-S	-35.3027	149.3731	Y	2012	2	0	0	0	90	14	4	8	0	4	0	8	0	0								
30/03/2017 16:37	5001	DWAT-S	-35.3027	149.3731	Y	2012	1	40	0	0	100	24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5002	DWAT-S	-35.3027	149.3731	Y	2014	1	30	0	0	98	0	0	2	0	2	0	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5003	DWAT-S	-35.3027	149.3731	Y	2014	2	30	10	0	68	2	0	0	0	2	0	36	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5004	DWAT-S	-35.3027	149.3731	Y	2016	1	70	0	4	58	8	0	0	0	4	0	82	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5005	DWAT-S	-35.3027	149.3731	Y	2016	2	40	0	0	96	6	0	0	0	4	0	30	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5006	DWIL-S	-33.9039	148.8146	Y	2010	1	70	0	0	24	12	0	20	0	8	6	36	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5007	DWIL-S	-33.9039	148.8146	Y	2012	1	10	0	0	88	0	0	8	0	32	2	36	0	0	8	0	0	0	0	0	0	0	0
30/03/2017 16:37	5008	DWIL-S	-33.9039	148.8146	Y	2012	2	60	0	0	66	0	0	10	0	74	0	10	0	0	18	0	0	0	0	0	0	0	0
30/03/2017 16:37	5009	DWIL-S	-33.9039	148.8146	Rotated ou	2014	2																						
30/03/2017 16:37	5010	DWIL-S	-33.9039	148.8146	Rotated ou	2014	1																						
30/03/2017 16:37	5011	DWIL-S	-33.9039	148.8146	Y	2016	1	20	10	0	0	0	0	42	0	46		2	12	2		0	0		18	0	0	0	0	0
30/03/2017 16:37	5012	DWIL-S	-33.9039	148.8146	Y	2016	2	80	10	0	0	0	0	46	2	58		0	54	0		0	0		28	0	0	0	0	0
30/03/2017 16:37	5013	EBUR-C	-32.594	148.4254	Y	2010	1	10	0	0	64	10	0	10	0	4	2	0	8	0	0		0	0		0		0	0	0
30/03/2017 16:37	5014	EBUR-C	-32.594	148.4254	Y	2012	2	0	0	0	90	8	20	0	0	26	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5015	EBUR-C	-32.594	148.4254	Y	2012	1	50	0	0	78	2	0	0	0	38	12	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5016	EBUR-C	-32.594	148.4254	Y	2014	2	0	0	0	42	0	70	0	0	54	0	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5017	EBUR-C	-32.594	148.4254	Y	2014	1	40	0	0	40	0	8	0	0	58	10	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5018	EBUR-C	-32.594	148.4254	Y	2016	2	0	0	0	62	0	6	0	0	0	6	78	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5019	EBUR-C	-32.594	148.4254	Y	2016	1	60	0	0	16	0	0	0	0	0	14	86	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5020	EBUR-S	-32.5898	148.4178	Y	2010	1	20	0	2	38	0	4	18	0	6	10	4	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	5021	EBUR-S	-32.5898	148.4178	Y	2012	2	0	0	2	90	24	14	0	2	12	4	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5022	EBUR-S	-32.5898	148.4178	Y	2012	1	0	0	0	66	54	0	16	0	16	2	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5023	EBUR-S	-32.5898	148.4178	Y	2014	1	0	0	0	82	2	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5024	EBUR-S	-32.5898	148.4178	Y	2014	2	0	0	0	78	6	40	0	0	50	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5025	EBUR-S	-32.5898	148.4178	Y	2016	2	0	0	0	52	2	0	0	2	0	16	78	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5026	EBUR-S	-32.5898	148.4178	Y	2016	1	0	0	0	38	0	6	10	0	2	4	86	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5027	FMAT-LH	-33.5449	148 843	Y	2010	1	30	0	0	48	0	0	0	0	16	30	12	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	5030	FMAT-LH	-33.5449	148 843	Y	2012	2	0	0	14	72	24	2	0	0	16	12	10	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5031	FMAT-LH	-33.5449	148 843	Y	2012	1	50	0	4	84	6	2	0	0	34	8	12	2	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5034	FMAT-LH	-33.5449	148 843	Y	2014	2	0	0	0	32	0	0	0	0	0	30	54	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5035	FMAT-LH	-33.5449	148 843	Y	2014	1	30	0	0	10	0	0	0	0	0	40	52	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5038	FMAT-LH	-33.5449	148 843	Y	2016	2	0	60	0	4	0	0	6	20	50	2	8	0	12		0	0		0	0	0	0	0	0
30/03/2017 16:37	5039	FMAT-LH	-33.5449	148 843	Y	2016	1	30	10	0	0	0	0	14	14	46	2	0	20	4		0	0		0	0	0	0	0	0
30/03/2017 16:37	5040	FMAT-S	-33.5463	148.8484	Y	2010	1	80	0	0	50	6	0	0	0	0	14	62	4	4	0		0	0		0		0	0	0
30/03/2017 16:37	5043	FMAT-S	-33.5463	148.8484	Y	2012	2	70	0	2	80	26	6	0	0	0	14	52	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5044	FMAT-S	-33.5463	148.8484	Y	2012	1	70	0	28	24	10	2	0	0	0	28	78	30	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5047	FMAT-S	-33.5463	148.8484	Y	2014	2	40	0	2	48	0	6	0	0	0	2	78	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5048	FMAT-S	-33.5463	148.8484	Y	2014	1	60	0	8	6	0	0	0	0	0	12	58	30	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5051	FMAT-S	-33.5463	148.8484	Y	2016	1	60	50	0	8	0	0	2	10	78	2	14	28	2		0	0		0	0	0	0	0	0
30/03/2017 16:37	5052	FMAT-S	-33.5463	148.8484	Y	2016	2	60	30	2	2	0	0	30	2	58	2	14	28	2		0	0		0	0	0	0	0	0
30/03/2017 16:37	5053	GARM-C	-34.8574	148.6206	Y	2010	1	30	0	0	18	2	0	32	0	38	10	14	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5054	GARM-C	-34.8574	148.6206	Y	2012	1	60	0	0	40	0	18	0	0	30	2	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5055	GARM-C	-34.8574	148.6206	Y	2012	2	0	0	0	54	6	14	0	0	62	2	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5056	GARM-C	-34.8574	148.6206	Rotated ou	2014	1																						
30/03/2017 16:37	5057	GARM-C	-34.8574	148.6206	Rotated ou	2014	2																						
30/03/2017 16:37	5058	GARM-C	-34.8574	148.6206	Y	2016	1	70	0	0	4	0	8	0	0	74	6	14	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5059	GARM-C	-34.8574	148.6206	Y	2016	2	100	0	0	16	0	8	0	0	60	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5060	GARM-S	-34.8722	148.6505	Y	2010	1	20	0	0	50	6	0	0	0	16	16	18	8	0	0		0	0		0		0	0	0
30/03/2017 16:37	5061	GARM-S	-34.8722	148.6505	Y	2012	2	70	0	0	32	2	4	0	2	44	4	50	0	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	5062	GARM-S	-34.8722	148.6505	Y	2012	1	0	0	0	66	8	4	0	0	50	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5063	GARM-S	-34.8722	148.6505	Rotated ou	2014	1																						
30/03/2017 16:37	5064	GARM-S	-34.8722	148.6505	Rotated ou	2014	2																						
30/03/2017 16:37	5065	GARM-S	-34.8722	148.6505	Y	2016	1	100	0	0	38	0	0	0	0	38	20	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5066	GARM-S	-34.8722	148.6505	Y	2016	2	50	0	0	4	0	6	0	0	78	2	20	0	0	0	0	0	0	0	0	0	6	0	0
30/03/2017 16:37	5067	GDAD-C	-34.7122	149 206	Y	2010	1	10	0	18	72	4	4	0	0	0	6	8	6	2	0		0	0		0		0	0	0
30/03/2017 16:37	5068	GDAD-C	-34.7122	149 206	Y	2012	2	0	0	4	46	2	4	0	0	0	26	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5069	GDAD-C	-34.7122	149 206	Y	2012	1	10	0	4	62	4	2	0	0	0	8	18	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5070	GDAD-C	-34.7122	149 206	Rotated ou	2014	2																						
30/03/2017 16:37	5071	GDAD-C	-34.7122	149 206	Rotated ou	2014	1																						
30/03/2017 16:37	5072	GDAD-C	-34.7122	149 206	Y	2016	1	10	0	40	74	0	6	0	0	0	2	10	10	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5073	GDAD-C	-34.7122	149 206	Y	2016	2	0	0	66	58	4	10	0	0	2	2	2	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5074	GDAD-S	-34.7101	149.2016	Y	2010	1	10	0	2	80	10	0	0	0	12	4	12	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	5075	GDAD-S	-34.7101	149.2016	Y	2012	1	40	0	0	64	0	0	0	0	6	12	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5076	GDAD-S	-34.7101	149.2016	Y	2012	2	0	0	6	66	0	6	0	0	4	12	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5077	GDAD-S	-34.7101	149.2016	Rotated ou	2014	2																						
30/03/2017 16:37	5078	GDAD-S	-34.7101	149.2016	Rotated ou	2014	1																						
30/03/2017 16:37	5079	GDAD-S	-34.7101	149.2016	Y	2016	1	30	10	2	76	0	8	0	0	0	4	34	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5080	GDAD-S	-34.7101	149.2016	Y	2016	2	0	0	0	0	8	0	32	0	12		14	0	28	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5081	GELL-C	-28.6296	151.5117	Y	2010	1	60	0	4	18	8	0	0	0	0	10	66	4	6	0		0	0		0		0	0	0
30/03/2017 16:37	5082	GELL-C	-28.6296	151.5117	Y	2012	2	10	30	2	88	10	4	0	0	2	6	96	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5083	GELL-C	-28.6296	151.5117	Y	2012	1	10	0	6	76	8	4	10	0	2	8	94	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5084	GELL-C	-28.6296	151.5117	Y	2014	2	0	0	26	88	14	6	0	0	0	2	30	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5085	GELL-C	-28.6296	151.5117	Y	2014	1	20	0	12	100	8	8	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5086	GELL-C	-28.6296	151.5117	Y	2016	1	10	10	0	70	26	8	0	0	0	0	14	2	20	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5087	GELL-C	-28.6296	151.5117	Y	2016	2	0	50	2	74	16	14	0	0	0	8	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5088	GELL-S	-28.6275	151.5205	Y	2010	1	30	10	6	42	10	0	0	0	0	22	36	0	20	0		0	0		0		0	0	0
30/03/2017 16:37	5089	GELL-S	-28.6275	151.5205	Y	2012	2	30	0	8	94	18	2	0	0	0	10	92	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5090	GELL-S	-28.6275	151.5205	Y	2012	1	60	0	22	88	22	0	0	0	0	8	88	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	5091	GELL-S	-28.6275	151.5205	Y	2014	2	0	0	12	92	14	8	0	0	0	2	0	12	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5092	GELL-S	-28.6275	151.5205	Y	2014	1	10	0	20	78	18	2	0	0	0	2	18	4	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5093	GELL-S	-28.6275	151.5205	Y	2016	1	40	40	34	68	6	0	0	0	0	4	56	2	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5094	GELL-S	-28.6275	151.5205	Y	2016	2	0	10	8	82	6	0	0	0	2	10	2	10	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5095	GFIT-C	-33.6736	148.9155	Y	2010	1	80	0	0	26	26	0	2	0	14	18	6	4	4	0		0	0		0		0	0	0
30/03/2017 16:37	5096	GFIT-C	-33.6736	148.9155	Y	2012	1	0	0	0	66	20	2	0	0	4	20	46	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5097	GFIT-C	-33.6736	148.9155	Y	2012	2	100	20	0	92	82	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5098	GFIT-C	-33.6736	148.9155	Y	2014	1	10	0	0	46	30	0	0	0	4	20	32	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5099	GFIT-C	-33.6736	148.9155	Y	2014	2	90	0	0	76	50	0	0	0	22	8	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5100	GFIT-C	-33.6736	148.9155	Y	2016	1	40	0	0	4	0	0	0	0	0	48	46	6	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5101	GFIT-C	-33.6736	148.9155	Y	2016	2	100	20	0	12	0	0	0	0	2	24	72	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5102	GFIT-S	-33.675	148.9212	Y	2010	1	80	0	6	44	14	0	0	0	16	4	12	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5103	GFIT-S	-33.675	148.9212	Y	2012	1	60	10	0	94	6	0	0	0	24	2	12	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5104	GFIT-S	-33.675	148.9212	Y	2012	2	30	0	0	58	6	42	0	0	48	4	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5105	GFIT-S	-33.675	148.9212	Y	2014	1	60	0	0	76	0	0	0	0	22	0	40	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5106	GFIT-S	-33.675	148.9212	Y	2014	2	30	10	0	82	14	8	0	0	18	0	26	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5107	GFIT-S	-33.675	148.9212	Y	2016	2	30	10	0	24	0	0	0	0	0	2	84	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5108	GFIT-S	-33.675	148.9212	Y	2016	1	70	0	0	14	0	2	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5109	GHIC-C	-28.0264	152.2063	Y	2010	1	50	0	0	48	48	4	6	0	6	22	18	0	8	0		0	0		0		0	0	0
30/03/2017 16:37	5110	GHIC-C	-28.0264	152.2063	Y	2012	2	50	0	0	80	34	0	10	0	2	6	84	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5111	GHIC-C	-28.0264	152.2063	Y	2012	1	60	10	0	60	50	0	22	0	14	0	90	0	2	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5112	GHIC-C	-28.0264	152.2063	Y	2014	1	40	0	0	92	28	0	2	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5113	GHIC-C	-28.0264	152.2063	Y	2014	2	20	0	0	98	32	0	0	0	0	2	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5114	GHIC-C	-28.0264	152.2063	Y	2016	1	60	0	0	82	50	0	14	0	12	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5115	GHIC-C	-28.0264	152.2063	Y	2016	2	40	0	8	92	38	2	0	0	4	4	28	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5116	GHIC-S	-28.0294	152.2058	Y	2010	1	30	10	0	56	52	8	8	0	6	14	10	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	5117	GHIC-S	-28.0294	152.2058	Y	2012	2	30	10	0	88	66	0	0	4	8	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5118	GHIC-S	-28.0294	152.2058	Y	2012	1	20	0	8	70	74	0	20	8	36	0	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5119	GHIC-S	-28.0294	152.2058	Y	2014	2	20	10	6	98	38	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5120	GHIC-S	-28.0294	152.2058	Y	2014	1	30	20	6	96	38	0	0	4	0	2	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5121	GHIC-S	-28.0294	152.2058	Y	2016	1	20	30	0	60	38	2	14	0	50	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5122	GHIC-S	-28.0294	152.2058	Y	2016	2	40	20	14	98	34	2	0	0	24	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5123	GJOH-LH1	-34.3424	148.7225	Unestablis	2010																								
30/03/2017 16:37	5126	GJOH-LH1	-34.3424	148.7225	Y	2012	1	0	0	0	24	0	0	20	0	46	0	24	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	5127	GJOH-LH1	-34.3424	148.7225	Y	2012	2	0	0	0	60	2	0	26	0	36	0	12	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5130	GJOH-LH1	-34.3424	148.7225	Y	2014	2	0	0	0	60	0	6	0	0	50	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5131	GJOH-LH1	-34.3424	148.7225	Y	2014	1	0	0	0	56	0	0	22	0	38	0	0	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5134	GJOH-LH1	-34.3424	148.7225	Y	2016	2	100	0	0	40	0	4	0	0	20	2	34	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5135	GJOH-LH1	-34.3424	148.7225	Y	2016	1	100	0	0	46	0	0	0	0	30	2	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5136	GJOH-S	-34.3385	148.7223	Y	2010	1	20	0	0	76	4	0	0	0	62	0	4	0	0	4		0	0		0		0	0	0
30/03/2017 16:37	5139	GJOH-S	-34.3385	148.7223	Y	2012	2	30	0	0	42	0	0	34	0	18	0	14	0	0	16	0	0	0	8	0	0	0	0	0
30/03/2017 16:37	5140	GJOH-S	-34.3385	148.7223	Y	2012	1	40	0	0	46	0	0	16	0	28	0	36	0	0	20	0	0	0	0	0	42	0	0	0
30/03/2017 16:37	5143	GJOH-S	-34.3385	148.7223	Y	2014	2	30	0	0	78	0	0	2	0	14	0	12	8	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5144	GJOH-S	-34.3385	148.7223	Y	2014	1	20	0	0	38	0	0	6	0	58	2	8	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5147	GJOH-S	-34.3385	148.7223	Y	2016	2	70	0	0	28	0	8	0	0	24	6	32	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5148	GJOH-S	-34.3385	148.7223	Y	2016	1	80	0	0	26	0	0	0	0	22	6	50	0	0	0	0	0	0	0	0	4	0	0	0
30/03/2017 16:37	5149	GMAS-C	-34.2803	148.7141	Y	2010	1	30	0	0	66	0	12	2	0	10	2	6	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	5150	GMAS-C	-34.2803	148.7141	Y	2012	1	20	0	6	98	12	10	0	0	42	0	32	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5151	GMAS-C	-34.2803	148.7141	Y	2012	2	20	10	6	92	30	8	0	0	12	0	32	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5152	GMAS-C	-34.2803	148.7141	Y	2014	2	0	0	4	80	2	10	0	0	12	10	0	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5153	GMAS-C	-34.2803	148.7141	Y	2014	1	0	0	4	94	6	10	0	0	28	0	2	24	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5154	GMAS-C	-34.2803	148.7141	Y	2016	1	10	10	2	86	0	0	0	0	2	0	12	10	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5155	GMAS-C	-34.2803	148.7141	Y	2016	2	0	30	4	80	0	0	0	0	6	6	34	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5156	GMAS-S	-34.2782	148.7108	Y	2010	1	60	0	0	40	0	4	2	0	10	2	32	2	6	0		0	0		0		0	0	0
30/03/2017 16:37	5157	GMAS-S	-34.2782	148.7108	Y	2012	1	20	0	0	80	2	4	0	0	24	0	8	4	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5158	GMAS-S	-34.2782	148.7108	Y	2012	2	100	0	0	22	10	12	0	0	0	2	82	6	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5159	GMAS-S	-34.2782	148.7108	Y	2014	1	0	0	2	58	0	8	0	0	72	0	4	8	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5160	GMAS-S	-34.2782	148.7108	Y	2014	2	50	0	2	16	38	12	0	0	0	20	48	10	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5161	GMAS-S	-34.2782	148.7108	Y	2016	1	10	0	0	86	0	0	0	0	0	0	18	16	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5162	GMAS-S	-34.2782	148.7108	Y	2016	2	80	0	0	18	4	6	0	0	0	6	70	18	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5163	GNEW-C	-35.454	147.0466	Y	2010	1	50	20	0	14	0	0	0	0	20	38	46	0	8	0		0	0		0		0	0	0
30/03/2017 16:37	5164	GNEW-C	-35.454	147.0466	Y	2012	1	20	0	0	52	0	0	0	0	48	10	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5165	GNEW-C	-35.454	147.0466	Y	2012	2	40	0	0	58	0	0	0	0	10	26	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5166	GNEW-C	-35.454	147.0466	Y	2014	2	50	0	4	44	0	0	0	0	32	4	38	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5167	GNEW-C	-35.454	147.0466	Y	2014	1	20	0	0	46	0	0	0	0	46	10	12	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5168	GNEW-C	-35.454	147.0466	Y	2016	2	0	40	0	4	4	0	0	0	0	34	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5169	GNEW-C	-35.454	147.0466	Y	2016	1	0	10	0	16	10	0	0	0	2	14	68	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5170	GNEW-S	-35.4492	147.0506	Y	2010	1	20	20	0	0	2	0	0	0	66	16	32	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	5171	GNEW-S	-35.4492	147.0506	Y	2012	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5172	GNEW-S	-35.4492	147.0506	Y	2012	2	50	0	0	6	0	0	0	0	72	0	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5173	GNEW-S	-35.4492	147.0506	Y	2014	1	10	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5174	GNEW-S	-35.4492	147.0506	Y	2014	2	50	0	0	22	0	0	0	0	86	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5175	GNEW-S	-35.4492	147.0506	Y	2016	2	70	0	0	4	0	0	0	0	0	2	94	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5176	GNEW-S	-35.4492	147.0506	Y	2016	1	20	0	0	12	0	0	0	0	10	0	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5177	GORR-S	-35.2317	147.8582	Y	2010	1	60	10	0	44	28	8	0	0	0	0	20	0	4	0		8	0		0		0	0	0
30/03/2017 16:37	5178	GORR-S	-35.2317	147.8582	Y	2012	2	50	10	0	68	16	12	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5179	GORR-S	-35.2317	147.8582	Y	2012	1	100	0	0	70	24	4	0	0	6	6	46	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5180	GORR-S	-35.2317	147.8582	Rotated ou	2014	1																							
30/03/2017 16:37	5181	GORR-S	-35.2317	147.8582	Rotated ou	2014	2																							

30/03/2017 16:37	5182	GORR-S	-35.2317	147.8582	Y	2016	1	40	30	0	28	2	8	0	0	10	8	54	48	10	0	0	0	0	0	0	0	0
30/03/2017 16:37	5183	GORR-S	-35.2317	147.8582	Y	2016	2	90	50	0	38	0	4	6	4	6	20	46	28	12	0	0	0	0	0	0	0	0
30/03/2017 16:37	5184	GRID-S	-34.1282	149.1798	Y	2010	1	30	10	0	32	2	0	0	8	0	8	50	28	0	0		0	0		0	8	0	0
30/03/2017 16:37	5187	GRID-S	-34.1282	149.1798	Y	2012	1	10	10	0	66	22	2	6	4	18	14	20	0	0	0	0	0	0	10	0	0	12	0	0
30/03/2017 16:37	5188	GRID-S	-34.1282	149.1798	Y	2012	2	70	20	0	36	6	2	0	0	0	0	82	18	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	5191	GRID-S	-34.1282	149.1798	Y	2014	1	10	10	4	66	8	2	0	4	18	6	30	16	0	0	0	0	0	0	0	0	4	0	0
30/03/2017 16:37	5192	GRID-S	-34.1282	149.1798	Y	2014	2	40	30	8	54	4	2	0	0	0	0	82	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5195	GRID-S	-34.1282	149.1798	Y	2016	1	10	0	0	68	4	0	0	2	26	8	12	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5196	GRID-S	-34.1282	149.1798	Y	2016	2	10	20	10	56	4	0	0	0	0	4	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5197	GRID-SH1	-34.1201	149.1861	Y	2010	1	20	20	0	40	22	2	0	0	0	26	20	12	4	0	0	0	0		0		0	0	0
30/03/2017 16:37	5200	GRID-SH1	-34.1201	149.1861	Y	2012	2	0	0	0	94	18	6	0	0	12	0	6	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5201	GRID-SH1	-34.1201	149.1861	Y	2012	1	0	0	0	78	18	0	2	0	8	2	4	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5204	GRID-SH1	-34.1201	149.1861	Y	2014	1	0	0	0	58	0	0	0	0	14	16	8	44	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5205	GRID-SH1	-34.1201	149.1861	Y	2014	2	0	0	0	50	0	4	0	0	32	2	4	64	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5208	GRID-SH1	-34.1201	149.1861	Y	2016	2	0	0	0	48	0	4	0	0	12	10	2	44	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5209	GRID-SH1	-34.1201	149.1861	Y	2016	1	0	0	0	54	0	0	0	0	20	12	2	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5210	GSYM-C	-31.6945	150.6388	Y	2010	1	20	10	0	58	24	0	0	0	24	12	26	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5211	GSYM-C	-31.6945	150.6388	Y	2012	2	0	0	0	80	8	0	10	0	10	0	2	18	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5212	GSYM-C	-31.6945	150.6388	Y	2012	1	30	0	0	80	12	2	0	0	10	10	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5213	GSYM-C	-31.6945	150.6388	Rotated ou	2014	2																							
30/03/2017 16:37	5214	GSYM-C	-31.6945	150.6388	Rotated ou	2014	1																							
30/03/2017 16:37	5215	GSYM-C	-31.6945	150.6388	Y	2016	2	0	0	0	76	16	6	4	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5216	GSYM-C	-31.6945	150.6388	Y	2016	1	30	20	0	62	10	0	0	0	62	0	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5217	GSYM-S	-31.6887	150.638	Y	2010	1	60	10	0	66	180	0	0	0	2	2	62	2	8	0		0	0		0		0	0	0
30/03/2017 16:37	5218	GSYM-S	-31.6887	150.638	Y	2012	1	10	0	0	94	20	0	0	0	16	0	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5219	GSYM-S	-31.6887	150.638	Y	2012	2	10	20	0	80	22	0	0	0	0	0	24	2	24	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5220	GSYM-S	-31.6887	150.638	Rotated ou	2014	2																							
30/03/2017 16:37	5221	GSYM-S	-31.6887	150.638	Rotated ou	2014	1																							
30/03/2017 16:37	5222	GSYM-S	-31.6887	150.638	Y	2016	1	0	0	0	90	10	0	0	2	16	0	32	0	0	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5223	GSYM-S	-31.6887	150.638	Y	2016	2	0	40	0	76	30	0	0	0	12	0	20	6	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5224	HDEJ-S	-35.5306	147.8058	Y	2010	1	90	0	0	52	46	0	0	6	40	2	92	10	0	18		0	0		0		6	0	0
30/03/2017 16:37	5225	HDEJ-S	-35.5306	147.8058	Y	2012	2	70	0	0	70	10	2	0	0	26	4	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5226	HDEJ-S	-35.5306	147.8058	Y	2012	1	90	0	0	72	2	0	0	2	14	0	10	0	0	6	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	5227	HDEJ-S	-35.5306	147.8058	Rotated ou	2014	2																							
30/03/2017 16:37	5228	HDEJ-S	-35.5306	147.8058	Rotated ou	2014	1																							
30/03/2017 16:37	5229	HDEJ-S	-35.5306	147.8058	Y	2016	2	50	10	0	36	14	2	0	0	0	0	94	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5230	HDEJ-S	-35.5306	147.8058	Y	2016	1	70	0	2	48	6	0	0	0	6	2	88	0	0	4	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5231	HNIC-S	-35.7735	149.1398	Y	2010	1	20	0	0	62	2	0	84	0	2	8	12	0	4	0		0	0		0		0	0	84
30/03/2017 16:37	5232	HNIC-S	-35.7735	149.1398	Y	2012	2	10	0	0	34	20	0	44	0	2	0	14	0	18	0	0	0	0	0	0	0	0	0	46
30/03/2017 16:37	5233	HNIC-S	-35.7735	149.1398	Y	2012	1	0	0	0	50	42	2	36	0	16	0	2	6	4	0	0	0	0	0	0	0	0	0	38
30/03/2017 16:37	5234	HNIC-S	-35.7735	149.1398	Y	2014	2	0	0	0	30	4	4	38	0	4	0	2	4	18	0	0	0	0	0	0	0	0	0	36
30/03/2017 16:37	5235	HNIC-S	-35.7735	149.1398	Y	2014	1	0	0	0	58	12	0	12	0	12	0	10	4	2	0	0	0	0	0	0	0	0	0	12
30/03/2017 16:37	5236	HNIC-S	-35.7735	149.1398	Y	2016	2	30	0	0	32	2	0	34	0	0	0	44	24	16	0	0	0	0	0	0	0	0	0	36
30/03/2017 16:37	5237	HNIC-S	-35.7735	149.1398	Y	2016	1	10	0	0	40	0	0	30	0	0	2	56	56	2	0	0	0	0	0	0	0	0	0	30
30/03/2017 16:37	5238	ICUR-C	-33.2326	148.9162	Y	2010	1	0	0	0	74	0	0	6	0	26	2	18	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	5239	ICUR-C	-33.2326	148.9162	Y	2012	1	40	0	0	34	4	0	18	0	50	0	4	0	0	0	0	0	0	0	18	0	0	0	0
30/03/2017 16:37	5240	ICUR-C	-33.2326	148.9162	Y	2012	2	0	0	0	98	2	2	0	0	16	0	2	2	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5241	ICUR-C	-33.2326	148.9162	Ceased	2014	1																							
30/03/2017 16:37	5242	ICUR-C	-33.2326	148.9162	Ceased	2014	2																							
30/03/2017 16:37	5243	ICUR-C	-33.2326	148.9162	Ceased	2016	2																							
30/03/2017 16:37	5244	ICUR-C	-33.2326	148.9162	Ceased	2016	1																							
30/03/2017 16:37	5245	ICUR-S	-33.233	148.9138	Y	2010	1	0	0	0	90	4	0	0	0	10	2	0	0	18	0		0	0		0		0	0	0
30/03/2017 16:37	5246	ICUR-S	-33.233	148.9138	Y	2012	1	40	0	0	86	10	0	14	0	16	0	4	16	8	0	0	0	0	0	14	0	0	0	0
30/03/2017 16:37	5247	ICUR-S	-33.233	148.9138	Y	2012	2	0	0	0	16	0	0	54	0	38	0	0	0	0	0	0	0	0	0	54	0	0	0	0
30/03/2017 16:37	5248	ICUR-S	-33.233	148.9138	Ceased	2014	1																							
30/03/2017 16:37	5249	ICUR-S	-33.233	148.9138	Ceased	2014	2																							
30/03/2017 16:37	5250	ICUR-S	-33.233	148.9138	Ceased	2016	1																							
30/03/2017 16:37	5251	ICUR-S	-33.233	148.9138	Ceased	2016	2																							
30/03/2017 16:37	5252	JANG-C	-34.4516	147.9463	Y	2010	1	40	0	0	10	0	0	0	0	18	20	34	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5253	JANG-C	-34.4516	147.9463	Y	2012	2	80	0	0	20	2	12	0	0	64	0	34	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5254	JANG-C	-34.4516	147.9463	Y	2012	1	60	0	0	16	4	0	0	0	68	6	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5255	JANG-C	-34.4516	147.9463	Y	2014	2	60	0	0	6	0	0	0	0	66	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5256	JANG-C	-34.4516	147.9463	Y	2014	1	50	0	0	46	2	0	0	0	20	28	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5257	JANG-C	-34.4516	147.9463	Y	2016	1	50	0	0	6	4	0	0	0	28	10	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5258	JANG-C	-34.4516	147.9463	Y	2016	2	30	0	0	0	0	0	2	0	42	0	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5259	JANG-S	-34.4425	147.9474	Y	2010	1	40	0	0	72	2	6	0	0	14	2	4	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5260	JANG-S	-34.4425	147.9474	Y	2012	1	70	0	0	40	24	8	0	0	30	0	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5261	JANG-S	-34.4425	147.9474	Y	2012	2	100	0	0	34	40	0	0	0	50	0	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5262	JANG-S	-34.4425	147.9474	Y	2014	1	60	10	0	22	18	6	0	0	42	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5263	JANG-S	-34.4425	147.9474	Y	2014	2	70	0	0	24	22	0	0	0	34	0	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5264	JANG-S	-34.4425	147.9474	Y	2016	1	20	0	0	16	4	0	0	0	38	0	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5265	JANG-S	-34.4425	147.9474	Y	2016	2	10	0	0	14	6	2	0	0	62	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5266	JBRA-C	-34.983	148.8581	Y	2010	1	20	40	0	78	8	6	0	0	34	0	2	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5267	JBRA-C	-34.983	148.8581	Y	2012	1	50	30	0	70	24	0	0	0	18	4	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5268	JBRA-C	-34.983	148.8581	Y	2012	2	30	40	0	76	30	0	2	0	12	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5269	JBRA-C	-34.983	148.8581	Y	2014	1	50	30	0	72	4	0	0	0	8	2	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5270	JBRA-C	-34.983	148.8581	Y	2014	2	20	50	0	54	4	2	0	0	8	0	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5271	JBRA-C	-34.983	148.8581	Y	2016	1	40	0	0	12	0	2	0	0	52	4	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5272	JBRA-C	-34.983	148.8581	Y	2016	2	60	0	0	30	0	4	0	0	36	2	38	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	5273	JBRA-S	-34.9856	148.8574	Y	2010	1	20	40	2	68	8	6	0	0	10	4	12	4	6	0		0	0		0		0	0	0
30/03/2017 16:37	5274	JBRA-S	-34.9856	148.8574	Y	2012	2	10	30	4	86	10	2	0	0	6	6	8	12	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5275	JBRA-S	-34.9856	148.8574	Y	2012	1	40	50	0	68	38	2	8	0	6	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5276	JBRA-S	-34.9856	148.8574	Y	2014	1	40	30	0	64	18	0	0	0	16	0	28	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5277	JBRA-S	-34.9856	148.8574	Y	2014	2	0	60	0	58	4	4	0	0	8	6	22	2	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5278	JBRA-S	-34.9856	148.8574	Y	2016	2	100	0	0	14	0	6	0	0	14	6	54	12	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5279	JBRA-S	-34.9856	148.8574	Y	2016	1	70	0	0	16	0	0	2	0	50	6	46	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5280	JCOE-S	-34.961	147.9073	Unestablisl	2010																								
30/03/2017 16:37	5283	JCOE-S	-34.961	147.9073	Y	2012	1	20	0	0	60	2	0	0	0	6	18	30	24	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5284	JCOE-S	-34.961	147.9073	Y	2012	2	30	0	4	62	4	0	0	0	0	6	36	14	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5287	JCOE-S	-34.961	147.9073	Y	2014	2	0	30	0	68	0	0	0	0	0	0	44	28	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5288	JCOE-S	-34.961	147.9073	Y	2014	1	0	0	0	50	2	0	0	0	46	12	18	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5291	JCOE-S	-34.961	147.9073	Y	2016	2	100	0	0	36	0	0	0	0	6	12	36	12	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5292	JCOE-S	-34.961	147.9073	Y	2016	1	100	0	0	34	2	0	0	0	24	26	4	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5293	JCOE-SH1	-34.9652	147.8835	Unestablisl	2010																								
30/03/2017 16:37	5296	JCOE-SH1	-34.9652	147.8835	Y	2012	1	10	0	0	58	18	0	0	2	44	2	14	8	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5297	JCOE-SH1	-34.9652	147.8835	Y	2012	2	10	0	0	46	26	0	0	2	54	0	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5300	JCOE-SH1	-34.9652	147.8835	Y	2014	2	0	0	0	10	10	0	0	0	98	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5301	JCOE-SH1	-34.9652	147.8835	Y	2014	1	0	0	0	4	10	0	0	0	78	4	8	16	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5304	JCOE-SH1	-34.9652	147.8835	Y	2016	2	100	0	0	30	14	0	0	0	48	2	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5305	JCOE-SH1	-34.9652	147.8835	Y	2016	1	100	0	0	18	16	0	0	0	46	2	12	2	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5306	JDOB-S	-35.7808	149.1451	Y	2010	1	20	0	0	46	4	0	2	0	8	6	22	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	5307	JDOB-S	-35.7808	149.1451	Y	2012	1	20	10	0	62	2	0	10	0	62	0	0	0	0	24	0	0	0	0	0	0	0	0	4
30/03/2017 16:37	5308	JDOB-S	-35.7808	149.1451	Y	2012	2	60	0	8	38	26	2	0	0	4	10	22	2	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5309	JDOB-S	-35.7808	149.1451	Y	2014	2	50	0	0	36	2	6	0	0	2	16	32	0	8	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5310	JDOB-S	-35.7808	149.1451	Y	2014	1	10	0	0	42	4	0	12	0	30	4	36	2	0	46	0	0	0	0	0	0	0	0	8
30/03/2017 16:37	5311	JDOB-S	-35.7808	149.1451	Y	2016	1	40	20	0	50	0	0	26	0	20	6	32	10	0	0	0	0	0	0	0	0	0	0	4
30/03/2017 16:37	5312	JDOB-S	-35.7808	149.1451	Y	2016	2	80	40	4	50	4	0	0	0	2	4	60	10	8	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5313	JDUF-S	-33.5345	147.6509	Y	2010	1	70	0	0	22	44	0	4	0	0	0	30	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5314	JDUF-S	-33.5345	147.6509	Y	2012	2	20	10	0	20	4	2	0	0	16	6	76	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5315	JDUF-S	-33.5345	147.6509	Y	2012	1	40	0	0	42	44	0	0	0	36	0	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5316	JDUF-S	-33.5345	147.6509	Rotated ou	2014	1																							
30/03/2017 16:37	5317	JDUF-S	-33.5345	147.6509	Rotated ou	2014	2																							
30/03/2017 16:37	5318	JDUF-S	-33.5345	147.6509	Y	2016	1	100	0	0	6	4	0	0	0	0	14	80	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5319	JDUF-S	-33.5345	147.6509	Y	2016	2	60	0	0	12	0	0	0	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5320	JDWY-S	-33.3763	148.4957	Y	2010	1	10	0	2	4	42	0	14	0	10	16	12	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5321	JDWY-S	-33.3763	148.4957	Y	2012	2	0	0	12	32	14	0	12	0	52	0	6	0	0	0	0	0	0	0	12	0	0	0	0
30/03/2017 16:37	5322	JDWY-S	-33.3763	148.4957	Y	2012	1	0	0	0	68	22	0	10	0	80	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5323	JDWY-S	-33.3763	148.4957	Y	2014	2	0	0	0	20	22	2	0	0	56	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5324	JDWY-S	-33.3763	148.4957	Y	2014	1	0	0	0	36	30	0	2	0	52	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5325	JDWY-S	-33.3763	148.4957	Ceased	2016	2																							
30/03/2017 16:37	5326	JDWY-S	-33.3763	148.4957	Ceased	2016	1																							
30/03/2017 16:37	5327	JGAY-C	-34.1908	148.9083	Y	2010	1	70	0	0	14	0	0	0	0	28	24	82	18	0	0		0	0		0		0	0	0
30/03/2017 16:37	5328	JGAY-C	-34.1908	148.9083	Y	2012	1	50	0	0	56	0	0	26	0	74	0	54	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5329	JGAY-C	-34.1908	148.9083	Y	2012	2	0	0	0	56	0	0	0	0	4	22	50	56	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5330	JGAY-C	-34.1908	148.9083	Rotated ou	2014	2																							
30/03/2017 16:37	5331	JGAY-C	-34.1908	148.9083	Rotated ou	2014	1																							
30/03/2017 16:37	5332	JGAY-C	-34.1908	148.9083	Y	2016	2	10	30	0	8	0	0	0	0	0	58	30	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5333	JGAY-C	-34.1908	148.9083	Y	2016	1	90	10	0	12	0	0	0	0	0	6	88	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5334	JGAY-S	-34.1878	148.9125	Y	2010	1	60	0	0	16	4	0	0	0	72	24	74	24	0	0		0	0		0		0	0	0
30/03/2017 16:37	5335	JGAY-S	-34.1878	148.9125	Y	2012	1	30	0	0	60	10	0	6	0	24	2	70	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5336	JGAY-S	-34.1878	148.9125	Y	2012	2	40	10	0	36	2	4	14	0	24	4	76	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5337	JGAY-S	-34.1878	148.9125	Rotated ou	2014	1																							
30/03/2017 16:37	5338	JGAY-S	-34.1878	148.9125	Rotated ou	2014	2																							
30/03/2017 16:37	5339	JGAY-S	-34.1878	148.9125	Y	2016	2	80	10	0	10	0	0	0	0	0	8	80	10	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5340	JGAY-S	-34.1878	148.9125	Y	2016	1	40	10	2	26	0	0	0	0	4	52	18	18	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5341	JHAR-S	-34.3093	148.4046	Y	2010	1	10	10	0	26	4	0	0	0	68	2	4	4	2	0		0	0		0		0	0	0
30/03/2017 16:37	5342	JHAR-S	-34.3093	148.4046	Y	2012	2	0	0	0	56	0	0	2	14	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5343	JHAR-S	-34.3093	148.4046	Y	2012	1	0	0	0	90	0	2	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5344	JHAR-S	-34.3093	148.4046	Rotated ou	2014	1																							
30/03/2017 16:37	5345	JHAR-S	-34.3093	148.4046	Rotated ou	2014	2																							
30/03/2017 16:37	5346	JHAR-S	-34.3093	148.4046	Y	2016	1	20	0	0	44	2	0	0	0	2	14	80	10	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5347	JHAR-S	-34.3093	148.4046	Y	2016	2	0	0	0	64	0	0	0	0	34	0	78	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5348	JHUN-S	-35.8635	149.1237	Y	2010	1	0	40	2	10	8	2	52	0	2	12	36	16	6	0		0	50		0		0	0	0
30/03/2017 16:37	5349	JHUN-S	-35.8635	149.1237	Y	2012	2	20	10	0	42	42	6	0	0	24	6	8	10	2	20	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5350	JHUN-S	-35.8635	149.1237	Y	2012	1	30	20	10	32	18	0	22	0	14	2	36	12	2	8	0	0	22	0	0	0	0	0	0
30/03/2017 16:37	5351	JHUN-S	-35.8635	149.1237	Rotated ou	2014	2																							
30/03/2017 16:37	5352	JHUN-S	-35.8635	149.1237	Rotated ou	2014	1																							
30/03/2017 16:37	5353	JHUN-S	-35.8635	149.1237	Ceased	2016	2																							
30/03/2017 16:37	5354	JHUN-S	-35.8635	149.1237	Ceased	2016	1																							
30/03/2017 16:37	5355	JKER-C	-32.6527	148.4879	Y	2010	1	70	0	2	46	0	0	0	0	0	18	76	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	5356	JKER-C	-32.6527	148.4879	Y	2012	1	100	0	0	24	4	8	0	0	0	4	72	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5357	JKER-C	-32.6527	148.4879	Y	2012	2	100	70	0	36	4	0	0	0	0	6	78	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5358	JKER-C	-32.6527	148.4879	Y	2014	2	50	10	0	62	8	0	0	0	0	2	74	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5359	JKER-C	-32.6527	148.4879	Y	2014	1	90	0	0	42	18	16	0	0	0	4	66	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5360	JKER-C	-32.6527	148.4879	Y	2016	1	100	20	0	36	0	0	0	0	0	8	84	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5361	JKER-C	-32.6527	148.4879	Y	2016	2	90	60	0	50	0	0	0	0	0	12	82	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5362	JKER-S	-32.6553	148.4939	Y	2010	1	100	0	0	44	10	0	0	0	0	12	74	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5363	JKER-S	-32.6553	148.4939	Y	2012	1	100	0	0	32	18	12	0	0	2	0	52	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	5364	JKER-S	-32.6553	148.4939	Y	2012	2	80	10	0	24	22	0	0	0	2	0	74	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5365	JKER-S	-32.6553	148.4939	Y	2014	1	50	10	6	40	44	12	0	0	22	0	46	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5366	JKER-S	-32.6553	148.4939	Y	2014	2	50	10	0	50	2	0	0	0	18	0	68	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5367	JKER-S	-32.6553	148.4939	Y	2016	2	80	0	0	42	4	2	0	0	0	8	74	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5368	JKER-S	-32.6553	148.4939	Y	2016	1	50	40	0	24	8	12	0	2	0	10	58	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5369	JLUC-C	-29.4869	151.1497	Y	2010	1	0	0	0	90	0	0	0	0	0	58	98	0	0	0		0	0		0		0	0
30/03/2017 16:37	5370	JLUC-C	-29.4869	151.1497	Y	2012	2	40	0	0	100	48	0	2	2	28	0	40	0	0	0	0	0	0	4	0	0	0	0
30/03/2017 16:37	5371	JLUC-C	-29.4869	151.1497	Y	2012	1	20	10	4	98	22	0	2	0	6	0	58	0	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	5372	JLUC-C	-29.4869	151.1497	Y	2014	2	40	0	2	88	20	0	0	2	6	0	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5373	JLUC-C	-29.4869	151.1497	Y	2014	1	10	10	0	80	16	0	0	0	6	0	40	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5374	JLUC-C	-29.4869	151.1497	Y	2016	2	30	10	0	82	4	0	0	0	58	0	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5375	JLUC-C	-29.4869	151.1497	Y	2016	1	10	10	0	94	0	0	0	0	6	0	40	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5376	JLUC-S	-29.484	151.158	Y	2010	1	0	0	0	90	0	0	0	0	0	52	92	0	4	0		0	0		0		0	0
30/03/2017 16:37	5377	JLUC-S	-29.484	151.158	Y	2012	2	0	0	0	84	44	0	26	0	76	0	4	0	0	0	0	10	0	16	0	0	0	0
30/03/2017 16:37	5378	JLUC-S	-29.484	151.158	Y	2012	1	30	0	0	66	56	2	34	0	42	0	16	0	0	0	0	24	0	0	0	0	0	0
30/03/2017 16:37	5379	JLUC-S	-29.484	151.158	Y	2014	2	0	0	2	76	36	0	0	2	2	2	38	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5380	JLUC-S	-29.484	151.158	Y	2014	1	50	0	6	48	14	0	0	4	10	4	54	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5381	JLUC-S	-29.484	151.158	Y	2016	1	50	10	6	68	20	4	0	0	6	2	54	0	0	0	0	0	0	4	0	0	0	0
30/03/2017 16:37	5382	JLUC-S	-29.484	151.158	Y	2016	2	0	10	2	88	34	6	6	0	22	0	22	0	2	0	0	6	0	0	0	0	0	0
30/03/2017 16:37	5383	JMAC-S	-33.2581	148.5035	Y	2010	1	30	0	0	18	14	48	0	0	42	12	40	0	0	0		0	0		0		0	0
30/03/2017 16:37	5384	JMAC-S	-33.2581	148.5035	Y	2012	2	0	0	0	32	10	2	8	0	84	0	30	0	0	0	0	0	2	2	6	0	0	0
30/03/2017 16:37	5385	JMAC-S	-33.2581	148.5035	Y	2012	1	30	0	0	56	0	0	16	0	60	0	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5386	JMAC-S	-33.2581	148.5035	Y	2014	1	40	10	0	30	14	0	0	0	34	0	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5387	JMAC-S	-33.2581	148.5035	Y	2014	2	0	0	0	44	28	0	0	0	20	10	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5388	JMAC-S	-33.2581	148.5035	Y	2016	2	0	0	0	6	0	0	8	4	68		0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5389	JMAC-S	-33.2581	148.5035	Y	2016	1	30	0	0	0	2	0	12	22	58		0	10	8	0	2	0	0	0	0	0	0	0
30/03/2017 16:37	5390	JMCG-CG1	-34.5451	148.7736	Y	2010	1	50	0	14	56	0	0	0	0	6	4	8	0	0	0		0	0		0		0	0
30/03/2017 16:37	5393	JMCG-CG1	-34.5451	148.7736	Y	2012	1	40	0	4	58	12	0	0	0	0	4	48	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5394	JMCG-CG1	-34.5451	148.7736	Y	2012	2	0	0	0	98	4	10	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5397	JMCG-CG1	-34.5451	148.7736	Y	2014	1	10	10	2	70	8	16	2	0	0	0	42	28	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5398	JMCG-CG1	-34.5451	148.7736	Y	2014	2	0	0	2	88	2	18	0	0	34	0	4	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5401	JMCG-CG1	-34.5451	148.7736	Y	2016	2	0	0	12	2	0	0	0	12	4	2	14	0	20		0	0		0	0	0	0	0
30/03/2017 16:37	5402	JMCG-CG1	-34.5451	148.7736	Y	2016	1	20	0	2	0	2	0	0	8	40	0	12	12	6		0	0		0	0	0	0	0
30/03/2017 16:37	5403	JMCG-S	-34.545	148.7812	Y	2010	1	50	0	12	8	2	0	0	0	0	2	26	48	0	0		0	0		0		0	0
30/03/2017 16:37	5406	JMCG-S	-34.545	148.7812	Y	2012	1	40	0	8	26	0	0	0	0	0	12	76	52	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5407	JMCG-S	-34.545	148.7812	Y	2012	2	20	0	4	18	0	4	0	0	0	16	66	24	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5410	JMCG-S	-34.545	148.7812	Y	2014	2	30	0	14	16	0	2	0	0	0	6	64	42	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5411	JMCG-S	-34.545	148.7812	Y	2014	1	10	0	12	22	6	0	0	0	2	2	76	44	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5414	JMCG-S	-34.545	148.7812	Y	2016	2	30	0	2	0	0	0	0	0	0	8	76	34	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5415	JMCG-S	-34.545	148.7812	Y	2016	1	30	0	10	10	0	0	0	0	0	0	58	50	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5416	JMEA-C	-35.777	149.1584	Y	2010	1	0	0	0	36	0	0	30	2	30	0	0	0	0	0		0	0		0		0	0
30/03/2017 16:37	5417	JMEA-C	-35.777	149.1584	Y	2012	1	0	0	0	8	0	0	96	0	18	0	0	0	0	0	0	0	0	0	0	0	0	16
30/03/2017 16:37	5418	JMEA-C	-35.777	149.1584	Y	2012	2	0	0	0	42	0	0	72	0	30	0	0	0	0	0	0	0	0	0	0	0	0	16
30/03/2017 16:37	5419	JMEA-C	-35.777	149.1584	Y	2014	1	0	0	0	8	0	0	92	0	14	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5420	JMEA-C	-35.777	149.1584	Y	2014	2	0	0	0	12	2	0	84	0	26	0	0	0	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5421	JMEA-C	-35.777	149.1584	Y	2016	1	0	0	0	0	0	0	72	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5422	JMEA-C	-35.777	149.1584	Y	2016	2	0	0	0	12	2	0	34	0	72	0	0	0	0	0	0	0	0	0	0	0	0	4
30/03/2017 16:37	5423	JMEA-S	-35.7801	149.1535	Y	2010	1	0	0	0	54	0	2	20	0	18	4	4	0	2	0		0	0		0		0	10
30/03/2017 16:37	5424	JMEA-S	-35.7801	149.1535	Y	2012	1	10	0	0	80	16	0	0	0	10	6	14	2	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5425	JMEA-S	-35.7801	149.1535	Y	2012	2	0	0	0	74	30	2	18	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5426	JMEA-S	-35.7801	149.1535	Y	2014	2	0	0	0	38	42	2	0	0	10	2	18	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5427	JMEA-S	-35.7801	149.1535	Y	2014	1	10	0	0	62	30	0	2	0	12	4	6	0	4	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5428	JMEA-S	-35.7801	149.1535	Y	2016	1	50	0	0	64	8	0	0	0	18	6	28	20	2	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5429	JMEA-S	-35.7801	149.1535	Y	2016	2	0	0	0	32	4	0	4	0	44	8	12	10	2	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5430	JMOO-S	-30.5635	151.0245	Y	2010	1	0	0	2	98	10	0	0	0	0	26	54	0	6	0		0	0		0		0	0
30/03/2017 16:37	5431	JMOO-S	-30.5635	151.0245	Y	2012	2	0	0	0	92	80	10	0	0	16	0	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5432	JMOO-S	-30.5635	151.0245	Y	2012	1	20	0	6	100	68	8	0	0	32	0	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5433	JMOO-S	-30.5635	151.0245	Rotated ou	2014	2																						
30/03/2017 16:37	5434	JMOO-S	-30.5635	151.0245	Rotated ou	2014	1																						
30/03/2017 16:37	5435	JMOO-S	-30.5635	151.0245	Y	2016	2	0	0	6	94	10	18	0	0	2	4	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5436	JMOO-S	-30.5635	151.0245	Y	2016	1	30	0	8	92	28	12	2	0	16	0	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5437	JPET-C	-34.6666	148.4075	Y	2010	1	20	0	0	44	0	0	26	0	10	8	0	0	8	0		0	0		0		0	0
30/03/2017 16:37	5438	JPET-C	-34.6666	148.4075	Y	2012	1	30	0	0	62	16	0	0	0	56	0	14	0	0	0	0	0	0	10	0	0	0	0
30/03/2017 16:37	5439	JPET-C	-34.6666	148.4075	Y	2012	2	0	0	0	86	16	0	0	0	22	6	4	6	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5440	JPET-C	-34.6666	148.4075	Y	2014	1	10	20	0	36	10	0	0	4	76	2	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5441	JPET-C	-34.6666	148.4075	Y	2014	2	0	0	0	2	10	0	0	0	44	32	0	0	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5442	JPET-C	-34.6666	148.4075	No Access	2016	2																						
30/03/2017 16:37	5443	JPET-C	-34.6666	148.4075	No Access	2016	1																						
30/03/2017 16:37	5444	JPET-S	-34.6655	148.4024	Y	2010	1	10	0	0	32	4	0	38	0	10	0	4	0	10	0		0	0		0		0	0
30/03/2017 16:37	5445	JPET-S	-34.6655	148.4024	Y	2012	1	0	0	0	90	2	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5446	JPET-S	-34.6655	148.4024	Y	2012	2	30	0	0	88	14	0	0	0	16	2	8	8	8	0	0	0	0	2	0	0	0	0
30/03/2017 16:37	5447	JPET-S	-34.6655	148.4024	Y	2014	2	30	10	0	50	22	8	0	0	68	0	0	14	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5448	JPET-S	-34.6655	148.4024	Y	2014	1	0	0	0	32	12	8	0	0	92	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5449	JPET-S	-34.6655	148.4024	No Access	2016	1																						
30/03/2017 16:37	5450	JPET-S	-34.6655	148.4024	No Access	2016	2																						
30/03/2017 16:37	5451	JPIN-S	-34.1918	149.6377	Y	2010	1	20	0	0	94	0	0	30	0	78	2	2	6	0	0		0	30		0		0	0
30/03/2017 16:37	5452	JPIN-S	-34.1918	149.6377	Y	2012	2	0	0	0	100	34	0	2	0	18	0	0	4	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5453	JPIN-S	-34.1918	149.6377	Y	2012	1	50	0	0	72	4	0	4	0	38	8	54	2	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	5454	JPIN-S	-34.1918	149.6377	Rotated ou	2014	2																						

30/03/2017 16:37	5455	JPIN-S	-34.1918	149.6377	Rotated ou	2014	1																			
30/03/2017 16:37	5456	JPIN-S	-34.1918	149.6377	Y	2016	1	20	10	0	62	0	0	0	0	2	6	46	4	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5457	JPIN-S	-34.1918	149.6377	Y	2016	2	0	0	0	86	4	2	6	0	12	0	0	4	0	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	5458	JRAE-C	-34.4544	148.2374	Y	2010	1	0	0	0	62	0	0	0	0	84	24	98	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5459	JRAE-C	-34.4544	148.2374	Y	2012	1	100	0	0	64	2	0	0	0	64	0	20	0	0	0	0	0	0	8	0	0	0	0	0
30/03/2017 16:37	5460	JRAE-C	-34.4544	148.2374	Y	2012	2	100	0	0	44	0	0	0	0	78	12	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5461	JRAE-C	-34.4544	148.2374	Y	2014	1	100	0	0	38	0	0	0	0	60	0	54	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5462	JRAE-C	-34.4544	148.2374	Y	2014	2	100	0	0	36	0	0	0	0	70	0	38	0	0	0	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	5463	JRAE-C	-34.4544	148.2374	Y	2016	1	0	0	0	18	0	0	0	0	14	2	72	0	0	0	0	0	0	0	0	6	0	0	0
30/03/2017 16:37	5464	JRAE-C	-34.4544	148.2374	Y	2016	2	0	0	0	10	0	0	0	0	52	14	34	0	0	0	0	0	0	0	0	8	0	0	0
30/03/2017 16:37	5465	JRAE-S	-34.4582	148 243	Y	2010	1	0	0	0	74	0	6	0	0	60	16	62	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5466	JRAE-S	-34.4582	148 243	Y	2012	1	40	0	0	78	2	0	0	0	28	0	14	0	0	0	0	0	0	6	0	0	0	0	0
30/03/2017 16:37	5467	JRAE-S	-34.4582	148 243	Y	2012	2	10	0	2	92	2	0	0	0	10	0	14	0	0	0	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	5468	JRAE-S	-34.4582	148 243	Y	2014	2	60	0	0	56	2	0	0	0	36	0	50	2	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	5469	JRAE-S	-34.4582	148 243	Y	2014	1	50	0	0	48	0	2	0	0	42	12	54	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5470	JRAE-S	-34.4582	148 243	Y	2016	1	60	0	0	16	0	8	0	0	46	6	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5471	JRAE-S	-34.4582	148 243	Y	2016	2	100	0	0	30	2	4	0	0	38	2	24	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5472	JRAY-S	-35.3582	149.487	Y	2010	1	80	10	14	26	18	0	0	0	0	2	38	0	4	0		0	0		0		0	0	0
30/03/2017 16:37	5473	JRAY-S	-35.3582	149.487	Y	2012	1	20	0	42	66	54	2	0	0	0	0	8	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5474	JRAY-S	-35.3582	149.487	Y	2012	2	60	10	10	22	22	2	0	0	0	0	72	6	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5475	JRAY-S	-35.3582	149.487	Rotated ou	2014	1																							
30/03/2017 16:37	5476	JRAY-S	-35.3582	149.487	Rotated ou	2014	2																							
30/03/2017 16:37	5477	JRAY-S	-35.3582	149.487	Rotated ou	2016	1																							
30/03/2017 16:37	5478	JRAY-S	-35.3582	149.487	Rotated ou	2016	2																							
30/03/2017 16:37	5479	JSPE-S	-33.871	148.9391	Y	2010	1	60	60	8	36	30	2	0	0	2	10	80	6	8	0		0	0		0		0	0	0
30/03/2017 16:37	5480	JSPE-S	-33.871	148.9391	Y	2012	1	60	0	0	72	46	16	0	0	6	0	56	14	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5481	JSPE-S	-33.871	148.9391	Y	2012	2	100	0	0	24	96	12	0	0	2	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5482	JSPE-S	-33.871	148.9391	Ceased	2014	2																							
30/03/2017 16:37	5483	JSPE-S	-33.871	148.9391	Ceased	2014	1																							
30/03/2017 16:37	5484	JSPE-S	-33.871	148.9391	Ceased	2016	2																							
30/03/2017 16:37	5485	JSPE-S	-33.871	148.9391	Ceased	2016	1																							
30/03/2017 16:37	5486	JTUX-S	-33.1693	148.9758	Y	2010	1	30	0	0	48	6	0	32	6	26	2	0	0	8	0		0	0		0		6	0	0
30/03/2017 16:37	5489	JTUX-S	-33.1693	148.9758	Y	2012	2	30	0	0	52	2	0	48	0	28	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5490	JTUX-S	-33.1693	148.9758	Y	2012	1	0	0	0	78	2	0	32	0	16	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5493	JTUX-S	-33.1693	148.9758	Y	2014	1	30	10	0	52	0	0	14	0	60	4	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5494	JTUX-S	-33.1693	148.9758	Y	2014	2	20	0	0	36	0	0	22	0	58	2	4	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5497	JTUX-S	-33.1693	148.9758	Y	2016	2	30	0	0	66	0	8	2	0	8	14	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5498	JTUX-S	-33.1693	148.9758	Y	2016	1	30	0	0	62	0	0	22	0	0	14	16	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5499	JTUX-SH1	-33.1642	148.9759	Y	2010	1	30	0	0	18	4	0	52	0	50	4	6	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	5502	JTUX-SH1	-33.1642	148.9759	Y	2012	1	10	0	0	34	2	0	64	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5503	JTUX-SH1	-33.1642	148.9759	Y	2012	2	20	0	0	8	4	0	66	0	56	2	0	4	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5506	JTUX-SH1	-33.1642	148.9759	Y	2014	2	30	0	0	22	0	0	42	0	56	0	2	16	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5507	JTUX-SH1	-33.1642	148.9759	Y	2014	1	40	0	0	10	0	0	42	0	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5510	JTUX-SH1	-33.1642	148.9759	Y	2016	1	40	0	0	34	0	0	26	0	8	14	30	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5511	JTUX-SH1	-33.1642	148.9759	Y	2016	2	40	0	0	40	0	0	18	0	18	2	54	10	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5512	KBAI-C	-35.4722	149.3826	Y	2010	1	0	0	0	60	2	0	14	0	6	12	2	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	5513	KBAI-C	-35.4722	149.3826	Y	2012	1	0	0	0	80	18	6	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5514	KBAI-C	-35.4722	149.3826	Y	2012	2	0	0	0	66	0	10	22	0	6	0	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5515	KBAI-C	-35.4722	149.3826	Rotated ou	2014	1																							
30/03/2017 16:37	5516	KBAI-C	-35.4722	149.3826	Rotated ou	2014	2																							
30/03/2017 16:37	5517	KBAI-C	-35.4722	149.3826	Y	2016	2	0	0	0	88	0	0	10	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5518	KBAI-C	-35.4722	149.3826	Y	2016	1	0	0	0	98	2	0	0	0	6	8	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5519	KBAI-S	-35.474	149.3855	Y	2010	1	20	0	0	38	6	0	16	0	0	36	4	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5520	KBAI-S	-35.474	149.3855	Y	2012	1	10	0	0	82	12	2	12	0	20	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5521	KBAI-S	-35.474	149.3855	Y	2012	2	0	0	0	72	12	0	38	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5522	KBAI-S	-35.474	149.3855	Rotated ou	2014	1																							
30/03/2017 16:37	5523	KBAI-S	-35.474	149.3855	Rotated ou	2014	2																							
30/03/2017 16:37	5524	KBAI-S	-35.474	149.3855	Y	2016	2	0	0	0	96	0	0	0	0	4	4	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5525	KBAI-S	-35.474	149.3855	Y	2016	1	20	0	0	80	12	0	0	0	0	14	26	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5526	KCLA-C	-34.5108	148.1978	Y	2010	1	0	0	0	6	0	0	46	0	84	20	96	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5527	KCLA-C	-34.5108	148.1978	Y	2012	2	60	0	0	32	6	0	56	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5528	KCLA-C	-34.5108	148.1978	Y	2012	1	10	0	0	16	18	0	58	46	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5529	KCLA-C	-34.5108	148.1978	Y	2014	2	40	0	0	2	0	0	28	0	80	0	0	0	0	0	0	0	0	16	0	0	0	0	0
30/03/2017 16:37	5530	KCLA-C	-34.5108	148.1978	Y	2014	1	10	0	0	0	0	0	10	0	96	0	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5531	KCLA-C	-34.5108	148.1978	Y	2016	1	90	0	0	10	0	0	0	0	90	0	6	0	0	0	0	0	0	0	0	4	0	0	0
30/03/2017 16:37	5532	KCLA-C	-34.5108	148.1978	Y	2016	2	60	0	0	10	0	0	6	0	84	0	4	0	0	0	0	0	0	2	0	6	0	0	0
30/03/2017 16:37	5533	KCLA-S	-34.5135	148.1979	Y	2010	1	0	0	0	66	0	0	2	0	30	46	84	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	5534	KCLA-S	-34.5135	148.1979	Y	2012	1	100	0	0	60	4	0	0	0	14	2	58	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5535	KCLA-S	-34.5135	148.1979	Y	2012	2	100	0	0	50	2	0	0	0	26	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5536	KCLA-S	-34.5135	148.1979	Y	2014	1	90	0	0	68	4	0	0	0	30	0	58	2	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5537	KCLA-S	-34.5135	148.1979	Y	2014	2	100	0	0	42	8	0	0	0	58	0	54	0	0	0	0	0	0	6	0	0	0	0	0
30/03/2017 16:37	5538	KCLA-S	-34.5135	148.1979	Y	2016	2	0	0	0	8	0	0	0	0	62	0	56	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5539	KCLA-S	-34.5135	148.1979	Y	2016	1	30	0	0	40	0	0	0	0	38	0	30	2	0	0	0	0	0	0	0	2	0	0	0
30/03/2017 16:37	5540	KIOL-C	-34.1945	148.7102	Y	2010	1	40	0	0	50	0	0	6	0	38	12	14	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	5541	KIOL-C	-34.1945	148.7102	Y	2012	1	80	10	0	58	2	0	0	0	40	8	74	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5542	KIOL-C	-34.1945	148.7102	Y	2012	2	20	0	0	70	0	0	0	0	72	4	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5543	KIOL-C	-34.1945	148.7102	Ceased	2014	2																							
30/03/2017 16:37	5544	KIOL-C	-34.1945	148.7102	Ceased	2014	1																							
30/03/2017 16:37	5545	KIOL-C	-34.1945	148.7102	Ceased	2016	1																							

30/03/2017 16:37	5546	KIOL-C	-34.1945	148.7102	Ceased	2016	2																			
30/03/2017 16:37	5547	KIOL-S	-34.1921	148.7039	Y	2010	1	60	0	12	66	2	0	0	0	54	0	22	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5548	KIOL-S	-34.1921	148.7039	Y	2012	1	30	0	0	74	0	0	0	0	64	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5549	KIOL-S	-34.1921	148.7039	Y	2012	2	40	40	0	34	12	10	0	0	12	4	58	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5550	KIOL-S	-34.1921	148.7039	Ceased	2014	2																							
30/03/2017 16:37	5551	KIOL-S	-34.1921	148.7039	Ceased	2014	1																							
30/03/2017 16:37	5552	KIOL-S	-34.1921	148.7039	Ceased	2016	1																							
30/03/2017 16:37	5553	KIOL-S	-34.1921	148.7039	Ceased	2016	2																							
30/03/2017 16:37	5554	KRAT-C	-34.8442	148.5538	Y	2010	1	20	50	0	30	6	8	0	0	60	4	26	6	6	0		0	0		0		0	0	0
30/03/2017 16:37	5555	KRAT-C	-34.8442	148.5538	Y	2012	2	60	0	0	58	14	4	0	0	28	0	52	4	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5556	KRAT-C	-34.8442	148.5538	Y	2012	1	30	30	0	64	0	0	0	0	68	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5557	KRAT-C	-34.8442	148.5538	Rotated ou	2014	2																							
30/03/2017 16:37	5558	KRAT-C	-34.8442	148.5538	Rotated ou	2014	1																							
30/03/2017 16:37	5559	KRAT-C	-34.8442	148.5538	Y	2016	1	90	0	0	26	0	0	0	0	68	4	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5560	KRAT-C	-34.8442	148.5538	Y	2016	2	40	0	0	18	4	8	0	0	14	6	52	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5561	KRAT-S	-34.8421	148.5576	Y	2010	1	80	60	0	54	4	0	0	0	28	4	78	10	12	0		0	0		0		0	0	0
30/03/2017 16:37	5562	KRAT-S	-34.8421	148.5576	Y	2012	2	80	30	0	74	0	0	0	0	32	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5563	KRAT-S	-34.8421	148.5576	Y	2012	1	100	0	0	42	2	2	0	0	34	4	48	8	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5564	KRAT-S	-34.8421	148.5576	Rotated ou	2014	1																							
30/03/2017 16:37	5565	KRAT-S	-34.8421	148.5576	Rotated ou	2014	2																							
30/03/2017 16:37	5566	KRAT-S	-34.8421	148.5576	Y	2016	1	50	0	0	10	0	0	0	0	36	4	60	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5567	KRAT-S	-34.8421	148.5576	Y	2016	2	30	0	0	12	0	0	0	0	46	0	74	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5568	KROB-S	-35.0141	147.4283	Y	2010	1	20	20	0	26	32	26	0	0	56	0	4	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	5569	KROB-S	-35.0141	147.4283	Y	2012	1	0	0	0	52	0	0	0	0	30	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5570	KROB-S	-35.0141	147.4283	Y	2012	2	0	0	0	72	0	0	0	0	22	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5571	KROB-S	-35.0141	147.4283	Rotated ou	2014	1																							
30/03/2017 16:37	5572	KROB-S	-35.0141	147.4283	Rotated ou	2014	2																							
30/03/2017 16:37	5573	KROB-S	-35.0141	147.4283	Y	2016	2	0	20	4	28	20	0	0	0	56	10	24	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5574	KROB-S	-35.0141	147.4283	Y	2016	1	0	0	0	6	14	0	0	0	84	4	6	6	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5575	LCOT-C	-35.7374	149.1077	Y	2010	1	10	20	0	74	8	0	12	4	2	4	24	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5576	LCOT-C	-35.7374	149.1077	Y	2012	1	0	0	2	90	30	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5577	LCOT-C	-35.7374	149.1077	Y	2012	2	10	0	0	98	8	2	0	2	28	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5578	LCOT-C	-35.7374	149.1077	Y	2014	2	0	0	0	92	6	0	0	4	2	0	16	0	0	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5579	LCOT-C	-35.7374	149.1077	Y	2014	1	0	0	0	72	10	6	0	0	2	0	18	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5580	LCOT-C	-35.7374	149.1077	Y	2016	2	20	0	0	98	0	0	0	2	14	0	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5581	LCOT-C	-35.7374	149.1077	Y	2016	1	0	0	2	84	2	2	0	0	20	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5582	LCOT-S	-35.7429	149.1085	Y	2010	1	10	0	2	80	6	2	22	0	0	6	32	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5583	LCOT-S	-35.7429	149.1085	Y	2012	1	60	20	0	74	24	2	0	14	6	2	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5584	LCOT-S	-35.7429	149.1085	Y	2012	2	40	0	4	72	24	2	0	0	12	0	20	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5585	LCOT-S	-35.7429	149.1085	Y	2014	2	20	10	0	74	10	0	0	0	2	0	24	0	4	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5586	LCOT-S	-35.7429	149.1085	Y	2014	1	60	0	0	80	2	0	0	4	0	2	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5587	LCOT-S	-35.7429	149.1085	Y	2016	1	80	20	0	74	8	0	0	8	2	2	88	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5588	LCOT-S	-35.7429	149.1085	Y	2016	2	20	10	0	76	4	0	0	0	2	0	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5589	LEDW-C	-29.0569	150.8225	Y	2010	1	0	0	0	38	26	0	2	2	56	6	2	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	5590	LEDW-C	-29.0569	150.8225	Y	2012	1	0	0	2	94	30	0	6	0	2	0	0	0	0	0	0	6	0	0	0	0	0	0	0
30/03/2017 16:37	5591	LEDW-C	-29.0569	150.8225	Y	2012	2	0	0	0	74	68	0	38	0	0	2	4	2	0	0	0	36	0	0	0	0	0	0	0
30/03/2017 16:37	5592	LEDW-C	-29.0569	150.8225	Y	2014	2	0	0	0	84	32	0	0	4	28	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5593	LEDW-C	-29.0569	150.8225	Y	2014	1	0	0	0	54	28	0	28	40	6	6	0	0	0	0	0	28	0	0	0	0	0	0	0
30/03/2017 16:37	5594	LEDW-C	-29.0569	150.8225	Y	2016	2	0	0	0	64	2	0	0	2	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5595	LEDW-C	-29.0569	150.8225	Y	2016	1	0	40	12	56	2	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5596	LEDW-S	-29.0576	150.8197	Y	2010	1	0	0	6	68	36	0	0	0	6	14	30	12	6	0		0	0		0		0	0	0
30/03/2017 16:37	5597	LEDW-S	-29.0576	150.8197	Y	2012	2	0	0	0	100	10	0	0	4	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5598	LEDW-S	-29.0576	150.8197	Y	2012	1	0	0	0	54	10	2	66	24	0	18	0	0	0	0	0	64	0	0	0	0	0	0	0
30/03/2017 16:37	5599	LEDW-S	-29.0576	150.8197	Y	2014	2	0	0	0	76	78	38	6	0	10	0	0	0	0	0	0	6	0	0	0	0	0	0	0
30/03/2017 16:37	5600	LEDW-S	-29.0576	150.8197	Y	2014	1	0	0	4	100	26	6	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5601	LEDW-S	-29.0576	150.8197	Y	2016	1	0	0	0	60	0	0	0	0	0	40	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5602	LEDW-S	-29.0576	150.8197	Y	2016	2	10	0	0	48	12	0	0	0	0	46	24	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5603	LMER-C	-34.6418	147.8503	Y	2010	1	40	0	0	42	0	0	0	0	46	24	30	2	10	0		0	0		0		0	0	0
30/03/2017 16:37	5604	LMER-C	-34.6418	147.8503	Y	2012	2	40	0	0	10	62	2	0	0	60	0	14	4	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5605	LMER-C	-34.6418	147.8503	Y	2012	1	30	50	0	52	22	0	0	0	34	0	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5606	LMER-C	-34.6418	147.8503	Y	2014	1	40	0	0	26	0	0	0	0	70	4	6	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5607	LMER-C	-34.6418	147.8503	Y	2014	2	20	0	0	6	18	0	0	0	80	0	10	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5608	LMER-C	-34.6418	147.8503	Y	2016	2	70	0	0	12	0	2	0	0	26	10	56	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5609	LMER-C	-34.6418	147.8503	Y	2016	1	80	0	0	34	0	0	0	0	18	0	42	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5610	LMER-S	-34.6527	147.8481	Y	2010	1	50	0	0	54	0	2	0	0	22	24	76	12	0	0		0	0		0		0	0	0
30/03/2017 16:37	5611	LMER-S	-34.6527	147.8481	Y	2012	1	90	0	0	46	14	0	0	0	62	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5612	LMER-S	-34.6527	147.8481	Y	2012	2	50	0	0	64	22	12	0	0	8	10	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5613	LMER-S	-34.6527	147.8481	Y	2014	2	40	0	0	36	6	6	0	0	48	4	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5614	LMER-S	-34.6527	147.8481	Y	2014	1	70	0	0	14	14	0	0	0	62	4	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5615	LMER-S	-34.6527	147.8481	Y	2016	2	60	0	0	38	0	0	0	0	24	14	30	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5616	LMER-S	-34.6527	147.8481	Y	2016	1	60	0	0	16	0	0	0	2	32	6	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5617	MCOL-C	-29.5398	150.4871	Y	2010	1	10	0	2	66	4	0	0	0	0	32	38	0	8	0		0	0		0		0	0	0
30/03/2017 16:37	5618	MCOL-C	-29.5398	150.4871	Y	2012	2	0	0	0	48	12	0	74	0	0	0	0	0	0	0	0	74	0	0	0	0	0	0	0
30/03/2017 16:37	5619	MCOL-C	-29.5398	150.4871	Y	2012	1	20	0	6	98	36	0	22	0	14	0	2	0	0	0	0	22	0	0	0	0	0	0	0
30/03/2017 16:37	5620	MCOL-C	-29.5398	150.4871	Y	2014	1	20	30	6	30	8	0	32	2	0	2	2	0	0	0	0	30	0	0	0	0	0	0	0
30/03/2017 16:37	5621	MCOL-C	-29.5398	150.4871	Y	2014	2	0	0	0	20	10	16	68	2	0	6	2	0	0	0	0	66	0	0	0	0	0	0	0
30/03/2017 16:37	5622	MCOL-C	-29.5398	150.4871	Y	2016	2	0	20	0	0	2	4	90	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5623	MCOL-C	-29.5398	150.4871	Y	2016	1	40	0	2	2	6	0	94	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5624	MCOL-S	-29.5387	150.4744	Y	2010	1	10	10	8	68	0	0	0	2	0	36	50	2	4	0		0	0		0		0	0	0

30/03/2017 16:37	5625	MCOL-S	-29.5387	150.4744	Y	2012	2	0	0	0	94	36	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5626	MCOL-S	-29.5387	150.4744	Y	2012	1	0	0	0	90	28	0	2	0	0	4	4	0	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	5627	MCOL-S	-29.5387	150.4744	Y	2014	2	0	0	0	100	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5628	MCOL-S	-29.5387	150.4744	Y	2014	1	0	0	2	92	26	0	2	0	0	6	0	0	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	5629	MCOL-S	-29.5387	150.4744	Y	2016	2	0	40	6	86	0	0	0	0	2	6	4	0	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5630	MCOL-S	-29.5387	150.4744	Y	2016	1	0	0	0	64	0	0	0	0	0	32	18	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5631	MDYM-S	-34.3878	148.5744	Y	2010	1	60	0	28	38	26	0	0	0	12	6	44	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	5632	MDYM-S	-34.3878	148.5744	Y	2012	2	60	0	40	68	22	0	0	0	8	0	76	30	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5633	MDYM-S	-34.3878	148.5744	Y	2012	1	90	0	6	72	10	2	0	0	24	0	98	2	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5634	MDYM-S	-34.3878	148.5744	Rotated ou	2014	1																							
30/03/2017 16:37	5635	MDYM-S	-34.3878	148.5744	Rotated ou	2014	2																							
30/03/2017 16:37	5636	MDYM-S	-34.3878	148.5744	Y	2016	1	10	0	4	6	0	4	0	0	30	10	72	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5637	MDYM-S	-34.3878	148.5744	Y	2016	2	60	0	12	12	0	10	0	0	6	12	44	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5638	MFOS-C	-31.1688	149.0726	Y	2010	1	0	0	0	84	8	2	0	0	16	8	78	4	2	0		0	0		0		0	0	0
30/03/2017 16:37	5639	MFOS-C	-31.1688	149.0726	Y	2012	2	0	0	0	100	18	6	0	0	34	0	6	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5640	MFOS-C	-31.1688	149.0726	Y	2012	1	0	0	0	100	50	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5641	MFOS-C	-31.1688	149.0726	Rotated ou	2014	2																							
30/03/2017 16:37	5642	MFOS-C	-31.1688	149.0726	Rotated ou	2014	1																							
30/03/2017 16:37	5643	MFOS-C	-31.1688	149.0726	Y	2016	1	0	0	0	54	4	0	0	0	6	30	46	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5644	MFOS-C	-31.1688	149.0726	Y	2016	2	0	0	0	32	4	0	0	0	6	58	14	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5645	MFOS-S	-31.1669	149.0653	Y	2010	1	10	0	0	88	20	10	4	0	8	18	56	2	12	0		0	0		0		0	0	0
30/03/2017 16:37	5646	MFOS-S	-31.1669	149.0653	Y	2012	1	0	0	0	92	14	0	0	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5647	MFOS-S	-31.1669	149.0653	Y	2012	2	0	0	0	98	50	0	6	0	14	0	0	0	0	0	0	0	6	0	0	0	0	0	0
30/03/2017 16:37	5648	MFOS-S	-31.1669	149.0653	Rotated ou	2014	1																							
30/03/2017 16:37	5649	MFOS-S	-31.1669	149.0653	Rotated ou	2014	2																							
30/03/2017 16:37	5650	MFOS-S	-31.1669	149.0653	Y	2016	1	0	0	0	62	10	0	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5651	MFOS-S	-31.1669	149.0653	Y	2016	2	0	0	0	54	18	0	0	0	2	26	6	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5652	MGAY-C	-34.1491	148.9265	Y	2010	1	10	0	0	50	0	8	0	0	6	4	10	2	20	0		0	0		0		0	0	0
30/03/2017 16:37	5653	MGAY-C	-34.1491	148.9265	Y	2012	1	50	0	0	50	28	14	0	0	0	4	60	22	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5654	MGAY-C	-34.1491	148.9265	Y	2012	2	0	0	0	78	6	18	0	0	30	8	0	14	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5655	MGAY-C	-34.1491	148.9265	Rotated ou	2014	2																							
30/03/2017 16:37	5656	MGAY-C	-34.1491	148.9265	Rotated ou	2014	1																							
30/03/2017 16:37	5657	MGAY-C	-34.1491	148.9265	Y	2016	1	60	10	0	4	0	0	0	0	0	12	44	20	26	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5658	MGAY-C	-34.1491	148.9265	Y	2016	2	0	10	0	30	0	0	0	0	0	8	48	10	22	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5659	MGAY-S	-34.1434	148.9271	Y	2010	1	40	0	0	30	0	6	20	0	2	4	10	2	8	0		0	0		0		0	0	0
30/03/2017 16:37	5660	MGAY-S	-34.1434	148.9271	Y	2012	2	0	40	4	56	46	0	0	0	4	2	74	36	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5661	MGAY-S	-34.1434	148.9271	Y	2012	1	70	30	2	48	38	2	0	0	8	4	72	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5662	MGAY-S	-34.1434	148.9271	Rotated ou	2014	1																							
30/03/2017 16:37	5663	MGAY-S	-34.1434	148.9271	Rotated ou	2014	2																							
30/03/2017 16:37	5664	MGAY-S	-34.1434	148.9271	Y	2016	2	10	10	0	32	0	0	0	0	0	10	66	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5665	MGAY-S	-34.1434	148.9271	Y	2016	1	100	40	0	32	0	0	0	0	0	2	86	2	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5666	MHOW-S	-34.2684	147.2713	Y	2010	1	90	10	0	56	50	0	0	0	18	58	100	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5667	MHOW-S	-34.2684	147.2713	Y	2012	1	40	0	0	98	2	0	4	0	8	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5668	MHOW-S	-34.2684	147.2713	Y	2012	2	90	0	0	52	10	0	0	0	2	16	62	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5669	MHOW-S	-34.2684	147.2713	Rotated ou	2014	2																							
30/03/2017 16:37	5670	MHOW-S	-34.2684	147.2713	Rotated ou	2014	1																							
30/03/2017 16:37	5671	MHOW-S	-34.2684	147.2713	Y	2016	2	50	0	0	38	0	8	0	0	0	4	50	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5672	MHOW-S	-34.2684	147.2713	Y	2016	1	20	0	0	24	0	26	0	0	24	0	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5673	MIRE-C	-32.6551	149.8689	Y	2010	1	40	0	0	34	12	0	12	0	16	24	40	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5674	MIRE-C	-32.6551	149.8689	Y	2012	2	60	0	0	24	4	0	8	6	78	4	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5675	MIRE-C	-32.6551	149.8689	Y	2012	1	40	0	0	84	18	2	0	0	16	4	72	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5676	MIRE-C	-32.6551	149.8689	Y	2014	1	30	0	0	62	22	0	0	0	16	8	8	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5677	MIRE-C	-32.6551	149.8689	Y	2014	2	50	0	0	16	0	0	0	0	74	2	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5678	MIRE-C	-32.6551	149.8689	Y	2016	2	70	0	0	0	0	0	0	0	78	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5679	MIRE-C	-32.6551	149.8689	Y	2016	1	60	0	2	30	4	0	0	0	26	4	96	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5680	MIRE-S	-32.6529	149.8732	Y	2010	1	70	0	0	14	2	2	30	0	22	0	34	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5681	MIRE-S	-32.6529	149.8732	Y	2012	2	30	0	0	18	0	0	44	0	62	0	0	0	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5682	MIRE-S	-32.6529	149.8732	Y	2012	1	50	0	0	24	4	0	22	4	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5683	MIRE-S	-32.6529	149.8732	Y	2014	1	40	0	0	12	4	0	0	0	88	6	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5684	MIRE-S	-32.6529	149.8732	Y	2014	2	20	0	0	30	0	0	6	2	80	4	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5685	MIRE-S	-32.6529	149.8732	Y	2016	1	50	0	0	0	0	0	6	0	60	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5686	MIRE-S	-32.6529	149.8732	Y	2016	2	0	0	0	0	0	0	0	0	78	0	72	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5687	MMID-CG	-34.6293	148.6991	Y	2010	1	60	0	0	46	0	0	0	0	16	22	38	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5690	MMID-CG	-34.6293	148.6991	Y	2012	1	30	30	0	32	0	0	0	0	6	24	58	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5691	MMID-CG	-34.6293	148.6991	Y	2012	2	40	20	0	54	2	0	0	0	0	8	68	18	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5694	MMID-CG	-34.6293	148.6991	Y	2014	2	30	20	0	42	0	0	0	0	12	8	66	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5695	MMID-CG	-34.6293	148.6991	Y	2014	1	50	20	0	12	0	0	0	0	0	14	68	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5698	MMID-CG	-34.6293	148.6991	Y	2016	1	40	20	0	32	0	2	0	0	0	2	74	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5699	MMID-CG	-34.6293	148.6991	Y	2016	2	30	20	0	0	0	0	0	4	74	2	0	16	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5700	MMID-S	-34.6272	148.6938	Y	2010	1	50	0	0	72	2	0	0	0	4	8	40	12	0	0		0	0		0		0	0	0
30/03/2017 16:37	5703	MMID-S	-34.6272	148.6938	Y	2012	1	10	10	0	96	4	0	4	0	8	2	24	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5704	MMID-S	-34.6272	148.6938	Y	2012	2	40	0	0	64	10	0	0	0	0	12	58	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5707	MMID-S	-34.6272	148.6938	Y	2014	2	30	0	0	46	2	2	0	0	0	6	38	54	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5708	MMID-S	-34.6272	148.6938	Y	2014	1	0	0	0	90	0	0	0	0	0	0	18	80	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5711	MMID-S	-34.6272	148.6938	Y	2016	2	60	0	0	46	0	6	0	0	0	12	36	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5712	MMID-S	-34.6272	148.6938	Y	2016	1	0	10	0	74	0	0	0	0	0	4	32	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5713	MONI-CG1	-34.8936	149.3473	Y	2010	1	20	0	0	92	0	0	30	0	16	0	16	0	0	0		0	30		0		0	0	0
30/03/2017 16:37	5716	MONI-CG1	-34.8936	149.3473	Y	2012	2	0	0	0	100	0	0	2	0	4	0	4	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5717	MONI-CG1	-34.8936	149.3473	Y	2012	1	40	10	0	84	0	0	14	0	0	2	56	2	0	0	0	0	0	8	0	0	0	0	0

30/03/2017 16:37	5720	MONI-CG1	-34.8936	149.3473	Y	2014	1	30	30	0	86	2	0	0	0	42	0	32	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5721	MONI-CG1	-34.8936	149.3473	Y	2014	2	0	0	0	86	6	0	0	0	34	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5724	MONI-CG1	-34.8936	149.3473	Y	2016	1	30	20	0	78	0	0	4	0	22	0	24	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5725	MONI-CG1	-34.8936	149.3473	Y	2016	2	0	0	0	96	0	0	2	0	8	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5726	MONI-S	-34.8911	149.3512	Y	2010	1	20	0	0	78	0	0	0	0	10	6	20	2	0	0		0	0		0	0	0
30/03/2017 16:37	5729	MONI-S	-34.8911	149.3512	Y	2012	2	0	0	0	98	6	0	6	0	2	0	4	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5730	MONI-S	-34.8911	149.3512	Y	2012	1	20	0	2	88	6	0	0	0	14	6	24	14	0	12	0	0	0	0	0	0	0
30/03/2017 16:37	5733	MONI-S	-34.8911	149.3512	Y	2014	1	20	20	2	80	6	2	0	0	24	2	12	20	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5734	MONI-S	-34.8911	149.3512	Y	2014	2	0	0	0	96	4	2	0	0	20	0	0	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5737	MONI-S	-34.8911	149.3512	Y	2016	2	0	0	0	92	6	0	0	0	12	2	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5738	MONI-S	-34.8911	149.3512	Y	2016	1	20	10	8	88	8	0	0	0	16	2	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5739	MPAT-C	-28.7408	151.1922	Y	2010	1	0	0	0	76	18	0	0	0	0	54	22	0	18	0		0	0		0	0	0
30/03/2017 16:37	5740	MPAT-C	-28.7408	151.1922	Y	2012	1	0	0	0	100	12	0	0	0	12	12	88	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5741	MPAT-C	-28.7408	151.1922	Y	2012	2	0	0	4	96	8	0	0	0	2	16	78	0	6	0	0	0	0	0	0	0	0
30/03/2017 16:37	5742	MPAT-C	-28.7408	151.1922	Y	2014	1	0	0	4	86	10	42	0	0	16	0	2	34	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5743	MPAT-C	-28.7408	151.1922	Y	2014	2	0	0	2	88	20	30	0	0	10	2	0	22	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5744	MPAT-C	-28.7408	151.1922	Y	2016	1	0	0	0	52	14	0	0	0	6	30	8	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5745	MPAT-C	-28.7408	151.1922	Y	2016	2	0	0	8	58	10	0	0	0	2	24	0	4	4	0	0	0	0	0	0	0	0
30/03/2017 16:37	5746	MPAT-S	-28.7488	151.189	Y	2010	1	0	0	0	84	22	12	0	0	0	60	24	0	4	4		0	0		0	0	0
30/03/2017 16:37	5747	MPAT-S	-28.7488	151.189	Y	2012	2	0	0	4	80	4	0	0	0	0	82	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5748	MPAT-S	-28.7488	151.189	Y	2012	1	0	0	16	86	6	0	0	0	0	72	28	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5749	MPAT-S	-28.7488	151.189	Y	2014	1	0	0	4	76	0	22	0	0	6	14	0	20	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5750	MPAT-S	-28.7488	151.189	Y	2014	2	0	0	2	72	8	8	0	0	2	18	0	48	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5751	MPAT-S	-28.7488	151.189	Y	2016	2	0	0	22	56	0	0	0	0	0	26	0	10	6	0	0	0	0	0	0	0	0
30/03/2017 16:37	5752	MPAT-S	-28.7488	151.189	Y	2016	1	0	0	20	48	10	0	0	0	0	22	6	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5753	MPRA-C	-33.2151	148.9524	Y	2010	1	40	0	0	22	2	0	48	0	6	4	42	0	0	0		0	0		0	0	0
30/03/2017 16:37	5754	MPRA-C	-33.2151	148.9524	Y	2012	1	20	30	0	22	0	0	0	0	78	6	2	0	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5755	MPRA-C	-33.2151	148.9524	Y	2012	2	0	0	0	20	0	8	0	0	70	0	2	0	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5756	MPRA-C	-33.2151	148.9524	Y	2014	2	20	0	0	10	0	4	0	0	58	20	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5757	MPRA-C	-33.2151	148.9524	Y	2014	1	10	0	2	16	0	0	0	0	78	6	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5758	MPRA-C	-33.2151	148.9524	Y	2016	2			0	2	0	0	6	0	32	10	84	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5759	MPRA-C	-33.2151	148.9524	Y	2016	1	40	0	0	32	0	0	0	0	30	2	80	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5760	MPRA-S	-33.2177	148.9331	Y	2010	1	70	0	0	68	58	0	14	0	6	2	4	0	0	0		0	2		0	0	0
30/03/2017 16:37	5761	MPRA-S	-33.2177	148.9331	Y	2012	2	60	0	0	52	36	0	0	0	38	0	12	6	4	0	0	0	0	0	2	0	0
30/03/2017 16:37	5762	MPRA-S	-33.2177	148.9331	Y	2012	1	90	10	2	46	64	2	0	8	16	0	6	0	0	0	0	0	0	2	0	0	6	0	0
30/03/2017 16:37	5763	MPRA-S	-33.2177	148.9331	Y	2014	1	80	0	0	24	28	4	16	10	44	2	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5764	MPRA-S	-33.2177	148.9331	Y	2014	2	70	0	0	76	30	0	0	0	4	0	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5765	MPRA-S	-33.2177	148.9331	Y	2016	2	100	20	0	34	0	0	0	0	6	2	94	0	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	5766	MPRA-S	-33.2177	148.9331	Y	2016	1	90	0	0	16	2	0	0	2	40	0	100	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5767	MSPE-S	-29.6745	150.9671	Y	2010	1	40	0	2	68	12	0	4	0	0	12	40	6	10	0		0	0		0	0	0
30/03/2017 16:37	5768	MSPE-S	-29.6745	150.9671	Y	2012	2	70	0	2	82	40	2	18	0	4	4	44	0	0	0	0	14	0	0	0	0	0	0	0
30/03/2017 16:37	5769	MSPE-S	-29.6745	150.9671	Y	2012	1	20	0	0	94	54	4	6	0	6	0	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5770	MSPE-S	-29.6745	150.9671	Y	2014	2	50	0	0	86	26	0	0	0	0	2	44	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5771	MSPE-S	-29.6745	150.9671	Y	2014	1	10	0	2	96	28	2	0	0	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5772	MSPE-S	-29.6745	150.9671	Y	2016	2	50	20	0	84	22	10	8	2	0	0	34	0	0	0	0	8	0	0	0	0	0	0	0
30/03/2017 16:37	5773	MSPE-S	-29.6745	150.9671	Y	2016	1	30	10	0	96	24	0	0	0	2	0	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5774	MSUL-C	-33.2498	148.8665	Y	2010	1	20	0	0	62	0	2	0	12	54	2	8	6	10	0		0	0		0	0	0
30/03/2017 16:37	5775	MSUL-C	-33.2498	148.8665	Y	2012	2	0	0	0	94	0	0	28	0	38	0	0	0	0	0	0	0	0	0	0	16	0	0
30/03/2017 16:37	5776	MSUL-C	-33.2498	148.8665	Y	2012	1	0	0	0	100	12	2	22	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5777	MSUL-C	-33.2498	148.8665	Y	2014	2	30	0	0	66	0	0	0	0	48	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5778	MSUL-C	-33.2498	148.8665	Y	2014	1	0	0	0	18	0	0	0	0	48	0	8	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5779	MSUL-C	-33.2498	148.8665	Y	2016	1	0	0	0	20	0	0	0	0	12	0	98	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5780	MSUL-C	-33.2498	148.8665	Y	2016	2	40	0	0	36	6	0	0	0	16	0	98	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5781	MSUL-S	-33.2505	148.8699	Y	2010	1	30	10	0	74	6	4	0	0	34	8	26	4	4	0		0	0		0	0	0
30/03/2017 16:37	5782	MSUL-S	-33.2505	148.8699	Y	2012	2	0	0	0	94	8	0	2	0	40	0	6	14	0	0	0	0	0	12	0	0	0	0	0
30/03/2017 16:37	5783	MSUL-S	-33.2505	148.8699	Y	2012	1	30	0	0	82	10	0	4	0	36	0	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5784	MSUL-S	-33.2505	148.8699	Y	2014	2	30	0	0	68	2	0	0	0	60	4	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5785	MSUL-S	-33.2505	148.8699	Y	2014	1	40	0	0	66	12	0	0	0	62	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5786	MSUL-S	-33.2505	148.8699	Y	2016	2	30	0	0	18	0	2	0	0	18	0	88	14	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5787	MSUL-S	-33.2505	148.8699	Y	2016	1	40	0	0	8	0	0	0	0	10	0	96	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5788	MTEE-C	-28.687	151.3438	Unestablisl	2010																								
30/03/2017 16:37	5789	MTEE-C	-28.687	151.3438	Y	2012	1	100	10	0	70	2	0	4	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5790	MTEE-C	-28.687	151.3438	Y	2012	2	100	10	0	50	10	0	4	4	0	8	92	0	0	0	0	0	0	0	0	0	4	0	0
30/03/2017 16:37	5791	MTEE-C	-28.687	151.3438	Y	2014	2	80	20	2	44	24	16	0	0	0	0	64	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5792	MTEE-C	-28.687	151.3438	Y	2014	1	60	20	2	54	32	24	0	2	0	2	72	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5793	MTEE-C	-28.687	151.3438	Y	2016	2	90	10	0	18	14	0	0	0	0	32	84	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5794	MTEE-C	-28.687	151.3438	Y	2016	1	100	0	6	28	20	0	0	0	0	48	74	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5795	MTEE-S	-28.6736	151 348	Y	2010	1	0	0	6	58	26	8	0	0	0	28	80	0	16	0		0	0		0	0	0
30/03/2017 16:37	5796	MTEE-S	-28.6736	151 348	Y	2012	1	100	0	0	88	26	0	0	0	2	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5797	MTEE-S	-28.6736	151 348	Y	2012	2	80	0	0	68	28	0	0	0	18	8	92	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5798	MTEE-S	-28.6736	151 348	Y	2014	1	40	50	0	80	36	4	0	0	4	0	52	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5799	MTEE-S	-28.6736	151 348	Y	2014	2	70	10	2	58	18	4	0	0	22	0	44	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5800	MTEE-S	-28.6736	151 348	Y	2016	2	80	10	0	8	0	0	6	8	70		0	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5801	MTEE-S	-28.6736	151 348	Y	2016	1	100	0	2	32	6	0	0	0	4	6	70	0	0	0	0	0	0	0	0	0	0	0	2
30/03/2017 16:37	5802	NEVI-S	-33.7389	149.1356	Y	2010	1	90	0	0	42	2	0	0	0	8	6	64	0	0	0		0	0		0	0	0
30/03/2017 16:37	5803	NEVI-S	-33.7389	149.1356	Y	2012	1	60	0	0	74	60	0	0	4	38	0	28	0	0	2	0	0	0	0	0	0	4	0	0
30/03/2017 16:37	5804	NEVI-S	-33.7389	149.1356	Y	2012	2	60	0	0	74	54	2	14	2	50	0	18	8	0	0	0	0	4	0	0	0	2	0	0
30/03/2017 16:37	5805	NEVI-S	-33.7389	149.1356	Rotated ou	2014	1																							
30/03/2017 16:37	5806	NEVI-S	-33.7389	149.1356	Rotated ou	2014	2																							

30/03/2017 16:37	5807	NEVI-S	-33.7389	149.1356	Y	2016	1	60	0	0	50	0	0	0	2	14	10	70	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5808	NEVI-S	-33.7389	149.1356	Y	2016	2	60	10	2	76	20	0	0	0	4	2	72	16	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5809	NHIN-C	-34.6759	149.0671	Y	2010	1	40	0	4	50	0	0	0	0	2	14	12	14	4	0		0	0		0		0	0	0
30/03/2017 16:37	5810	NHIN-C	-34.6759	149.0671	Y	2012	2	20	10	36	58	6	0	0	0	0	6	20	34	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5811	NHIN-C	-34.6759	149.0671	Y	2012	1	70	10	0	82	4	0	0	0	0	0	56	6	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5812	NHIN-C	-34.6759	149.0671	Ceased	2014	2																						
30/03/2017 16:37	5813	NHIN-C	-34.6759	149.0671	Ceased	2014	1																						
30/03/2017 16:37	5814	NHIN-C	-34.6759	149.0671	Y	2016	1	90	0	2	26	0	0	0	0	14	6	88	6	2	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5815	NHIN-C	-34.6759	149.0671	Y	2016	2	50	10	12	18	6	0	0	0	0	14	58	42	4	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5816	NHIN-S	-34.6738	149.0766	Y	2010	1	60	0	14	38	0	2	0	0	0	8	34	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	5817	NHIN-S	-34.6738	149.0766	Y	2012	1	70	0	10	52	2	8	0	0	0	0	78	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5818	NHIN-S	-34.6738	149.0766	Y	2012	2	60	0	12	38	4	4	0	0	0	4	68	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5819	NHIN-S	-34.6738	149.0766	Ceased	2014	2																						
30/03/2017 16:37	5820	NHIN-S	-34.6738	149.0766	Ceased	2014	1																						
30/03/2017 16:37	5821	NHIN-S	-34.6738	149.0766	Y	2016	1	100	0	8	18	22	0	0	0	4	0	98	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5822	NHIN-S	-34.6738	149.0766	Y	2016	2	100	0	6	16	2	0	0	0	0	6	94	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5823	NOLD-C	-33.5423	149.21	Y	2010	1	60	0	0	24	6	2	12	0	32	8	52	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5824	NOLD-C	-33.5423	149.21	Y	2012	1	40	0	0	2	2	0	96	0	36	0	2	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	5825	NOLD-C	-33.5423	149.21	Y	2012	2	40	0	0	70	0	0	10	0	62	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5826	NOLD-C	-33.5423	149.21	Y	2014	1	40	0	0	6	2	0	0	2	74	92	24	0	0	0	0	0	0	0	0	0	2	0	0
30/03/2017 16:37	5827	NOLD-C	-33.5423	149.21	Y	2014	2	60	0	0	44	0	0	0	0	30	12	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5828	NOLD-C	-33.5423	149.21	Y	2016	2	50	0	0	24	0	0	0	0	0	10	78	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5829	NOLD-C	-33.5423	149.21	Y	2016	1	40	0	0	32	0	0	0	0	24	14	52	0	0	0	0	0	0	0	4	0	0	0	0
30/03/2017 16:37	5830	NOLD-S	-33.5463	149.2052	Y	2010	1	70	0	0	44	14	0	2	0	2	28	56	4	0	0		0	0		0		0	0	0
30/03/2017 16:37	5831	NOLD-S	-33.5463	149.2052	Y	2012	2	90	0	0	76	62	4	16	2	34	0	4	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5832	NOLD-S	-33.5463	149.2052	Y	2012	1	20	0	0	90	10	6	8	0	62	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5833	NOLD-S	-33.5463	149.2052	Y	2014	1	20	0	2	44	2	0	0	0	2	10	42	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5834	NOLD-S	-33.5463	149.2052	Y	2014	2	100	0	0	54	8	0	0	2	16	4	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5835	NOLD-S	-33.5463	149.2052	Y	2016	1	30	10	0	50	0	0	0	0	2	12	34	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5836	NOLD-S	-33.5463	149.2052	Y	2016	2	80	0	0	42	10	0	0	0	2	10	50	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5837	NSTU-S	-34.5772	148.7749	Y	2010	1	10	0	0	42	8	0	0	0	10	8	6	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	5840	NSTU-S	-34.5772	148.7749	Y	2012	1	30	20	0	66	2	0	0	0	16	6	28	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5841	NSTU-S	-34.5772	148.7749	Y	2012	2	20	50	0	76	4	0	0	0	6	0	22	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5844	NSTU-S	-34.5772	148.7749	Y	2014	1	30	0	0	48	0	0	0	0	34	16	32	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5845	NSTU-S	-34.5772	148.7749	Y	2014	2	0	0	0	76	0	0	0	0	0	2	40	40	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5848	NSTU-S	-34.5772	148.7749	Y	2016	1	30	0	0	12	0	0	48	10	46	2	20	16	2		0	0		0	0	0	0	0	0
30/03/2017 16:37	5849	NSTU-S	-34.5772	148.7749	Y	2016	2	0	40	0	6	0	0	28	0	46	0	22	0	6		0	0		0	0	0	0	0	0
30/03/2017 16:37	5850	NSTU-SH	-34.5899	148.7475	Unestablisl	2010	1	30	0	0	34	28	0	6	0	50	2	0	0	0	0		0			0			0	0
30/03/2017 16:37	5853	NSTU-SH	-34.5899	148.7475	Y	2012	1	30	0	0	100	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5854	NSTU-SH	-34.5899	148.7475	Y	2012	2	40	0	0	62	0	0	0	0	2	6	34	36	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5857	NSTU-SH	-34.5899	148.7475	Y	2014	2	10	0	0	88	4	0	0	0	4	0	26	70	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5858	NSTU-SH	-34.5899	148.7475	Y	2014	1	10	0	0	96	0	8	0	0	12	0	4	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5861	NSTU-SH	-34.5899	148.7475	Y	2016	1	30	10	0	6	0	0	4	4	10	2	0	12	4		0	0		4	0	0	0	0	0
30/03/2017 16:37	5862	NSTU-SH	-34.5899	148.7475	Y	2016	2	10	0	4	2	0	0	0	4	50	0	24	6	4		0	0		6	0	0	0	0	0
30/03/2017 16:37	5863	NWEL-C	-28.4322	151.744	Y	2010	1	90	0	0	22	10	0	0	0	0	10	84	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5864	NWEL-C	-28.4322	151.744	Y	2012	2	60	0	0	44	8	0	0	0	4	4	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5865	NWEL-C	-28.4322	151.744	Y	2012	1	90	0	0	64	16	0	4	0	8	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5866	NWEL-C	-28.4322	151.744	Y	2014	1	70	20	0	60	4	0	0	0	0	6	88	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5867	NWEL-C	-28.4322	151.744	Y	2014	2	30	0	0	40	0	0	0	0	0	10	78	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5868	NWEL-C	-28.4322	151.744	Y	2016	2	50	20	2	42	18	0	0	0	0	8	60	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5869	NWEL-C	-28.4322	151.744	Y	2016	1	100	0	6	82	14	0	0	2	0	0	44	0	0	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5870	NWEL-S	-28.4289	151.7515	Y	2010	1	70	0	2	36	8	2	0	0	0	8	74	8	0	0		0	0		0		0	0	0
30/03/2017 16:37	5871	NWEL-S	-28.4289	151.7515	Y	2012	2	80	10	0	70	36	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5872	NWEL-S	-28.4289	151.7515	Y	2012	1	60	0	6	50	32	2	0	0	4	2	96	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5873	NWEL-S	-28.4289	151.7515	Y	2014	2	10	40	8	42	4	0	2	0	0	16	58	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5874	NWEL-S	-28.4289	151.7515	Y	2014	1	0	0	2	98	0	0	0	0	0	0	32	28	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5875	NWEL-S	-28.4289	151.7515	Y	2016	1	20	20	4	30	2	0	0	0	0	4	68	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5876	NWEL-S	-28.4289	151.7515	Y	2016	2	10	30	0	94	0	0	0	0	0	0	20	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5877	NWIL-S	-33.3361	147.8277	Y	2010	1	50	0	0	22	8	0	0	2	72	4	16	0	0	0		0			0			0	0
30/03/2017 16:37	5878	NWIL-S	-33.3361	147.8277	Y	2012	2	60	0	0	80	8	8	4	0	54	0	8	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	5879	NWIL-S	-33.3361	147.8277	Y	2012	1	30	0	0	84	14	6	8	0	52	0	2	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5880	NWIL-S	-33.3361	147.8277	Rotated ou	2014	1																							
30/03/2017 16:37	5881	NWIL-S	-33.3361	147.8277	Rotated ou	2014	2																							
30/03/2017 16:37	5882	NWIL-S	-33.3361	147.8277	Ceased	2016	2																							
30/03/2017 16:37	5883	NWIL-S	-33.3361	147.8277	Ceased	2016	1																							
30/03/2017 16:37	5884	PAMP-C	-32.5704	148.9693	Y	2010	1	30	0	0	14	34	0	4	0	64	2	16	0	12	0		0	0		0		0	0	0
30/03/2017 16:37	5885	PAMP-C	-32.5704	148.9693	Y	2012	2	70	0	0	26	28	2	2	0	58	4	14	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5886	PAMP-C	-32.5704	148.9693	Y	2012	1	0	0	0	68	16	0	0	0	52	0	0	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5887	PAMP-C	-32.5704	148.9693	Ceased	2014	2																							
30/03/2017 16:37	5888	PAMP-C	-32.5704	148.9693	Ceased	2014	1																							
30/03/2017 16:37	5889	PAMP-C	-32.5704	148.9693	Ceased	2016	2																							
30/03/2017 16:37	5890	PAMP-C	-32.5704	148.9693	Ceased	2016	1																							
30/03/2017 16:37	5891	PAMP-S	-32.5716	148.9738	Y	2010	1	20	0	8	64	24	0	0	0	16	0	22	0	12	0		0	0		0		0	0	0
30/03/2017 16:37	5892	PAMP-S	-32.5716	148.9738	Y	2012	1	40	0	0	42	32	0	0	0	36	0	6	0	0	36	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5893	PAMP-S	-32.5716	148.9738	Y	2012	2	70	0	0	74	14	0	0	0	36	0	18	6	8	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5894	PAMP-S	-32.5716	148.9738	Ceased	2014	2																							
30/03/2017 16:37	5895	PAMP-S	-32.5716	148.9738	Ceased	2014	1																							
30/03/2017 16:37	5896	PAMP-S	-32.5716	148.9738	Ceased	2016	2																							
30/03/2017 16:37	5897	PAMP-S	-32.5716	148.9738	Ceased	2016	1																							

30/03/2017 16:37	5898	PBAR-C	-32.4769	149.2407	Y	2010	1	30	20	0	60	32	0	0	0	24	4	20	10	14	0		0	0		0		0	0	0
30/03/2017 16:37	5899	PBAR-C	-32.4769	149.2407	Y	2012	1	0	10	0	56	14	6	2	2	34	0	2	0	4	32	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5900	PBAR-C	-32.4769	149.2407	Y	2012	2	40	0	0	58	22	16	4	2	8	0	2	0	12	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5901	PBAR-C	-32.4769	149.2407	Y	2014	1	0	0	0	52	12	6	0	0	26	14	4	0	2	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5902	PBAR-C	-32.4769	149.2407	Y	2014	2	20	20	0	48	18	10	4	0	12	4	16	2	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5903	PBAR-C	-32.4769	149.2407	Y	2016	1	0	0	0	74	16	0	0	0	4	6	56	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5904	PBAR-C	-32.4769	149.2407	Y	2016	2	40	10	0	60	8	6	0	0	4	12	48	0	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5905	PBAR-S	-32.4814	149 251	Y	2010	1	20	0	0	78	34	0	0	0	12	4	12	16	18	0		0	0		0		0	0	0
30/03/2017 16:37	5906	PBAR-S	-32.4814	149 251	Y	2012	2	0	0	2	48	10	12	0	12	10	0	2	0	14	6	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	5907	PBAR-S	-32.4814	149 251	Y	2012	1	0	0	2	52	8	0	26	0	18	0	0	0	0	16	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5908	PBAR-S	-32.4814	149 251	Y	2014	2	0	0	0	22	44	2	0	0	28	4	0	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5909	PBAR-S	-32.4814	149 251	Y	2014	1	0	0	0	60	8	2	0	0	36	0	0	0	8	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5910	PBAR-S	-32.4814	149 251	Y	2016	2	0	0	0	54	0	0	0	2	4	0	70	0	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5911	PBAR-S	-32.4814	149 251	Y	2016	1	0	0	0	80	0	0	0	0	14	0	36	6	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5912	PBEC-S	-35.0738	149.3074	Y	2010	1	0	10	12	46	2	8	0	0	0	10	18	18	18	0		0	0		0		0	0	0
30/03/2017 16:37	5913	PBEC-S	-35.0738	149.3074	Y	2012	2	0	0	0	64	32	2	2	0	0	2	6	26	14	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	5914	PBEC-S	-35.0738	149.3074	Y	2012	1	10	10	40	22	16	6	0	0	0	14	40	12	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5915	PBEC-S	-35.0738	149.3074	Rotated ou	2014	1																							
30/03/2017 16:37	5916	PBEC-S	-35.0738	149.3074	Rotated ou	2014	2																							
30/03/2017 16:37	5917	PBEC-S	-35.0738	149.3074	Y	2016	2	0	0	2	38	0	6	0	0	2	16	6	50	10	0	0	0	6	0	0	0	0	0	0
30/03/2017 16:37	5918	PBEC-S	-35.0738	149.3074	Y	2016	1	40	0	38	16	0	0	0	0	0	24	64	24	0	0	0	0	4	0	0	0	0	0	0
30/03/2017 16:37	5919	PCAM-C	-35.4917	146.8287	Y	2010	1	50	10	0	0	0	0	0	0	84	10	10	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5920	PCAM-C	-35.4917	146.8287	Y	2012	2	40	0	0	24	0	0	0	0	62	6	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5921	PCAM-C	-35.4917	146.8287	Y	2012	1	0	0	0	0	0	0	0	0	70	26	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5922	PCAM-C	-35.4917	146.8287	Y	2014	1	90	0	0	4	0	0	0	0	50	2	88	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5923	PCAM-C	-35.4917	146.8287	Y	2014	2	90	0	0	4	0	0	0	0	44	18	80	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5924	PCAM-C	-35.4917	146.8287	Y	2016	1	80	0	0	0	0	0	0	0	26	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5925	PCAM-C	-35.4917	146.8287	Y	2016	2	80	10	0	0	0	0	0	0	16	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5926	PCAM-S	-35.485	146.8375	Y	2010	1	30	0	0	20	6	0	0	0	70	4	8	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5927	PCAM-S	-35.485	146.8375	Y	2012	1	20	0	0	70	28	0	0	0	22	0	66	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5928	PCAM-S	-35.485	146.8375	Y	2012	2	50	0	0	76	0	0	0	0	22	0	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5929	PCAM-S	-35.485	146.8375	Y	2014	1	30	20	0	46	4	0	0	0	2	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5930	PCAM-S	-35.485	146.8375	Y	2014	2	50	0	0	56	4	0	4	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5931	PCAM-S	-35.485	146.8375	Y	2016	2	80	10	0	22	4	0	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5932	PCAM-S	-35.485	146.8375	Y	2016	1	80	10	0	12	2	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5933	PCRO-C	-34.9296	148.2414	Y	2010	1	40	0	0	18	42	0	10	0	8	0	0	0	20	0		0	0		0		0	0	0
30/03/2017 16:37	5934	PCRO-C	-34.9296	148.2414	Y	2012	2	0	50	0	48	8	2	6	0	46	2	20	18	20	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	5935	PCRO-C	-34.9296	148.2414	Y	2012	1	30	0	0	72	12	0	0	0	60	0	14	0	2	0	0	0	0	10	0	0	0	0	0
30/03/2017 16:37	5936	PCRO-C	-34.9296	148.2414	Y	2014	1	0	0	0	52	6	0	0	0	42	0	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5937	PCRO-C	-34.9296	148.2414	Y	2014	2	40	0	0	40	6	4	2	0	42	0	2	0	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5938	PCRO-C	-34.9296	148.2414	Y	2016	1	100	0	0	36	2	0	0	0	26	22	16	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5939	PCRO-C	-34.9296	148.2414	Y	2016	2	60	0	0	26	0	0	0	0	16	12	34	4	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5940	PCRO-S	-34.9342	148.2397	Y	2010	1	30	0	0	26	4	0	0	0	22	10	0	0	28	0		0	0		0		0	0	0
30/03/2017 16:37	5941	PCRO-S	-34.9342	148.2397	Y	2012	2	20	70	0	30	54	2	0	0	14	6	22	28	32	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5942	PCRO-S	-34.9342	148.2397	Y	2012	1	10	0	0	58	4	10	6	0	30	2	10	12	20	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5943	PCRO-S	-34.9342	148.2397	Y	2014	1	0	10	0	52	8	2	0	0	44	0	2	0	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5944	PCRO-S	-34.9342	148.2397	Y	2014	2	50	0	0	36	4	0	0	0	28	6	8	0	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5945	PCRO-S	-34.9342	148.2397	Y	2016	2	30	0	0	20	12	0	0	0	14	12	30	0	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5946	PCRO-S	-34.9342	148.2397	Y	2016	1	60	0	0	32	2	0	0	0	18	28	8	0	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5947	PINT-C	-32.587	149.0797	Y	2010	1	10	0	0	60	38	0	0	0	26	4	8	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5948	PINT-C	-32.587	149.0797	Y	2012	2	0	0	4	68	18	2	0	0	14	0	0	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5949	PINT-C	-32.587	149.0797	Y	2012	1	30	0	0	50	10	0	12	6	16	0	8	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5950	PINT-C	-32.587	149.0797	Y	2014	1	20	0	0	46	16	0	2	0	46	0	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5951	PINT-C	-32.587	149.0797	Y	2014	2	0	0	0	38	28	0	0	0	38	4	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5952	PINT-C	-32.587	149.0797	Y	2016	2	0	0	0	26	2	0	0	0	22	18	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5953	PINT-C	-32.587	149.0797	Y	2016	1	0	0	0	10	0	0	0	0	36	12	66	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5954	PINT-S	-32.5785	149.0747	Y	2010	1	0	0	0	76	32	0	0	0	18	0	6	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	5955	PINT-S	-32.5785	149.0747	Y	2012	2	0	0	0	68	8	6	0	2	16	0	6	0	0	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5956	PINT-S	-32.5785	149.0747	Y	2012	1	0	0	0	68	6	2	0	12	10	0	0	2	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5957	PINT-S	-32.5785	149.0747	Y	2014	2	0	0	0	42	16	0	0	0	46	0	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5958	PINT-S	-32.5785	149.0747	Y	2014	1	0	0	0	46	16	2	0	0	36	6	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5959	PINT-S	-32.5785	149.0747	Y	2016	1	0	0	0	36	0	0	0	0	16	8	66	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5960	PINT-S	-32.5785	149.0747	Y	2016	2	0	0	0	46	4	0	0	0	20	0	72	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5961	PMAR-C	-34.2618	148.7234	Y	2010	1	20	0	0	66	6	0	0	0	18	6	18	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5962	PMAR-C	-34.2618	148.7234	Y	2012	2	20	30	0	74	2	2	0	0	26	2	20	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5963	PMAR-C	-34.2618	148.7234	Y	2012	1	0	30	0	68	0	8	0	0	10	2	32	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5964	PMAR-C	-34.2618	148.7234	Y	2014	2	30	0	0	64	2	0	0	0	56	4	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5965	PMAR-C	-34.2618	148.7234	Y	2014	1	0	20	0	64	2	0	0	0	68	2	16	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5966	PMAR-C	-34.2618	148.7234	Y	2016	2	30	0	0	34	0	0	0	0	0	18	54	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5967	PMAR-C	-34.2618	148.7234	Y	2016	1	20	0	0	58	0	0	0	0	8	0	38	18	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5968	PMAR-S	-34.2556	148.7162	Y	2010	1	40	0	0	60	0	0	0	0	14	2	66	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	5969	PMAR-S	-34.2556	148.7162	Y	2012	1	70	0	2	62	12	2	0	0	4	0	98	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5970	PMAR-S	-34.2556	148.7162	Y	2012	2	60	0	0	78	68	0	0	0	6	0	82	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5971	PMAR-S	-34.2556	148.7162	Y	2014	2	10	0	0	72	14	12	0	0	10	0	46	12	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5972	PMAR-S	-34.2556	148.7162	Y	2014	1	30	0	2	30	18	0	0	0	2	0	88	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5973	PMAR-S	-34.2556	148.7162	Y	2016	2	30	0	0	72	2	0	0	0	12	0	58	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5974	PMAR-S	-34.2556	148.7162	Y	2016	1	70	0	0	34	0	2	0	0	0	0	98	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5975	PORR-C	-35.2918	149.4487	Y	2010	1	20	0	0	20	8	0	42	0	6	6	30	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5976	PORR-C	-35.2918	149.4487	Y	2012	2	30	0	0	38	2	8	52	0	10	4	10	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	5977	PORR-C	-35.2918	149.4487	Y	2012	1	20	0	0	62	2	0	26	0	24	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5978	PORR-C	-35.2918	149.4487	Y	2014	2	0	40	0	6	0	0	20	0	6	8	64	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5979	PORR-C	-35.2918	149.4487	Y	2014	1	0	0	0	48	0	0	6	0	8	24	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5980	PORR-C	-35.2918	149.4487	No Access	2016	2																					
30/03/2017 16:37	5981	PORR-C	-35.2918	149.4487	No Access	2016	1																					
30/03/2017 16:37	5982	PORR-S	-35.2898	149.4424	Y	2010	1	0	0	0	24	18	0	50	0	2	2	12	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5983	PORR-S	-35.2898	149.4424	Y	2012	1	0	0	0	44	0	6	66	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5984	PORR-S	-35.2898	149.4424	Y	2012	2	0	0	0	40	6	0	44	0	32	2	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5985	PORR-S	-35.2898	149.4424	Y	2014	1	0	0	0	16	0	0	36	0	40	4	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5986	PORR-S	-35.2898	149.4424	Y	2014	2	0	0	0	36	0	0	32	0	14	6	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5987	PORR-S	-35.2898	149.4424	No Access	2016	1																					
30/03/2017 16:37	5988	PORR-S	-35.2898	149.4424	No Access	2016	2																					
30/03/2017 16:37	5989	PREY-C	-34.7662	148.9784	Y	2010	1	10	0	0	78	0	2	4	0	8	4	10	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	5990	PREY-C	-34.7662	148.9784	Y	2012	2	10	0	0	96	0	0	6	0	74	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5991	PREY-C	-34.7662	148.9784	Y	2012	1	0	0	0	100	0	0	0	0	54	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5992	PREY-C	-34.7662	148.9784	Y	2014	1	0	0	0	80	2	0	0	2	72	0	2	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5993	PREY-C	-34.7662	148.9784	Y	2014	2	0	10	0	56	2	0	0	0	86	0	0	12	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5994	PREY-C	-34.7662	148.9784	Y	2016	1	0	0	0	28	0	0	0	0	0	6	86	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5995	PREY-C	-34.7662	148.9784	Y	2016	2	40	0	0	20	0	0	0	0	0	8	90	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5996	PREY-S	-34.7554	148.9748	Y	2010	1	40	0	0	66	0	0	0	0	30	2	4	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	5997	PREY-S	-34.7554	148.9748	Y	2012	2	40	0	0	94	4	0	0	0	18	0	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5998	PREY-S	-34.7554	148.9748	Y	2012	1	30	0	0	90	2	0	0	0	50	0	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	5999	PREY-S	-34.7554	148.9748	Y	2014	2	10	0	2	86	2	0	0	0	38	0	10	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6000	PREY-S	-34.7554	148.9748	Y	2014	1	10	20	0	66	0	0	0	0	82	0	26	14	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6001	PREY-S	-34.7554	148.9748	Y	2016	2	60	0	2	40	0	4	0	0	2	2	92	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6002	PREY-S	-34.7554	148.9748	Y	2016	1	40	0	0	18	0	0	0	0	0	4	96	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6003	PTAT-S	-33.3885	148.8074	Y	2010	1	0	0	0	88	8	4	6	0	36	40	38	0	20	4		0	0		0		0	0	0
30/03/2017 16:37	6004	PTAT-S	-33.3885	148.8074	Y	2012	2	30	0	0	60	16	0	54	0	38	0	8	0	0	2	0	0	0	0	0	0	0	0
30/03/2017 16:37	6005	PTAT-S	-33.3885	148.8074	Y	2012	1	30	0	0	88	50	0	20	2	32	2	10	0	0	0	0	0	2	8	0	0	0	0	0
30/03/2017 16:37	6006	PTAT-S	-33.3885	148.8074	Rotated ou	2014	1																					
30/03/2017 16:37	6007	PTAT-S	-33.3885	148.8074	Rotated ou	2014	2																					
30/03/2017 16:37	6008	PTAT-S	-33.3885	148.8074	Y	2016	1	30	0	0	46	2	0	0	0	10	2	60	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6009	PTAT-S	-33.3885	148.8074	Y	2016	2	40	0	0	42	0	0	0	0	12	2	56	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6010	PVAU-C	-32.6763	148.5074	Y	2010	1	60	0	16	18	0	0	0	0	0	22	76	18	4	0		0	0		0		0	0	0
30/03/2017 16:37	6011	PVAU-C	-32.6763	148.5074	Y	2012	1	60	10	0	28	6	18	0	0	0	12	56	8	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6012	PVAU-C	-32.6763	148.5074	Y	2012	2	30	90	0	16	10	10	0	0	0	8	64	14	8	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6013	PVAU-C	-32.6763	148.5074	Y	2014	2	30	30	4	36	24	18	0	0	0	6	36	18	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6014	PVAU-C	-32.6763	148.5074	Y	2014	1	20	30	0	38	4	22	0	0	2	14	42	36	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6015	PVAU-C	-32.6763	148.5074	Y	2016	2	80	0	2	10	2	0	0	0	0	24	56	14	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6016	PVAU-C	-32.6763	148.5074	Y	2016	1	40	10	0	16	4	2	0	0	0	12	52	20	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6017	PVAU-S	-32.6621	148.4999	Y	2010	1	80	10	0	54	24	0	0	0	0	4	62	18	2	0		0	0		0		0	0	0
30/03/2017 16:37	6018	PVAU-S	-32.6621	148.4999	Y	2012	2	50	50	4	48	18	8	0	0	0	6	28	6	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6019	PVAU-S	-32.6621	148.4999	Y	2012	1	100	10	2	48	36	4	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6020	PVAU-S	-32.6621	148.4999	Y	2014	2	20	0	2	70	32	42	0	0	2	0	4	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6021	PVAU-S	-32.6621	148.4999	Y	2014	1	40	60	0	50	62	10	0	0	2	0	56	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6022	PVAU-S	-32.6621	148.4999	Y	2016	1	90	0	2	32	2	0	0	0	0	14	70	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6023	PVAU-S	-32.6621	148.4999	Y	2016	2	70	0	0	38	0	0	0	0	0	16	66	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6024	RBOU-C	-35.7443	149.1526	Y	2010	1	20	0	0	54	8	10	8	0	0	16	32	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6025	RBOU-C	-35.7443	149.1526	Y	2012	1	30	0	0	48	10	0	36	0	4	12	26	4	0	0	0	0	0	0	0	0	0	0	36
30/03/2017 16:37	6026	RBOU-C	-35.7443	149.1526	Y	2012	2	0	0	0	20	6	0	78	0	4	4	4	0	2	0	0	0	0	0	0	0	0	0	78
30/03/2017 16:37	6027	RBOU-C	-35.7443	149.1526	Y	2014	1	30	0	0	20	0	0	16	0	2	12	54	8	0	0	0	0	0	0	0	0	0	0	14
30/03/2017 16:37	6028	RBOU-C	-35.7443	149.1526	Y	2014	2	0	0	0	20	6	0	44	0	0	4	28	0	0	0	0	0	0	0	0	0	0	0	44
30/03/2017 16:37	6029	RBOU-C	-35.7443	149.1526	Y	2016	1	60	0	0	16	0	0	0	0	42	4	96	0	0	0	0	0	0	0	0	0	0	0	48
30/03/2017 16:37	6030	RBOU-C	-35.7443	149.1526	Y	2016	2	10	0	0	2	0	2	0	0	82	4	96	0	0	0	0	0	0	0	0	0	0	0	80
30/03/2017 16:37	6031	RBOU-S	-35.745	149.157	Y	2010	1	20	0	0	36	6	0	36	0	0	20	20	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6032	RBOU-S	-35.745	149.157	Y	2012	2	40	0	0	40	34	0	22	0	14	6	46	0	0	0	0	0	0	0	0	0	0	0	22
30/03/2017 16:37	6033	RBOU-S	-35.745	149.157	Y	2012	1	0	0	0	16	4	0	80	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	78
30/03/2017 16:37	6034	RBOU-S	-35.745	149.157	Y	2014	2	70	0	0	28	0	0	14	0	0	8	54	0	0	0	0	0	0	0	0	0	0	0	14
30/03/2017 16:37	6035	RBOU-S	-35.745	149.157	Y	2014	1	0	0	0	6	4	0	56	0	0	4	32	0	0	0	0	0	0	0	0	0	0	0	56
30/03/2017 16:37	6036	RBOU-S	-35.745	149.157	Y	2016	2	90	0	0	8	0	0	0	0	28	6	94	0	0	0	0	0	24	0	0	0	0	0	4
30/03/2017 16:37	6037	RBOU-S	-35.745	149.157	Y	2016	1	0	0	0	0	2	0	0	0	84	2	98	0	0	0	0	0	6	0	0	0	0	0	78
30/03/2017 16:37	6038	RCUL-C	-30.8749	150.4521	Y	2010	1	20	0	0	66	8	0	0	0	0	20	36	0	4	0		0	0		0		0	0	0
30/03/2017 16:37	6039	RCUL-C	-30.8749	150.4521	Y	2012	2	0	0	0	98	10	0	0	0	24	0	2	2	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6040	RCUL-C	-30.8749	150.4521	Y	2012	1	20	0	0	90	8	4	0	0	24	0	0	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6041	RCUL-C	-30.8749	150.4521	Rotated ou	2014	2																					
30/03/2017 16:37	6042	RCUL-C	-30.8749	150.4521	Rotated ou	2014	1																					
30/03/2017 16:37	6043	RCUL-C	-30.8749	150.4521	Y	2016	1	0	0	0	80	10	0	0	2	10	6	16	2	2	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	6044	RCUL-C	-30.8749	150.4521	Y	2016	2	0	0	0	76	4	0	0	0	6	4	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6045	RCUL-S	-30.8539	150.4368	Y	2010	1	30	0	0	62	22	2	0	0	2	0	50	32	0	0		0	0		0		0	0	0
30/03/2017 16:37	6046	RCUL-S	-30.8539	150.4368	Y	2012	1	40	0	0	74	46	0	0	0	2	0	42	2	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6047	RCUL-S	-30.8539	150.4368	Y	2012	1	20	0	0	92	38	0	0	0	8	10	10	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6048	RCUL-S	-30.8539	150.4368	Rotated ou	2014	2																					
30/03/2017 16:37	6049	RCUL-S	-30.8539	150.4368	Rotated ou	2014	1																					
30/03/2017 16:37	6050	RCUL-S	-30.8539	150.4368	Y	2016	2	20	0	0	94	34	0	0	0	0	2	42	4	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6051	RCUL-S	-30.8539	150.4368	Y	2016	1	0	0	0	74	16	0	0	0	6	10	38	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6052	RFLI-C	-34.8903	148.1255	Y	2010	1	40	50	0	88	4	0	0	0	78	12	24	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6053	RFLI-C	-34.8903	148.1255	Y	2012	1	60	0	0	42	62	0	0	0	42	0	10	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6054	RFLI-C	-34.8903	148.1255	Y	2012	2	20	50	0	46	24	0	0	0	48	4	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6055	RFLI-C	-34.8903	148.1255	Y	2014	2	0	0	2	22	2	0	0	0	60	0	16	0	0	0	0	0	0	0	0	0	0	0	0

30/03/2017 16:37	6056	RFLI-C	-34.8903	148.1255	Y	2014	1	30	0	0	14	8	0	0	0	80	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6057	RFLI-C	-34.8903	148.1255	Y	2016	2	100	0	0	20	0	0	0	0	54	4	46	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6058	RFLI-C	-34.8903	148.1255	Y	2016	1	80	0	0	26	0	6	0	0	74	0	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6059	RFLI-S	-34.9017	148.1275	Y	2010	1	70	0	0	54	16	0	0	0	60	10	42	12	12	0		0	0		0		0	0	0
30/03/2017 16:37	6060	RFLI-S	-34.9017	148.1275	Y	2012	1	30	0	0	84	8	0	0	0	16	4	20	2	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6061	RFLI-S	-34.9017	148.1275	Y	2012	2	50	0	0	64	8	0	0	0	50	2	18	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6062	RFLI-S	-34.9017	148.1275	Y	2014	1	10	0	0	52	6	0	0	0	36	2	8	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6063	RFLI-S	-34.9017	148.1275	Y	2014	2	40	0	0	26	6	0	0	0	48	10	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6064	RFLI-S	-34.9017	148.1275	Y	2016	1	100	0	0	36	0	0	0	0	18	6	38	8	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6065	RFLI-S	-34.9017	148.1275	Y	2016	2	60	0	0	20	0	0	0	0	38	4	34	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6066	RHAL-C	-34.997	148.7437	Y	2010	1	40	0	4	34	4	4	4	0	12	4	28	8	14	0		0	0		0		0	0	0
30/03/2017 16:37	6067	RHAL-C	-34.997	148.7437	Y	2012	2	60	0	0	82	24	2	0	0	6	0	20	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6068	RHAL-C	-34.997	148.7437	Y	2012	1	20	0	10	76	6	0	0	0	0	0	32	2	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6069	RHAL-C	-34.997	148.7437	Y	2014	1	20	10	10	52	4	2	0	0	2	8	46	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6070	RHAL-C	-34.997	148.7437	Y	2014	2	40	0	2	66	16	0	0	0	30	0	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6071	RHAL-C	-34.997	148.7437	Y	2016	1	70	0	8	30	0	0	0	0	0	20	34	2	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6072	RHAL-C	-34.997	148.7437	Y	2016	2	60	0	2	24	0	6	0	0	6	8	72	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6073	RHAL-S	-34.9998	148.7506	Y	2010	1	10	10	12	28	0	6	0	0	0	20	26	24	2	0		0	0		0		0	0	0
30/03/2017 16:37	6074	RHAL-S	-34.9998	148.7506	Y	2012	2	30	0	24	52	2	0	0	0	0	16	32	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6075	RHAL-S	-34.9998	148.7506	Y	2012	1	30	0	4	82	14	8	0	0	0	2	10	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6076	RHAL-S	-34.9998	148.7506	Y	2014	1	20	0	12	68	4	8	0	0	0	2	16	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6077	RHAL-S	-34.9998	148.7506	Y	2014	2	20	10	22	38	4	6	0	0	0	10	28	14	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6078	RHAL-S	-34.9998	148.7506	Y	2016	2	80	0	10	34	0	0	0	0	0	8	52	2	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6079	RHAL-S	-34.9998	148.7506	Y	2016	1	80	0	6	48	4	8	0	0	6	10	32	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6080	RLEE-C	-32.9402	148.8089	Y	2010	1	30	0	0	10	38	0	36	0	26	2	8	0	4	0		0	0		0		0	0	0
30/03/2017 16:37	6081	RLEE-C	-32.9402	148.8089	Y	2012	1	60	0	0	6	20	0	0	0	54	0	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6082	RLEE-C	-32.9402	148.8089	Y	2012	2	60	0	0	40	2	0	18	0	32	12	28	2	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6083	RLEE-C	-32.9402	148.8089	Y	2014	1	70	0	0	0	0	0	0	0	98	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6084	RLEE-C	-32.9402	148.8089	Y	2014	2	50	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6085	RLEE-C	-32.9402	148.8089	Y	2016	2	30	0	0	2	0	0	0	0	50	0	78	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6086	RLEE-C	-32.9402	148.8089	Y	2016	1	70	10	0	22	2	0	0	0	26	0	24	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6087	RLEE-S	-32.948	148.798	Y	2010	1	20	0	0	22	48	0	14	0	18	0	8	0	2	0		0	0		0		0	0	0
30/03/2017 16:37	6088	RLEE-S	-32.948	148.798	Y	2012	1	30	0	0	48	8	0	0	6	64	0	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6089	RLEE-S	-32.948	148.798	Y	2012	2	40	0	0	22	14	0	0	0	32	0	48	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6090	RLEE-S	-32.948	148.798	Y	2014	2	40	0	0	46	10	0	0	0	50	6	10	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6091	RLEE-S	-32.948	148.798	Y	2014	1	0	0	0	66	0	0	0	0	82	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6092	RLEE-S	-32.948	148.798	Y	2016	2	30	0	0	30	0	0	0	0	0	0	88	2	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6093	RLEE-S	-32.948	148.798	Y	2016	1	0	0	0	30	0	0	0	0	26	0	90	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6094	RSIM-C	-31.5496	150 044	Y	2010	1	20	0	0	80	0	0	0	0	84	90	70	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6095	RSIM-C	-31.5496	150 044	Y	2012	1	0	0	0	64	6	0	0	0	56	2	2	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	6096	RSIM-C	-31.5496	150 044	Y	2012	2	0	0	0	96	24	0	0	0	24	0	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6097	RSIM-C	-31.5496	150 044	Rotated ou	2014	2																							
30/03/2017 16:37	6098	RSIM-C	-31.5496	150 044	Rotated ou	2014	1																							
30/03/2017 16:37	6099	RSIM-C	-31.5496	150 044	Y	2016	2	0	10	0	66	0	0	0	0	0	32	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6100	RSIM-C	-31.5496	150 044	Y	2016	1	0	0	0	44	0	0	0	0	2	54	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6101	RSIM-S	-31.5517	150.0493	Y	2010	1	0	0	0	88	0	0	74	0	84	0	72	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6102	RSIM-S	-31.5517	150.0493	Y	2012	1	0	0	0	50	6	0	0	0	76	0	18	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	6103	RSIM-S	-31.5517	150.0493	Y	2012	2	0	0	0	66	6	0	0	0	60	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6104	RSIM-S	-31.5517	150.0493	Rotated ou	2014	2																							
30/03/2017 16:37	6105	RSIM-S	-31.5517	150.0493	Rotated ou	2014	1																							
30/03/2017 16:37	6106	RSIM-S	-31.5517	150.0493	Y	2016	2	0	0	4	84	0	0	0	0	6	6	40	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6107	RSIM-S	-31.5517	150.0493	Y	2016	1	0	0	0	70	0	0	0	0	8	20	18	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6108	RSYK-C	-34.7153	148.5497	Y	2010	1	0	0	0	74	0	0	0	0	84	54	80	0	12	0		0	0		0		0	0	0
30/03/2017 16:37	6109	RSYK-C	-34.7153	148.5497	Y	2012	2	0	0	0	94	0	0	0	0	64	0	0	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6110	RSYK-C	-34.7153	148.5497	Y	2012	1	0	30	0	28	6	0	0	0	88	0	6	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6111	RSYK-C	-34.7153	148.5497	Y	2014	1	10	10	0	0	0	0	0	24	98	2	0	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6112	RSYK-C	-34.7153	148.5497	Y	2014	2	0	0	0	22	4	0	0	2	90	0	0	0	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6113	RSYK-C	-34.7153	148.5497	Y	2016	1	20	0	0	0	0	0	0	0	14	60	18	2	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6114	RSYK-C	-34.7153	148.5497	Y	2016	2	0	0	0	10	0	0	0	0	14	48	24	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6115	RSYK-S	-34.7171	148.5452	Y	2010	1	0	0	0	28	0	0	0	0	62	96	92	0	6	0		0	0		0		0	0	0
30/03/2017 16:37	6116	RSYK-S	-34.7171	148.5452	Y	2012	1	0	0	0	100	2	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6117	RSYK-S	-34.7171	148.5452	Y	2012	2	0	0	0	74	0	0	0	0	82	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6118	RSYK-S	-34.7171	148.5452	Y	2014	2	0	0	0	18	8	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6119	RSYK-S	-34.7171	148.5452	Y	2014	1	0	0	0	28	4	2	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6120	RSYK-S	-34.7171	148.5452	Y	2016	2	0	0	2	0	0	0	0	0	4	52	42	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6121	RSYK-S	-34.7171	148.5452	Y	2016	1	0	0	0	24	0	0	0	0	0	20	64	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6122	RVEJ-S	-35.9414	149.1586	Y	2010	1	20	0	0	50	12	2	0	0	0	16	24	4	14	0		0	0		0		0	0	0
30/03/2017 16:37	6123	RVEJ-S	-35.9414	149.1586	Y	2012	1	50	0	0	60	60	2	6	0	0	0	48	2	4	0	0	0	0	0	0	0	0	0	6
30/03/2017 16:37	6124	RVEJ-S	-35.9414	149.1586	Y	2012	2	20	0	4	42	32	6	40	0	4	2	10	18	12	0	0	0	2	0	0	0	0	0	36
30/03/2017 16:37	6125	RVEJ-S	-35.9414	149.1586	Rotated ou	2014	2																							
30/03/2017 16:37	6126	RVEJ-S	-35.9414	149.1586	Rotated ou	2014	1																							
30/03/2017 16:37	6127	RVEJ-S	-35.9414	149.1586	Ceased	2016	2																							
30/03/2017 16:37	6128	RVEJ-S	-35.9414	149.1586	Ceased	2016	1																							
30/03/2017 16:37	6129	SCHA-LH	-33.8443	148 568	Y	2010	1	0	0	0	82	30	2	0	0	2	68	14	6	0	0		0	0		0		0	0	0
30/03/2017 16:37	6132	SCHA-LH	-33.8443	148 568	Y	2012	2	20	0	0	32	52	36	0	0	30	12	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6133	SCHA-LH	-33.8443	148 568	Y	2012	1	0	0	0	88	62	4	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6136	SCHA-LH	-33.8443	148 568	Y	2014	1	0	0	0	88	12	0	0	0	8	2	6	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6137	SCHA-LH	-33.8443	148 568	Y	2014	2	30	10	0	42	14	2	0	0	42	10	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6140	SCHA-LH	-33.8443	148 568	Ceased	2016	2																							

30/03/2017 16:37	6141	SCHA-LH	-33.8443	148 568	Ceased	2016	1																				
30/03/2017 16:37	6142	SCHA-S	-33.8442	148.5635	Y	2010	1	0	0	0	74	24	0	0	0	0	72	54	2	2	0		0	0		0		0	0	0
30/03/2017 16:37	6145	SCHA-S	-33.8442	148.5635	Y	2012	1	0	0	0	84	8	0	0	0	18	12	0	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6146	SCHA-S	-33.8442	148.5635	Y	2012	2	30	0	0	18	72	12	0	0	22	2	0	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6149	SCHA-S	-33.8442	148.5635	Y	2014	2	50	20	0	28	54	12	0	0	20	4	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6150	SCHA-S	-33.8442	148.5635	Y	2014	1	0	0	0	76	10	2	0	0	10	4	2	14	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6153	SCHA-S	-33.8442	148.5635	Ceased	2016	2																							
30/03/2017 16:37	6154	SCHA-S	-33.8442	148.5635	Ceased	2016	1																							
30/03/2017 16:37	6155	SCUD-C	-31.586	150.1417	Y	2010	1	0	0	0	84	6	2	0	0	74	42	46	0	22	0		0	0		0		0	0	0
30/03/2017 16:37	6156	SCUD-C	-31.586	150.1417	Y	2012	2	10	0	0	92	28	0	0	0	8	0	2	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6157	SCUD-C	-31.586	150.1417	Y	2012	1	0	20	4	74	28	2	0	0	0	0	8	0	28	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6158	SCUD-C	-31.586	150.1417	Rotated ou	2014	1																							
30/03/2017 16:37	6159	SCUD-C	-31.586	150.1417	Rotated ou	2014	2																							
30/03/2017 16:37	6160	SCUD-C	-31.586	150.1417	Y	2016	1	0	20	0	60	4	4	0	0	18	0	10	18	40	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6161	SCUD-C	-31.586	150.1417	Y	2016	2	0	0	0	88	44	0	0	0	4	0	10	0	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6162	SCUD-S	-31.5901	150.1442	Y	2010	1	0	0	0	90	48	0	0	0	74	50	82	0	52	0		0	0		0		0	0	0
30/03/2017 16:37	6163	SCUD-S	-31.5901	150.1442	Y	2012	1	0	10	6	72	48	6	0	0	6	0	6	0	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6164	SCUD-S	-31.5901	150.1442	Y	2012	2	40	40	0	70	40	0	0	2	26	2	4	0	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6165	SCUD-S	-31.5901	150.1442	Rotated ou	2014	2																							
30/03/2017 16:37	6166	SCUD-S	-31.5901	150.1442	Rotated ou	2014	1																							
30/03/2017 16:37	6167	SCUD-S	-31.5901	150.1442	Y	2016	2	20	30	2	52	30	0	0	4	0	0	32	8	32	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6168	SCUD-S	-31.5901	150.1442	Y	2016	1	0	10	2	86	36	0	0	0	0	4	18	10	30	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6169	SGRE-S	-33.5648	149.0582	Y	2010	1	50	10	0	16	8	6	8	0	34	4	24	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6170	SGRE-S	-33.5648	149.0582	Y	2012	2	50	0	0	44	12	2	16	0	78	0	4	0	0	0	0	0	0	26	0	0	0	0	0
30/03/2017 16:37	6171	SGRE-S	-33.5648	149.0582	Y	2012	1	70	0	0	4	12	0	44	0	46	6	26	0	0	0	0	0	0	4	0	0	0	0	0
30/03/2017 16:37	6172	SGRE-S	-33.5648	149.0582	Y	2014	1	50	10	0	6	2	0	12	0	16	16	66	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6173	SGRE-S	-33.5648	149.0582	Y	2014	2	40	10	0	26	2	0	10	0	68	0	18	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6174	SGRE-S	-33.5648	149.0582	Y	2016	1	50	30	0	0	0	0	0	0	30	6	96	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6175	SGRE-S	-33.5648	149.0582	Y	2016	2	70	0	0	18	0	0	0	0	6	4	82	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6176	SHIC-S	-33.6104	148.7416	Y	2010	1	0	0	0	14	0	0	64	0	76	38	46	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6179	SHIC-S	-33.6104	148.7416	Y	2012	1	0	0	0	44	0	0	4	0	58	8	8	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6180	SHIC-S	-33.6104	148.7416	Y	2012	2	30	0	0	8	0	0	2	0	82	2	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6183	SHIC-S	-33.6104	148.7416	Y	2014	1	10	0	0	6	0	0	0	8	72	0	34	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6184	SHIC-S	-33.6104	148.7416	Y	2014	2	10	0	0	0	2	0	0	10	84	0	48	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6187	SHIC-S	-33.6104	148.7416	Y	2016	1	0	0	0	18	4	0	0	2	82	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6188	SHIC-S	-33.6104	148.7416	Y	2016	2	20	10	0	0	0	0	0	4	100	0	16	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6189	SHIC-SH	-33.6049	148.7475	Unestablisl	2010																								
30/03/2017 16:37	6192	SHIC-SH	-33.6049	148.7475	Y	2012	2	40	0	0	68	6	0	10	0	60	12	2	0	0	0	0	0	0	26	0	0	0	0	0
30/03/2017 16:37	6193	SHIC-SH	-33.6049	148.7475	Y	2012	1	0	0	0	88	16	0	2	0	24	4	18	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6196	SHIC-SH	-33.6049	148.7475	Y	2014	1	0	0	0	56	4	0	0	0	60	0	12	2	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6197	SHIC-SH	-33.6049	148.7475	Y	2014	2	30	10	0	24	2	0	0	0	48	8	34	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6200	SHIC-SH	-33.6049	148.7475	Y	2016	1	0	0	0	96	32	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6201	SHIC-SH	-33.6049	148.7475	Y	2016	2	20	0	0	50	2	4	0	2	56	8	14	4	4	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6202	SJAM-C	-28.6993	151.5586	Y	2010	1	50	0	6	48	10	0	0	0	0	18	60	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6203	SJAM-C	-28.6993	151.5586	Y	2012	1	30	0	0	80	8	0	18	18	0	12	88	0	0	0	0	18	0	0	0	0	0	0	0
30/03/2017 16:37	6204	SJAM-C	-28.6993	151.5586	Y	2012	2	60	0	4	96	10	0	0	0	0	2	98	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6205	SJAM-C	-28.6993	151.5586	Y	2014	2	50	20	2	66	48	0	0	0	0	0	58	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6206	SJAM-C	-28.6993	151.5586	Y	2014	1	20	0	0	82	4	0	0	0	0	2	14	2	2	0	0	4	0	0	0	0	0	0	0
30/03/2017 16:37	6207	SJAM-C	-28.6993	151.5586	Y	2016	2	60	0	0	60	16	0	0	0	0	4	80	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6208	SJAM-C	-28.6993	151.5586	Y	2016	1	30	0	0	54	10	0	0	0	0	20	28	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6209	SJAM-S	-28.7016	151.5729	Y	2010	1	50	0	2	20	8	0	0	0	0	12	38	2	8	0		0	0		0		0	0	0
30/03/2017 16:37	6210	SJAM-S	-28.7016	151.5729	Y	2012	1	10	0	8	94	10	0	0	0	2	10	90	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6211	SJAM-S	-28.7016	151.5729	Y	2012	2	70	0	10	88	52	0	0	0	8	14	86	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6212	SJAM-S	-28.7016	151.5729	Y	2014	2	20	0	20	88	10	0	0	0	0	0	58	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6213	SJAM-S	-28.7016	151.5729	Y	2014	1	0	0	2	74	4	4	0	0	0	8	26	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6214	SJAM-S	-28.7016	151.5729	Y	2016	2	70	0	0	42	34	0	0	0	0	8	70	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6215	SJAM-S	-28.7016	151.5729	Y	2016	1	30	30	4	42	4	0	0	0	0	20	50	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6216	SJOB-C	-32.8571	148.7756	Y	2010	1	10	0	0	34	10	2	42	0	24	0	10	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6217	SJOB-C	-32.8571	148.7756	Y	2012	1	0	0	0	46	0	0	34	4	6	0	12	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6218	SJOB-C	-32.8571	148.7756	Y	2012	2	40	0	0	34	4	0	12	8	8	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6219	SJOB-C	-32.8571	148.7756	Y	2014	1	0	0	0	6	0	0	0	0	48	56	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6220	SJOB-C	-32.8571	148.7756	Y	2014	2	40	0	0	0	0	0	0	0	56	50	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6221	SJOB-C	-32.8571	148.7756	Ceased	2016	2																							
30/03/2017 16:37	6222	SJOB-C	-32.8571	148.7756	Ceased	2016	1																							
30/03/2017 16:37	6223	SJOB-S	-32.8585	148.7815	Y	2010	1	0	0	0	66	4	2	8	0	8	0	22	0	12	0		0	0		0		0	0	0
30/03/2017 16:37	6224	SJOB-S	-32.8585	148.7815	Y	2012	1	0	0	0	78	0	0	0	2	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6225	SJOB-S	-32.8585	148.7815	Y	2012	2	0	0	0	64	2	0	2	16	10	0	6	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6226	SJOB-S	-32.8585	148.7815	Y	2014	1	0	0	0	44	0	0	0	0	92	4	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6227	SJOB-S	-32.8585	148.7815	Y	2014	2	0	0	0	48	0	0	0	0	96	0	4	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6228	SJOB-S	-32.8585	148.7815	Ceased	2016	1																							
30/03/2017 16:37	6229	SJOB-S	-32.8585	148.7815	Ceased	2016	2																							
30/03/2017 16:37	6230	SLAV-CG	-34.0518	148.9425	Unestablisl	2010																								
30/03/2017 16:37	6233	SLAV-CG	-34.0518	148.9425	Y	2012	1	20	10	0	64	6	10	0	0	0	2	36	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6234	SLAV-CG	-34.0518	148.9425	Y	2012	2	40	0	0	74	10	12	0	0	4	0	32	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6237	SLAV-CG	-34.0518	148.9425	Y	2014	1	0	0	0	84	0	6	0	0	8	0	34	24	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6238	SLAV-CG	-34.0518	148.9425	Y	2014	2	20	10	0	68	0	10	0	0	14	0	34	8	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6241	SLAV-CG	-34.0518	148.9425	Y	2016	1	0	10	0	40	0	2	0	0	0	16	54	10	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6242	SLAV-CG	-34.0518	148.9425	Y	2016	2	30	0	2	56	0	4	0	0	2	12	48	8	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6243	SLAV-S	-34.0537	148.9373	Unestablisl	2010																								

30/03/2017 16:37	6246	SLAV-S	-34.0537	148.9373	Y	2012	2	40	0	0	64	8	8	0	0	4	0	52	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6247	SLAV-S	-34.0537	148.9373	Y	2012	1	30	0	0	80	6	18	2	0	8	4	18	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6250	SLAV-S	-34.0537	148.9373	Y	2014	1	10	10	0	64	0	6	0	0	30	0	26	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6251	SLAV-S	-34.0537	148.9373	Y	2014	2	40	0	0	56	0	8	0	0	18	4	64	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6254	SLAV-S	-34.0537	148.9373	Y	2016	1	20	0	0	56	0	0	0	0	2	6	34	18	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6255	SLAV-S	-34.0537	148.9373	Y	2016	2	30	0	2	48	0	0	0	0	0	8	76	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6256	SMAD-C	-33.3629	147.5913	Y	2010	1	100	30	0	24	42	0	0	0	16	4	60	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6257	SMAD-C	-33.3629	147.5913	Y	2012	2	70	0	0	46	76	0	2	0	42	0	12	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6258	SMAD-C	-33.3629	147.5913	Y	2012	1	80	0	0	52	86	28	2	0	32	4	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6259	SMAD-C	-33.3629	147.5913	Ceased	2014	2																							
30/03/2017 16:37	6260	SMAD-C	-33.3629	147.5913	Ceased	2014	1																							
30/03/2017 16:37	6261	SMAD-C	-33.3629	147.5913	Ceased	2016	2																							
30/03/2017 16:37	6262	SMAD-C	-33.3629	147.5913	Ceased	2016	1																							
30/03/2017 16:37	6263	SMAD-S	-33.3611	147.5943	Y	2010	1	100	40	0	20	50	2	0	0	22	0	48	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6264	SMAD-S	-33.3611	147.5943	Y	2012	2	40	0	0	28	66	52	4	0	8	0	36	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6265	SMAD-S	-33.3611	147.5943	Y	2012	1	90	0	0	54	80	12	2	0	26	0	10	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6266	SMAD-S	-33.3611	147.5943	Ceased	2014	2																							
30/03/2017 16:37	6267	SMAD-S	-33.3611	147.5943	Ceased	2014	1																							
30/03/2017 16:37	6268	SMAD-S	-33.3611	147.5943	Ceased	2016	1																							
30/03/2017 16:37	6269	SMAD-S	-33.3611	147.5943	Ceased	2016	2																							
30/03/2017 16:37	6270	SPRO-S	-34.0357	149.0496	Y	2010	1	50	20	0	16	22	22	0	0	4	14	48	10	0	0		0	0		0		0	0	0
30/03/2017 16:37	6271	SPRO-S	-34.0357	149.0496	Y	2012	1	30	30	0	26	18	48	0	0	20	0	68	22	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6272	SPRO-S	-34.0357	149.0496	Y	2012	2	70	0	0	38	30	42	4	0	38	0	86	4	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6273	SPRO-S	-34.0357	149.0496	Rotated ou	2014	1																							
30/03/2017 16:37	6274	SPRO-S	-34.0357	149.0496	Rotated ou	2014	2																							
30/03/2017 16:37	6275	SPRO-S	-34.0357	149.0496	Y	2016	1	10	60	0	34	0	0	0	0	2	6	80	2	0	2	0	0	0	0	0	2	0	0
30/03/2017 16:37	6276	SPRO-S	-34.0357	149.0496	Y	2016	2	60	20	6	66	0	0	0	0	8	0	84	6	0	0	0	0	2	0	0	0	0	0	0
30/03/2017 16:37	6277	STIL-C	-35.729	149.22	Y	2010	1	10	0	0	8	0	0	14	0	36	34	2	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6278	STIL-C	-35.729	149.22	Y	2012	2	20	0	0	46	18	4	12	0	26	18	18	0	0	0	0	0	0	0	0	0	0	0	12
30/03/2017 16:37	6279	STIL-C	-35.729	149.22	Y	2012	1	20	0	0	22	6	0	64	0	14	6	16	2	0	0	0	0	0	0	0	0	0	0	58
30/03/2017 16:37	6280	STIL-C	-35.729	149.22	Y	2014	1	30	0	0	6	0	0	74	0	8	6	26	0	0	0	0	0	0	0	0	0	0	0	74
30/03/2017 16:37	6281	STIL-C	-35.729	149.22	Y	2014	2	20	0	0	22	4	0	16	0	10	20	38	0	0	0	0	0	0	0	0	0	0	0	12
30/03/2017 16:37	6282	STIL-C	-35.729	149.22	Y	2016	1	40	0	0	0	0	0	0	0	84	0	100	0	0	2	0	0	4	0	0	0	0	0	76
30/03/2017 16:37	6283	STIL-C	-35.729	149.22	Y	2016	2	50	0	0	2	2	4	38	0	10	8	80	0	0	0	0	0	4	2	0	0	0	0	36
30/03/2017 16:37	6284	STIL-S	-35.7258	149.2213	Y	2010	1	0	0	0	42	20	0	4	0	2	32	0	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6285	STIL-S	-35.7258	149.2213	Y	2012	2	0	0	0	72	40	2	12	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	12
30/03/2017 16:37	6286	STIL-S	-35.7258	149.2213	Y	2012	1	0	0	0	50	24	0	58	0	2	2	6	2	0	0	0	0	0	0	0	0	0	0	58
30/03/2017 16:37	6287	STIL-S	-35.7258	149.2213	Y	2014	1	0	0	0	16	8	0	36	0	4	6	32	0	0	0	0	0	0	0	0	0	0	0	34
30/03/2017 16:37	6288	STIL-S	-35.7258	149.2213	Y	2014	2	0	0	0	52	4	0	16	0	10	0	28	0	0	0	0	0	6	0	0	0	0	0	8
30/03/2017 16:37	6289	STIL-S	-35.7258	149.2213	Y	2016	2	0	0	0	26	16	0	4	2	18	2	84	4	0	0	0	0	2	0	0	0	0	0	4
30/03/2017 16:37	6290	STIL-S	-35.7258	149.2213	Y	2016	1	0	0	0	2	6	0	0	0	62	10	88	2	0	0	0	0	0	0	0	0	0	0	54
30/03/2017 16:37	6291	TDUN-C	-35.0679	147.4782	Y	2010	1	50	0	0	0	4	10	0	0	72	18	16	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6292	TDUN-C	-35.0679	147.4782	Y	2012	2	0	0	0	38	0	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6293	TDUN-C	-35.0679	147.4782	Y	2012	1	0	0	0	0	0	0	0	0	94	2	4	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6294	TDUN-C	-35.0679	147.4782	Rotated ou	2014	2																							
30/03/2017 16:37	6295	TDUN-C	-35.0679	147.4782	Rotated ou	2014	1																							
30/03/2017 16:37	6296	TDUN-C	-35.0679	147.4782	Y	2016	1	20	0	0	0	2	0	0	0	94	0	40	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6297	TDUN-C	-35.0679	147.4782	Y	2016	2	30	0	0	18	0	0	0	0	80	0	36	2	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6298	TDUN-S	-35.0661	147.4884	Y	2010	1	20	0	0	0	22	50	0	0	50	6	12	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6299	TDUN-S	-35.0661	147.4884	Y	2012	2	0	0	0	66	0	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6300	TDUN-S	-35.0661	147.4884	Y	2012	1	20	0	0	16	0	0	0	0	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6301	TDUN-S	-35.0661	147.4884	Rotated ou	2014	1																							
30/03/2017 16:37	6302	TDUN-S	-35.0661	147.4884	Rotated ou	2014	2																							
30/03/2017 16:37	6303	TDUN-S	-35.0661	147.4884	Y	2016	1			0	4	32	2	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6304	TDUN-S	-35.0661	147.4884	Y	2016	2			0	10	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6305	TWAL-C	-34.3748	148.5581	Y	2010	1	60	0	0	44	2	0	0	0	96	0	12	0	0	0		0	0	76	0		0	0	0
30/03/2017 16:37	6306	TWAL-C	-34.3748	148.5581	Y	2012	1	0	0	0	86	0	0	0	0	84	0	2	0	0	0	0	0	0	14	0	0	0	0	0
30/03/2017 16:37	6307	TWAL-C	-34.3748	148.5581	Y	2012	2	30	0	0	92	0	0	2	0	36	0	6	0	0	0	0	0	0	18	0	0	0	0	0
30/03/2017 16:37	6308	TWAL-C	-34.3748	148.5581	Rotated ou	2014	1																							
30/03/2017 16:37	6309	TWAL-C	-34.3748	148.5581	Rotated ou	2014	2																							
30/03/2017 16:37	6310	TWAL-C	-34.3748	148.5581	Y	2016	2	50	0	0	36	0	0	0	0	44	10	10	0	0	0	0	0	0	0	0	6	0	0	0
30/03/2017 16:37	6311	TWAL-C	-34.3748	148.5581	Y	2016	1	100	0	0	20	0	0	0	0	62	8	8	2	0	0	0	0	0	2	0	20	0	0	0
30/03/2017 16:37	6312	TWAL-S	-34.3695	148.5566	Y	2010	1	30	0	0	62	2	0	0	0	78	0	30	0	0	0		0	0	2	0		0	0	0
30/03/2017 16:37	6313	TWAL-S	-34.3695	148.5566	Y	2012	1	0	0	0	98	2	2	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6314	TWAL-S	-34.3695	148.5566	Y	2012	2	40	0	0	98	0	0	0	0	16	0	24	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6315	TWAL-S	-34.3695	148.5566	Rotated ou	2014	1																							
30/03/2017 16:37	6316	TWAL-S	-34.3695	148.5566	Rotated ou	2014	2																							
30/03/2017 16:37	6317	TWAL-S	-34.3695	148.5566	Y	2016	1	100	0	0	44	2	0	0	0	20	14	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6318	TWAL-S	-34.3695	148.5566	Y	2016	2	60	0	0	40	2	2	0	0	30	2	26	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6319	TWOO-LH1	-33.7841	148.1963	Y	2010	1	0	0	0	0	0	0	96	0	56	4	14	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6322	TWOO-LH1	-33.7841	148.1963	Y	2012	1	0	0	0	90	0	0	0	0	34	0	4	0	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6323	TWOO-LH1	-33.7841	148.1963	Y	2012	2	0	0	0	92	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6326	TWOO-LH1	-33.7841	148.1963	Y	2014	2	0	0	0	78	0	0	0	0	52	2	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6327	TWOO-LH1	-33.7841	148.1963	Y	2014	1	0	0	0	42	0	0	0	0	68	6	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6330	TWOO-LH1	-33.7841	148.1963	Y	2016	1	0	0	0	52	2	0	0	0	8	20	14	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6331	TWOO-LH1	-33.7841	148.1963	Y	2016	2	0	0	0	74	0	0	0	0	2	0	22	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6332	TWOO-S	-33.7875	148.1962	Y	2010	1	0	0	0	78	0	0	80	0	74	2	4	0	0	0		0	0		0		0	0	0
30/03/2017 16:37	6335	TWOO-S	-33.7875	148.1962	Y	2012	1	0	0	0	76	8	0	0	0	54	0	2	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6336	TWOO-S	-33.7875	148.1962	Y	2012	2	0	0	0	70	10	0	0	0	60	0	8	0	0	0	0	0	0	0	0	0	0	0	0

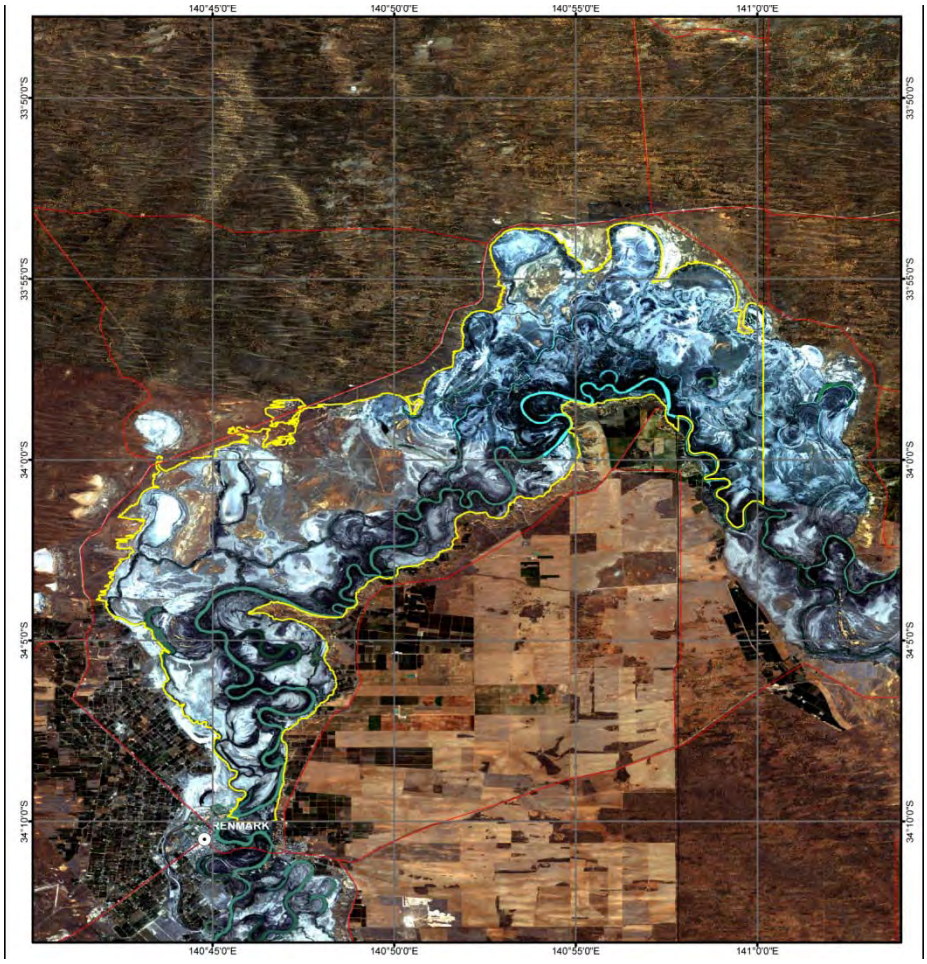
30/03/2017 16:37	6339	TWOO-S	-33.7875	148.1962	Y	2014	2	0	0	0	42	0	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6340	TWOO-S	-33.7875	148.1962	Y	2014	1	0	0	0	34	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6343	TWOO-S	-33.7875	148.1962	Y	2016	2	0	0	0	76	0	0	0	0	38	0	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6344	TWOO-S	-33.7875	148.1962	Y	2016	1	0	0	0	68	2	0	0	0	22	0	16	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6345	VBYR-S	-35.6128	149.1468	Y	2010	1	10	0	0	80	8	0	0	0	6	2	2	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	6346	VBYR-S	-35.6128	149.1468	Y	2012	2	0	0	0	98	20	8	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6347	VBYR-S	-35.6128	149.1468	Y	2012	1	0	0	2	96	18	4	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0
30/03/2017 16:37	6348	VBYR-S	-35.6128	149.1468	Rotated ou	2014	1																					
30/03/2017 16:37	6349	VBYR-S	-35.6128	149.1468	Rotated ou	2014	2																					
30/03/2017 16:37	6350	VBYR-S	-35.6128	149.1468	Ceased	2016	1																					
30/03/2017 16:37	6351	VBYR-S	-35.6128	149.1468	Ceased	2016	2																					
30/03/2017 16:37	6352	VKEL-C	-34.3374	149.0748	Y	2010	1	30	0	0	70	0	0	0	0	46	6	4	2	0	0		0	0		0		0	0	0
30/03/2017 16:37	6353	VKEL-C	-34.3374	149.0748	Y	2012	1	0	0	0	96	0	2	0	0	70	0	10	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6354	VKEL-C	-34.3374	149.0748	Y	2012	2	80	0	0	34	2	0	52	0	92	0	6	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6355	VKEL-C	-34.3374	149.0748	Rotated ou	2014	2																					
30/03/2017 16:37	6356	VKEL-C	-34.3374	149.0748	Rotated ou	2014	1																					
30/03/2017 16:37	6357	VKEL-C	-34.3374	149.0748	Y	2016	1	20	0	0	24	2	0	0	0	4	0	86	12	6	0	0	0	0	0	0	0	0
30/03/2017 16:37	6358	VKEL-C	-34.3374	149.0748	Y	2016	2	90	0	0	8	0	0	0	0	0	2	96	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6359	VKEL-S	-34.3281	149.0744	Y	2010	1	70	0	0	58	4	0	0	0	28	0	16	0	12	0		0	0		0		0	0	0
30/03/2017 16:37	6360	VKEL-S	-34.3281	149.0744	Y	2012	1	60	0	0	28	2	0	0	0	54	20	32	10	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6361	VKEL-S	-34.3281	149.0744	Y	2012	2	10	0	0	74	2	6	0	0	2	2	56	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6362	VKEL-S	-34.3281	149.0744	Rotated ou	2014	1																					
30/03/2017 16:37	6363	VKEL-S	-34.3281	149.0744	Rotated ou	2014	2																					
30/03/2017 16:37	6364	VKEL-S	-34.3281	149.0744	Y	2016	2	90	0	0	6	0	0	0	0	20	4	86	12	8	0	0	0	0	0	0	0	0
30/03/2017 16:37	6365	VKEL-S	-34.3281	149.0744	Y	2016	1	90	0	0	2	0	0	0	0	0	12	64	24	8	0	0	0	0	0	0	0	0
30/03/2017 16:37	6366	VMCC-S	-35.6303	149.1445	Y	2010	1	10	10	0	28	4	4	6	0	4	4	8	14	2	0		0	0		0		0	0	0
30/03/2017 16:37	6367	VMCC-S	-35.6303	149.1445	Y	2012	1	0	0	6	78	14	0	0	0	12	4	0	16	8	0	0	0	0	0	0	0	0
30/03/2017 16:37	6368	VMCC-S	-35.6303	149.1445	Y	2012	2	0	0	4	94	18	0	0	0	0	0	8	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6369	VMCC-S	-35.6303	149.1445	Rotated ou	2014	2																					
30/03/2017 16:37	6370	VMCC-S	-35.6303	149.1445	Rotated ou	2014	1																					
30/03/2017 16:37	6371	VMCC-S	-35.6303	149.1445	Y	2016	2	20	10	0	100	16	0	0	0	6	0	6	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6372	VMCC-S	-35.6303	149.1445	Y	2016	1	0	0	4	86	4	2	0	0	10	4	0	36	10	0	0	0	0	0	0	0	0
30/03/2017 16:37	6373	VTHO-C	-34.8086	148.0595	Y	2010	1	20	60	4	24	12	0	0	0	68	4	28	4	4	0		0	0		0		0	0	0
30/03/2017 16:37	6374	VTHO-C	-34.8086	148.0595	Y	2012	1	0	0	0	96	0	0	0	0	20	0	2	0	0	0	0	0	0	8	0	0	0	0
30/03/2017 16:37	6375	VTHO-C	-34.8086	148.0595	Y	2012	2	90	0	0	42	4	0	0	0	48	10	38	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6376	VTHO-C	-34.8086	148.0595	Y	2014	1	0	0	0	40	0	0	4	0	66	0	0	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6377	VTHO-C	-34.8086	148.0595	Y	2014	2	70	0	0	14	2	0	14	0	46	6	26	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6378	VTHO-C	-34.8086	148.0595	Y	2016	1	100	0	0	36	6	0	0	0	28	14	16	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6379	VTHO-C	-34.8086	148.0595	Y	2016	2	20	0	0	30	4	0	0	0	32	2	44	0	0	0	0	0	0	6	0	2	0	0	0
30/03/2017 16:37	6380	VTHO-S	-34.8117	148.0563	Y	2010	1	20	50	0	40	0	0	0	0	32	34	46	0	42	0		0	0		0		0	0	0
30/03/2017 16:37	6381	VTHO-S	-34.8117	148.0563	Y	2012	2	30	0	0	2	38	0	0	0	38	20	26	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6382	VTHO-S	-34.8117	148.0563	Y	2012	1	70	0	0	50	44	0	0	0	8	4	28	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6383	VTHO-S	-34.8117	148.0563	Y	2014	1	60	0	0	6	4	0	0	0	30	20	40	0	2	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6384	VTHO-S	-34.8117	148.0563	Y	2014	2	10	10	0	4	0	0	6	0	74	16	6	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6385	VTHO-S	-34.8117	148.0563	Y	2016	1	30	0	0	24	0	0	0	0	6	20	52	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6386	VTHO-S	-34.8117	148.0563	Y	2016	2	90	0	0	18	0	0	0	0	40	6	36	0	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6387	VWAL-S	-34.2319	148.6958	Unestablisl	2010																							
30/03/2017 16:37	6390	VWAL-S	-34.2319	148.6958	Y	2012	1	0	0	0	70	2	4	0	0	2	0	14	8	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6391	VWAL-S	-34.2319	148.6958	Y	2012	2	0	0	0	88	2	0	0	0	6	4	12	0	10	6	0	0	0	0	0	0	0	0
30/03/2017 16:37	6394	VWAL-S	-34.2319	148.6958	Y	2014	1	0	0	2	66	2	0	0	0	28	0	0	14	22	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6395	VWAL-S	-34.2319	148.6958	Y	2014	2	0	0	0	90	0	2	0	0	30	0	0	0	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6398	VWAL-S	-34.2319	148.6958	Y	2016	1	0	10	0	76	0	0	0	0	12	4	8	34	22	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6399	VWAL-S	-34.2319	148.6958	Y	2016	2	0	0	0	82	2	0	0	0	8	6	10	4	14	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6400	VWAL-SH1	-34.24	148.694	Unestablisl	2010																							
30/03/2017 16:37	6403	VWAL-SH1	-34.24	148.694	Y	2012	1	0	0	0	76	0	0	0	0	4	18	30	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6404	VWAL-SH1	-34.24	148.694	Y	2012	2	0	0	0	62	8	0	6	0	18	0	18	2	22	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6407	VWAL-SH1	-34.24	148.694	Y	2014	1	0	0	0	74	0	0	0	0	12	8	4	28	6	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6408	VWAL-SH1	-34.24	148.694	Y	2014	2	0	0	0	78	0	0	0	0	42	0	4	16	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6411	VWAL-SH1	-34.24	148.694	Y	2016	1	0	0	0	58	0	0	0	0	30	14	8	8	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6412	VWAL-SH1	-34.24	148.694	Y	2016	2	0	0	0	62	0	0	0	0	38	4	24	12	12	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6413	WJOH-S	-33.3819	148.7513	Y	2010	1	0	0	0	82	34	2	10	0	46	16	4	0	30	0		0	0				0	0	0
30/03/2017 16:37	6414	WJOH-S	-33.3819	148.7513	Y	2012	1	0	0	0	90	20	24	4	0	32	0	0	0	4	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6415	WJOH-S	-33.3819	148.7513	Y	2012	2	0	10	0	98	88	0	2	0	30	0	2	0	0	0	0	0	2	0	0	0	0	0
30/03/2017 16:37	6416	WJOH-S	-33.3819	148.7513	Rotated ou	2014	1																					
30/03/2017 16:37	6417	WJOH-S	-33.3819	148.7513	Rotated ou	2014	2																					
30/03/2017 16:37	6418	WJOH-S	-33.3819	148.7513	Y	2016	2	20	0	0	30	6	0	0	0	8	0	70	0	8	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6419	WJOH-S	-33.3819	148.7513	Y	2016	1	10	0	0	18	0	0	0	0	12	0	64	0	20	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6420	WMEA-S	-28.4819	151.4825	Unestablisl	2010																							
30/03/2017 16:37	6421	WMEA-S	-28.4819	151.4825	Y	2012	1	40	0	2	44	8	0	0	0	0	50	50	0	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6422	WMEA-S	-28.4819	151.4825	Y	2012	2	20	50	4	46	18	2	0	2	0	38	80	0	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	6423	WMEA-S	-28.4819	151.4825	Y	2014	1	40	0	8	58	10	0	0	0	0	0	34	22	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6424	WMEA-S	-28.4819	151.4825	Y	2014	2	10	20	0	54	12	24	0	0	0	0	38	42	0	0	0	0	0	0	0	0	0	0
30/03/2017 16:37	6425	WMEA-S	-28.4819	151.4825	Y	2016	2	30	60	2	34	28	16	0	2	0	0	64	2	0	0	0	0	0	0	0	0	2	0
30/03/2017 16:37	6426	WMEA-S	-28.4819	151.4825	Y	2016	1	40	0	8	56	16	8	0	4	0	8	28	10	0	0	0	0	0	0	0	0	4	0

Australian Government
Department of the Environment

National Environmental Science Programme

National Environmental Science Programme

Data and Accessibility Guidelines



NESP Data and Accessibility Guidelines V1.0

VERSION CONTROL REVISION HISTORY			
Version	**Date revised**	**Reviewed by (Name, Position)**	**Comment (review/amendment type)**
V1.0	11/12/2014	Dave Johnson, A/g Assistant Secretary, ERIN Science and Monitoring Branch	First draft based on NERP Data and Accessibility Guidelines

Cover image: Riverland map produced by Environmental Resources Information Network, Australian Government Department of the Environment.

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National Environmental Science Programme
Australian Government Department of the Environment
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National Environmental Science Programme

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Contents

Introduction

This document provides guidance on the expectations of the Department of the Environment (Department) to ensure outputs from the National Environmental Science Programme (NESP) are publicly and freely accessible and available on the internet, for use by all persons, as required by the NESP Programme Guidelines.

This document should be read in conjunction with the NESP Programme Guidelines and requirements of associated NESP funding agreements.

Government agencies and research communities have identified the need to promote open access to public sector and publicly funded information. The Australian Government's position is that information funded by the Government is a national resource that should be managed for public purposes. Open access to Government funded information is the default position of the Department with exception only for privacy, security or confidentiality reasons.

These guidelines are consistent with national and international open access principles and practices. Attachment A provides a distilled set of principles based on current international best practice that underpin these guidelines. In the last five years there have been major developments in making government and research information free and publicly accessible. Attachment B outlines the key developments in Australia and overseas.

The Department of the Environment Information Strategy 2013-2017 states:

> 'Open access to information is the default position of the Department, with exception only if required for privacy, security or confidentiality reasons.'

The Australian Government Digital Continuity Principle 4 encapsulates effective open access where digital information is discoverable, accessible and useable.

> 'Digital information is discoverable when it can be easily found. It is accessible when it can be easily retrieved and read in context and it is usable when it can be easily evaluated or understood, edited, updated, shared and reused as appropriate by those who need it' (Digital Continuity Principles, National Archives of Australia).

Providing open-access to the data and information products derived under the NESP will provide up-to-date, high quality data and information to decision-makers, environmental managers, other scientists and the general public. This will increase the opportunity to take a more collaborative, informed approach to managing Australia's environment.

Definitions

In this document, except where otherwise expressed, the following definitions are applicable:

Attribution	Means You must give appropriate credit, provide a link to the licence, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. (Source: AusGOAL Creative Commons Attribution v4.0 International, 8 December 2014)
Data	Individual pieces of information
Grey literature	Literature produced and disseminated outside of commercial publishing. In the NESP context this includes fact sheets, project profiles and reports
Metadata	Contextual information that supports: • discovery • assessment • access • re-use • verification • integration, synthesis and aggregation • curation For the purposes of this report information products include publications, reports, data, software, models, algorithms metadata etc., in the knowledge that here the focus is on the (NESP) outputs required to validate the research outcomes. Throughout this document these products will be referred to as 'information'
Openly available **Open access**	Refers to the making of information available at minimal cost under licensing terms and in formats that allow users to re-purpose the information from its original form. This is consistent with the Australian Government Principles on open public sector information developed by the Office of the Australian Information Commissioner.
Open format	A specification for storing and manipulating content, that is usually maintained by a standards organisation. In contrast, a proprietary format is usually maintained by a company, with a view to exploiting the format by incorporating it into other products they sell, such as software. Open formats are critical to the effectiveness of the 'open access' concept. Information and data published using an open format ensures that users, regardless of their operating system or platform will be able to access information (Source: AusGOAL, 3 March 2014)
Publicly available **Self archiving**	Means placed on an internet site which is accessible to the public and discoverable by internet search engines such as Google Scholar
Work	May include (without limitation) a literary, dramatic, musical or artistic work; a sound recording or cinematograph film; a

	published edition of a literary, dramatic, musical or artistic work; or a television or sound broadcast. It means the material (including any work or other subject matter) protected by copyright which is offered under the terms of a Licence
Embargo	In the context of this document, refers to the period of time before which a journal article or data sets can be made publicly available on the internet. Please note that this is different from a media embargo.

Guidelines

These guidelines apply to all products generated from NESP research. A broad range of research products are expected to be generated throughout the life of the programme and for the purposes of these guidelines, research products are categorised as follows:

- publications including scientific papers, reviews, books, book chapters
- raw data sets including spatial data
- grey literature including fact sheets, project profiles and technical reports
- images, maps, photos, videos, animations
- models and other tools (e.g. Decision Support Tools) such as software created by the research process - including value added components developed for off the shelf or open source software.
- websites
- mobile or tablet apps
- unspecified emerging technology

The *Australian Information Commissioner Act 2010*, *Freedom of Information Amendment Reform Act 2010* and the *Public Governance, Performance and Accountability Act 2013*[1] are the underpinning legislative instruments that support open access to Australian Government information. It is anticipated that a range of outputs will be produced under the NESP requiring individual product management strategies. As such, there is no neat one-stop-shop of standards or tools for research institutions to adopt to meet this requirement. In addition, there are existing legacy arrangements such as those around publishing and established systems and practices in research institutions.

Rather than prescribe specific standards, these guidelines are intended to provide more detail on expectations and assist institutions to identify solutions to achieve open access to NESP research products.

Some guidelines apply to all product types and others are specific. The information management discipline has typically managed many different types of products in quite different ways, reflecting the specialised nature of some product types. For instance the Geographic Information System industry has dominated the establishment of metadata and format standards of spatial data. The publications industry has specific standards and limitations. Therefore it is appropriate to split the presentation of guidelines into those that apply to all product types and those that are specific.

[1] Ref: National Archives of Australia, 8 December 2014

Guidelines applicable to all research output types

Websites

Researchers are required to make all NESP research outputs (including data and information products which are generated by the programme) publicly available on websites with a persistent and enduring link. Further information on data storage can be found on the Australian National Data Service (ANDS) website. Information should be published in accordance with the *Web Content Accessibility Guidelines version2* (WCAG 2.0) endorsed by the Australian Government in November 2009. This is consistent with principles for open public sector information developed by the Office of the Australian Information Commissioner.

Digital Repositories

It is expected that researchers will take all reasonable steps to deposit research outputs in an appropriate subject and/or institutional repository. Metadata and the output should be stored in an open format together, in a way that clearly shows how they are linked. The underlying principle is to ensure that outputs are still usable if a program is superseded or unavailable. Outputs can also be stored in proprietary formats and AusGOAL identifies a range of open formats that facilitate reuse and value-adding.

All Australian Universities have repositories with potential for providing access to research outputs. Researchers with institutional affiliations can typically contact their university library for more information and assistance on how and what to deposit.

National and international infrastructure also exists in specific disciplinary domains and there are a number of significant repositories for research information in Australia including:

- Atlas of Living Australia
- Australian Urban Research Infrastructure Network
- Environmental Research Information Network
- Integrated Marine Observation System
- Terrestrial Ecosystem Research Network

Licensing

The Office of the Australian Information Commissioner and the Council of Australian University Librarians endorsed the Australian Government Open Access and Licensing Framework (AusGOAL) framework for the licensing of research data. AusGOAL establishes a common approach to data licensing across research and government, and facilitates use and reuse of data for further innovation and research. This is consistent with the Department's Information Licensing Policy.

NESP hub funding agreements require all research outputs to be made publicly available under the latest Creative Commons framework (Creative Commons Version 4.0 International as at the date of this publication) using a Creative Commons Attribution licence (CC BY4.0 at the date of publication)

Using the AusGOAL framework provides clarity around permissions, terms and conditions for reuse of data within and across universities, the wider research community and industry. This also reduces risk and enhances efficiency by standardising the number and type of licence formats used.

The AusGOAL framework includes six individual Creative Commons licences, one restrictive licence, and one software licence, and guidance on licence selection can be obtained from the AusGOAL website. The Department's default requirement is for all outputs resulting from the NESP to be licensed under the most open Creative Commons licence, CC BY 4.0.

Metadata

It is expected that researchers will take all reasonable steps to attach high quality metadata for all products resulting from NESP funding. The metadata format can vary to suit the type of product but must be an accepted and best practice standard.

For products to be discoverable, the metadata standard must support consumption by web search engines or discovery facilities. The aim is for metadata to be managed in a way that maximises discovery of the research product. ANDS provides a discovery service for Australian research and access to thousands of national and international research datasets through its Research Data Australia (RDA). By registering information once with ANDS, contributing organisations receive coverage in many diverse systems including WorldWideScience.org, Thomson Reuters Data Citation Index and others.

Use of metadata structure standards and concepts in data and metadata values allows for more successful data integration and increases data value. Appropriate guidance can be accessed through the Bureau of Meteorology's National Environmental Information Infrastructure (NEII).

Metadata is required to facilitate discovery of the product and support immediate access or reference to a distribution service. Characteristics of high quality metadata vary between product types. There are plenty of sources of information in the literature on characteristics of high quality metadata. Metadata is also critical to making the data usable by providing contextual information that enables the end-user to decide if it is appropriate, and to use and interpret the data consistent with the quality, content and scope of the data set.

Data and information management plan

Data management planning is essential to achieve successful delivery of open access research. These guidelines will assist in the preparation of data and information management components for the knowledge brokering and communication plan required under the NESP funding agreements.

Consideration should be given to the inclusion of the following data and information management components:

- data accessibility – the default position
- provisions for data that cannot be shared for commercial, privacy or other reasons and which may then be subject to embargo periods, the need for de-identification or mediated access
- useability – factors that will affect the ability of others to reuse the data (format, standards, descriptions required in the metadata etc.)
- citability – all data should have a permanent identifier or Digital Object Identifier (DOI)
- retention periods and plans for the disposal of data
- the role of a data management plan in the institutions information governance framework.

Data management plans need to be supported by infrastructure, such as:

- allocation of resources for data management – from the initial data capture through to ongoing curation, funding allocation for support services must be made explicit in the plan
- IT Infrastructure– the hardware, software and other facilities which underpin data-related activities
- support services– people and other means of providing advice and support, such as web-pages
- metadata management– so that data records can be used for both internal and external purposes.

The related policy setting should include:

- principles for open access (see UK example)

- data infrastructure requirements for institutions (see, for example, the expectations of the UK Engineering and Physical Sciences Research Council)
- data licensing intentions
- strategies for measuring compliance: e.g. requirement for a data management plan, data dissemination strategy, evidence of availability.

Further guidance can be obtained from the ANDS website.

Digital object identifiers

Data citation refers to the practice of providing a reference to data in the same way as researchers routinely provide a bibliographic reference to outputs such as journal articles, reports and conference papers. Citing data is increasingly being recognised as one of the key practices leading to recognition of data as a primary research output. This is important because:

- when datasets are routinely cited they will achieve greater validity and significance within the scholarly communications cycle,
- citation of data enables recognition of scholarly effort with the potential for reward based on data outputs, and
- the use of data should be appropriately attributed in scholarly outputs as with other types of publication.

Assigning a Digital Object Identifier (DOI) to data facilitates data citation and is considered best practice. A DOI is a type of persistent identifier that indicates a dataset will be well managed and accessible for long term use. It is now routine practice for publishers to assign DOIs to journal articles and for authors to include them in article citations. The ANDS *Cite My Data* service enables Australian research organisations to mint DOIs associated with research datasets or collections for inclusion in data citations.

A DOI is created and maintained by first using a minting facility to obtain the unique object identifier and to register the location of the product. When the location or URL changes, then the registered location needs to be updated. The register URL will not change. Guidelines are given on DOI's for specific product types later in this document, covering most products arising from the NESP.

Example of data citation with DOI:

Hanigan, Ivan. (2010) Meteorological Data for Australian Postal Areas. Australian Data Archive. DOI: 10.4225/13/50BBFCFE08A12

Product type specific expectations

Publications

Publications include peer reviewed scientific papers, books, reports (grey literature) and other published material. An electronic copy of all peer-reviewed journal articles (as accepted for publication after peer-review) must be made openly and freely available on the internet, if not immediately, then within 12 months of publication.

Research hubs and their research organisations are permitted to grant a licence for NESP funded journal article to publishers, provided that a copy of the article (as accepted for publication after peer-review) is able to be made publicly available within twelve months of the article's publication.

If the research hub grants a licence to a publisher for an article, then that licence must enable the hub to place a complete copy of the article (not just an abstract or citation) on its website within twelve months of publication. If an academic publisher will not allow a complete copy of the article to be made freely available on the hub's website within twelve months of publication, then the research hub will not be able to grant a licence to that publisher without prior written approval from the Department.

Pre-print, post-print or re-print: Which should be made publicly available?

Most journal copyright arrangements distinguish between three versions of a published peer-reviewed article - pre-print, post-print and re-print. A pre-print refers to a paper that has been submitted for publication but which has not yet undergone peer-review. When the peer-review process has been completed and the author implements the changes suggested by the editors or reviewers, the manuscript is then termed a post-print. The re-print refers to the publisher's final PDF version of the paper encompassing the journal-specific formatting. Attachment C provides a relevant example.

The NESP requirement is to make a copy of the article publicly available as accepted for publication after peer-review. The department's preference is for the published paper (re-print) to be placed on the hub web-site at the time of publication. If an agreement with the publisher prevents the re-print from being placed on the hub's website, a copy of the post-print, which is the peer-reviewed text (and figures) as accepted for publication fulfils the contractual requirement of the NESP funding agreements. If the research hub signs a licence with a publisher that allows a 'post-print' or publishers re-print of the article to be placed in its entirety on the hub website within twelve months of publication, then that fulfils the contractual requirement of the NESP funding agreements for this type of research output. It is the Department's position that making a pre-print publicly available does not fulfil the requirements of the NESP funding agreement.

Understanding journal copyright arrangements

It is the responsibility of the research hubs to understand the copyright arrangements being entered into when signing agreements with publication houses. There are internet tools which enable you to easily check the copyright regulations of most journals. See Attachment D for further information.

Increasingly, publishers are open to negotiation regarding open access publication, evidenced by Wiley-Blackwell's recent policy enabling open access for articles authored by recipients of ARC or NHMRC grants. This policy allows these grant recipients to place a post-print (post refereed accepted version) of their paper after a 12-month embargo period from publication in an open access institutional repository. If articles are made open access following payment of an article publication fee, it is not necessary to archive the author's manuscript, but the metadata must be available in the institutional repository with a link to the published article of record on Wiley Online Library. Macmillan have also recently announced a new content-sharing policy advising that all research papers from the journal *Nature* will be made free to read, in addition to the content of 48 other journals in their nature publishing group.

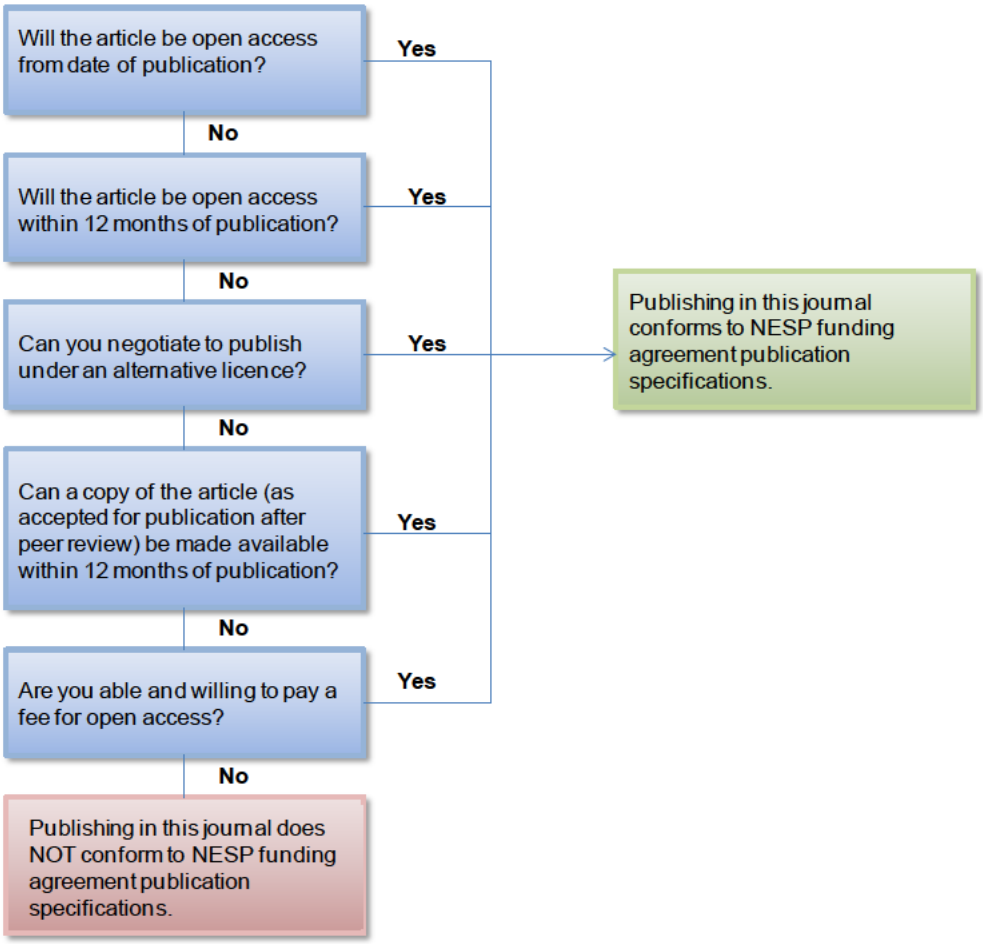
Choosing a journal that supports open access

In choosing a journal, research hubs are encouraged to explore the copyright arrangements thoroughly. In cases where the journal does not allow a copy of the publication (as accepted for publication after peer review) to be publicly available within 12 months, there may be other alternatives available to ensure open access. Some publications allow researchers to pay a fee to make the article open access. Payment of open access fees is the responsibility of the research hub. The Department's preference is for research funding to be used for research, in preference to publication fees.

Alternatively, it is often possible to negotiate with the publisher to publish under an alternative licence scheme that meets the Australian Government's open access policy. AusGOAL provides licences for a range

of information access situations that are designed to manage legal risks associated with making information available for reuse and are endorsed by the Office of the Australian Information Commissioner. These include a non-commercial licence which may be acceptable to the publisher. Many journals will negotiate copyright licences in cases where the organisation that has funded the research has an open access policy. Figure 1 is a flow diagram which may aid in determining whether publishing in a specific journal conforms to the NESP funding agreement specifications.

Figure 1. Choosing a journal that conforms to the NESP funding agreement publication specifications.



Guidelines for uploading publications

In line with contractual obligations, publications should be uploaded on an appropriate subject and/or institutional repository, approved by the Department, that is persistent and enduring over time.

Post-prints should include a text header advising where the article has been published and link to the articles' Digital Object Identifier (DOI). Individual journals often provide set wording that should accompany post-prints of their articles.

Most research institution libraries offer publishing guidelines. Research institution libraries have been working together to develop guidelines to capture all research publications at their own institution. The base metadata standard for publications metadata is Dublin Core, which is supported by most institutional repositories. The Council of Australian University Librarians (CAUL) Research Advisory Committee provides advice and guidelines on best practice. One aspect of best practice in development is linking data, grants and publications. It would be appropriate for NESP recipients to provide links in the publication metadata to related data and grant funding programmes.

Data

The National Plan for Environmental Information (NPEI) initiative is an Australian Government programme intended to improve the quality and accessibility of environmental information for decision-making. It is jointly implemented by the Bureau of Meteorology (the Bureau) and the Department. The Bureau's role focuses on operational elements including implementation of technical components of a functional environmental information system. This environmental information system is being realised through the development of the National Environmental Information Infrastructure (NEII).

The National Environmental Information Infrastructure: Reference Architecture was released in 2014. The infrastructure is intended to improve the quality and accessibility of environmental information and facilitates its discovery, access and use. Although the initial focus will be guided by the Australian Government environmental information priorities, it is recognised that research infrastructure provides important national environmental information and strategic collaboration with this sector, which will be part of the ongoing development of the architecture.

These Guidelines encourage the contribution of metadata to the ANDS data discovery portal, Research Data Australia (RDA). RDA harvests information from data repositories around Australia. NESP funding recipients are encouraged to establish such a harvested repository or deposit data and metadata in an existing harvested repository. The metadata for the associated data should contain a link to related publications and to the NESP funding grant programme. Best practice for linking to publications and grants from data (or the data's metadata) is available from ANDS (contact@ands.org.au) and from the Council of Australian University Librarians Research Advisory Committee.

ANDS can crosswalk (consume) metadata of many different formats into RDA via automated services. ANDS are keen to assist the NESP hubs and NESP administration in the Department to demonstrate how RDA can serve as a one stop shop to find all data associated with the NESP and other important categories like hub or custodian institution. ANDS is providing a catalogue service for the Goyder Institute and for data associated with ARC grants.

Metadata standards, even for data, vary according to the discipline. Spatial metadata standards are covered below.

Spatial data

In relation to metadata, researchers are encouraged to conform to the Australian standard ANZLIC Metadata Profile or at a minimum, record the mandatory elements of the standard. For more information see the metadata section of the Office of Spatial Policy (OSP) website.

ISO 19115-1 is the international standard that underpins the ANZLIC spatial metadata standard - it cancels and replaces ISO 19115:2003 which has been technically revised.

Variations on the Australian standard are acceptable, for example ISO 19115/19139 MCP (Marine Community Profile). Where keywords are established, ensure that they are developed to meet the needs of the user community and follow reputable standards.

The Open Geospatial Consortium (OGC) provides the most widely accepted spatial data formats and protocols. Although the OGC offer comprehensive protocols and area standards, this does not preclude the use of proprietary formats in particular areas or institutions; rather it should be seen as a long term strategy, which is especially useful for the development and subsequent improvement of software.

In terms of output format, the spatial data shapefile format is acceptable although it does not meet all of the requirements of an OGC format. Shapefile is proprietary format published by the Environmental Systems Research Institute (ESRI). It has become a widely used format and there are readily accessible

translators to enable data in this format to be translated to geographic information systems requiring a different format. Data can also be accessible in a proprietary format (for example File Geodatabase), where there is an established user community and the conversion to an open format may result in loss of data integrity or important information for that community.

The Department's Environmental Resources Information Network (ERIN) has requested that staff be able to subscribe to an RSS feed to be notified as new data sets become available.

Grey literature

Organisations are increasingly able to produce and make available research and information in a range of formats using digital technologies and online platforms for dissemination. This provides for a level of flexibility, relevance and timeliness often lacking in formal publications such as journal articles and books. However many of the social and economic benefits are lost as grey literature lacks bibliographic and production standards, evaluation criteria, systematic collection and preservation strategies.

Many of the guidelines listed here for publications such as journals and data sets also apply to a range of other valuable documents and resources produced by NESP such as reports and fact sheets. Grey literature may require additional metadata and classification terms to describe its formats and source. DOIs should be applied to grey literature materials and where possible, they should be placed in a suitable repository or archive for long term preservation.

The Australian Research Council (ARC) is currently undertaking a three year Grey Literature Strategies research project that seeks to develop best practice guidelines for producing and managing grey literature in Australia. It aims to identify changes to national information policies, collecting practices and organisational procedures, including digital content production, metadata standards, network collaboration, and information collection in order to enhance the transparency and accessibility of informally published research and information. This project is being carried out by Swinburne University and Victoria University in partnership with the National Library of Australia, National and State Libraries Australasia, the Australian Council for Educational Research, Australian Policy Online and the Eidos Institute. A discussion paper *Where is the evidence? Realising the value of grey literature for policy and practice* was released in November 2014 and key recommendations are:

- Improve production standards and transparency
- Ensure greater discoverability and accessibility
- Recognise the value of grey literature for scholarly communication
- Improve collection and curation of policy resources
- Reform copyright and legal deposit legislation

Grey literature best practice considerations arising from the project are outlined in Appendix E.

Images, photographs and videos

These research outputs are important aspects of communicating research results and in some cases, are part of the research data as they capture the presence of species or condition of an area. These are included in the research outputs under the NESP. Images, photographs, videos and animations are expected to be openly accessible and attributable to the creator or photographer. Where they are managed as research data, they will need to be managed as much as possible in accordance with the guidelines given in this document for data.

With respect to NESP images, photographs and videos created that are not data, these should be managed with metadata and in accordance with standards and procedures of the research institution repository library in accordance with CAUL Research Advisory Committee advice and guidelines on best practice.

Attachment A: Guiding principles for an open access approach to outputs of publicly-funded research

If a whole-of-government open access policy is to achieve the desired benefits while still encouraging research, publication, innovation and collaboration, some key principles must be applied. These principles arise from the traditions of scholarly publishing, the role of publicly-funded research in producing social, economic and environmental benefits, and the opportunities presented by emerging technologies.

Fundamental to these principles is the policy driver that the outcomes of publicly-funded research—including publications and data—are a national resource and should be widely available to further the public good.

In line with this underpinning principle, an Australian open access policy should:

- Acknowledge that the outputs of publicly funded research (publications and data) are a public asset which should be made available, discoverable and usable by the public, industry, and research community.
- Implement harmonised intellectual property policies for research data across all institutions undertaking publicly funded research.
- Promote open use of the outputs of publicly funded research through flexible and appropriate licensing arrangements, using the AusGOAL framework.
- Recognise the real costs to institutions and researchers of disseminating their research publications and data.
- Minimise the costs to institutions, researchers and readers for accessing publications and data.
- Maximise accessibility and utility by encouraging the use of open (i.e. platform neutral, machine readable, standards-based, sustainable) formats and open source software for manipulating the data and otherwise minimising technological barriers to access and use of publications and data.

A. Publication specific

- Promote the use of institutional repositories, either through the deposit of final articles or by providing a link to where the article can be (openly) accessed.
- Recognise and uphold the researcher's right to publish and to choose the most appropriate outlet in which to publish.
- Recognise and uphold the importance of peer review in ensuring the quality of published research findings.
- Recognise the role of commercial, institutional and not-for-profit publishers in disseminating research.

B. Data specific

- Maximise discoverability and usability by ensuring data is supported by standards-based, fit-for-purpose metadata and contextual information.
- Recognise that, while the default is open access, there may be privacy, ethical, commercial or other constraints on releasing research data and encourage future re-use wherever possible by addressing these constraints at a very early stage in the research process.
- Recognise that some fields of research (e.g. climate modelling, particle physics, astronomy) produce data sets that are too large to download and use locally in any meaningful way; recognise that in such

cases, the policy may be satisfied by providing access to the data in situ via means such as (applications to) re-sample, sub-set, or downscale the data.

- Realise the full range of benefits of open access to research data (e.g. acknowledgement and reward to researcher and institution alike) by encouraging the culture of data citation and tracking.

Provided courtesy of the Australian National Data Service.

Attachment B: Recent international and national open access developments

Overseas trends in open access can be seen in requirements on publicly funded agencies of all kinds and on requirements being placed by funders on their grantees.

United States

In February 2013, the Obama Administration took an important step to increase public access to the results of research funded by the Federal Government, focusing on two key products of funded research: peer-reviewed scholarly publications and scientific data. The memorandum to the heads of all executive departments and agencies recommends that

> *"...digitally formatted scientific data resulting from unclassified research supported wholly or in part by Federal funding should be stored and publicly accessible to search, retrieve, and analyze."* [2]

This memo will extend policies already in place in the National Science Foundation[3] and National Institutes of Health[4] and broaden such policies out to all federally funded research (e.g. Department of Energy, National Laboratories, etc).

The European Union

Recently, Neelie Kroes, Vice-President of the European Commission responsible for the Digital Agenda, declared, "... taxpayers who are paying for that research will want to see something back. Directly – through open access to results and data. And indirectly – through making science work better for all of us. That's why we will require open access to all publications stemming from EU-funded research. That's why we will progressively open access to the research data, too. And why we're asking national funding bodies to do the same."[5]

United Kingdom

The UK Research Councils have adopted strong measures advocating open access to research outputs.[6] In support of these, they have published Common Principles on Data Policy which "provide an overarching framework for individual Research Council policies on data policy".[7] Data sharing requirements have already been implemented by the Biotechnology and Biological Sciences Research Council (BBSRC), Engineering and Physical Sciences Research Council (EPSRC), Economic and Social Research Council (ESRC), Medical Research Council (MRC) and Natural Environment Research Council (NERC).

On 10 January 2011, the Wellcome Trust announced a joint statement on the sharing of research data to accelerate advances in public health. The NHMRC is one signatory in the group of major international public health research funding agencies, and is now working with international committees to develop the statement into practical policies.

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[2] http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
[3] http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#dmp
[4] http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html
[5] Launch of the Research Data Alliance/Stockholm, 18 March 2013, http://europa.eu/rapid/press-release_SPEECH-13-236_en.htm
[6] http://www.rcuk.ac.uk/documents/documents/RCUKOpenAccessPolicy.pdf
[7] http://www.rcuk.ac.uk/research/Pages/DataPolicy.aspx

Recent detailed reviews including *Focusing Australia's Publicly Funde*d Research Review – Maximising the Innovation Dividend[8] and the National Research Investment Plan[9], provide anecdotal evidence of the links between freely-available research data and potential (and actual) innovation. This quote comes from the Productivity Commission on Public Support for Science and Innovation[10].

> *"The second significant rationale is the existence of 'spillovers' from innovation. These are benefits that cannot be captured by the innovator — ideas that can be used, mimicked or adapted cheaply by firms or others without payment to the originator. Spillovers may arise through the development of basic knowledge capabilities or diffusion of new ideas among firms and others. Such spillovers arise from research undertaken in universities, businesses and public sector research agencies."*

The case studies in this paper provide other examples. The White House has recently created an Open Innovator's Toolkit, which provides further examples[11]. There are many other links on the White House site which provide anecdotal evidence of the nexus (and positive relationship) between data availability and innovation[12] including this quote from Aneesh Chopra, US Chief Technology Officer and Associate Director for Technology, Office of Science & Technology Policy.

> *"Key to catalyzing breakthroughs in national priorities is to unlock opportunities for productivity improvement, including the ability to harness information technologies in new and creative ways. A recent McKinsey study estimates that in the healthcare sector alone, the potential benefits from deploying data-harvesting technologies and skills could be $300 billion a year."*

Similar arguments can be found within the Joint Information Systems Committee of the United Kingdom[13], and its equivalents in other countries.

Australia

There have been numerous reports and reviews regarding the emerging 'open access' agenda, culminating in the National Research Investment Plan[14] (which references and builds upon all of the major earlier ones like the OAIC Principles on Public Sector Information[15] , Report of the Government 2.0 Taskforce[16] , The final report from the APS200 Project: The Place of Science in Policy Development in the Public Service[17] and numerous others). Taking a global view of these reports, the following issues become quite clear:

- There are a number of agencies actively participating in components of 'open access', including for example, the Department of Innovation (with a broad remit on research, innovation and supporting infrastructure), the OAIC (with its focus on the more general issue of public sector information), ANDS (with its focus on the metadata repository Research Data Australia[18]), AGIMO (with its focus on strategic ICT Policies, Standards, Interoperability, Gov 2.0), as well as government agencies like GA, BoM, ABS (who are actively engaged in open access data activities) and CSIRO and AIMS (as examples of Publicly Funded Research Agencies).

[8] http://www.innovation.gov.au/Research/Documents/ReviewAdvicePaper.pdf
[9] http://www.industry.gov.au/Pages/default.aspx
[10] http://www.pc.gov.au/__data/assets/pdf_file/0016/37123/science.pdf
[11] http://www.whitehouse.gov/open/toolkit
[12] http://www.whitehouse.gov/open
[13] http://www.jisc.ac.uk
[14] http://www.innovation.gov.au/Research/Pages/NationalResearchInvestmentPlan.aspx
[15] http://www.oaic.gov.au/publications/agency_resources/principles_on_psi_short.pdf
[16] http://gov2.net.au/report/
[17] http://www.innovation.gov.au/Science/Pages/APS200ProjectScienceinPolicy.aspx
[18] http://researchdata.ands.org.au

- Some of these agencies (as well as many other government agencies) also produce publicly funded data, which is not research data and is therefore out of scope for this policy.
- There is widespread understanding, belief and support for an Open Research Outputs Policy, comprising publications and digital data (research data).
- This is the right time to develop such a policy, which would apply generally to publicly-funded research data (i.e. a cross-portfolio approach).

The Australian Research Council has recently announced changes to the funding rules for schemes under the Discovery Programme for 2014 and 2015. Similar changes are expected for relevant Linkage Schemes under the National Competitive Grant Programme (www.arc.gov.au/ncgp/).

These changes will have implications for how research data is managed. The new rules strongly encourage researchers to make their data available.

The ARC's actual words are as follows: "Researchers and institutions have an obligation to care for and maintain research data in accordance with the Australian Code for the Responsible Conduct of Research (2007). The ARC considers data management planning an important part of the responsible conduct of research and strongly encourages the depositing of data arising from a Project in an appropriate publicly accessible subject and/or institutional repository".
(http://www.arc.gov.au/pdf/DP15/Funding%20Rules%20for%20the%20Discovery%20Program.pdf p.18)

At application stage, an outline of a data management plan is now required; ANDS anticipates these outlines might not be more than half a page.

During February's ANDS webinar (youtube/gkQC7bhvC3k) about these changes, when asked whether the data management plan outlines would be assessed (as part of the overall assessment of application process), the ARC indicated good plans may lead to a more competitive application, guided by the normal practices of the various disciplines.

The data management requirement in ARC applications should be seen as an opportunity for researchers to provide information to show how data management will enhance the research outcomes of their work and thus improve the competitiveness of their research proposal; not only contributing to how favourably the Research Environment criterion is considered, but also the Feasibility and Benefit criteria.

Although the ARC is not mandating 'open data', it is sending a clear signal that it is committed to maximising the benefits of research it funds by fostering a culture of increased access and sharing of research data, backed by sound data management.

It recognises there are differences between institutions, disciplines and individuals in key aspects of research data, such as scale, practice, infrastructure, and definition. These differences are among the reasons why the ARC is not proposing a blanket mandate of open data.

Apart from the changes to the application forms and funding rules, the ARC has FAQs (http://www.arc.gov.au/pdf/DP15/Combined%20FAQs%20for%20Discovery%20Program%20Schemes%202014-15_Version%203_7%20Feb%202014.pdf), which provide further understanding of the context in which these changes are occurring.

FAQ 3.12 states: "Answers (to the management of data question) should focus on plans to make data as openly accessible as possible for the purposes of verification and for the conduct of future research by others. Where it may not be appropriate for data to be disseminated or re-used, justification may be provided."

FAQ 3.13 goes on to point out it will not be sufficient when outlining plans for the management of data to simply note that one intends to comply with the institution's requirements; here the ARC is looking beyond an institution's template for the applicant to also address the specific management and future potential, including reuse, of their particular research data.

These rule modifications reflect society-wide changes in expectations for openness, access, reuse and integration in the information age. They also follow similar trends in research and research funding internationally.

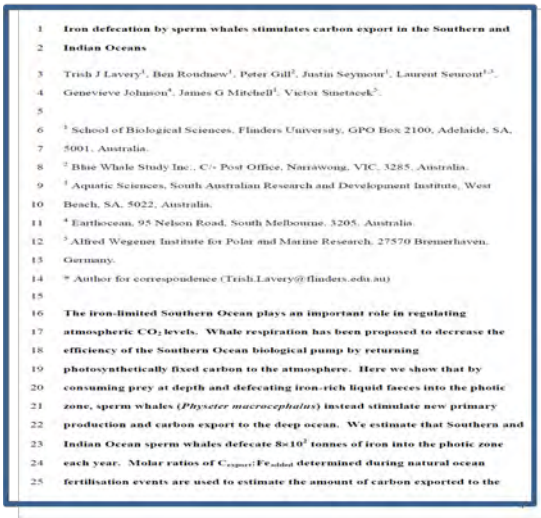
ANDS and the broader national research data infrastructure programme are designed to support these trends by building Australia's research data infrastructure, capacity, and capability.

A program of specific support for these changes will be launched by ANDS in the coming weeks.

The full ARC statement on these issues is also available on the ANDS website (http://ands.org.au/news/news-events-index.html#arcdata), as is the video recording of February's ANDS/ARC webinar on these important changes (youtube/gkQC7bhvC3k).

Provided courtesy of the Australian National Data Service.

Attachment C: Stages of the publication process



Iron defecation by sperm whales stimulates carbon export in the Southern and Indian Oceans

Trish J Lavery[1], Ben Roudnew[1], Peter Gill[2], Justin Seymour[1], Laurent Seuront[1,3], Genevieve Johnson[4], James G Mitchell[1], Victor Smetacek[5].

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[2] Blue Whale Study Inc., C/- Post Office, Narrawong, VIC, 3285, Australia.
[3] Aquatic Sciences, South Australian Research and Development Institute, West Beach, SA, 5022, Australia.
[4] Earthocean, 95 Nelson Road, South Melbourne, 3205, Australia.
[5] Alfred Wegener Institute for Polar and Marine Research, 27570 Bremerhaven, Germany.
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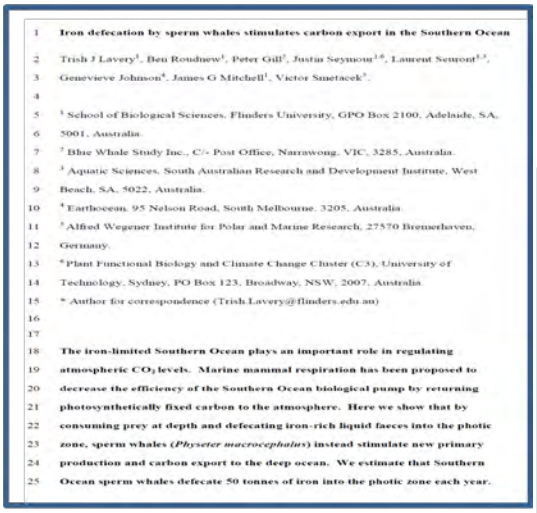
The iron-limited Southern Ocean plays an important role in regulating atmospheric CO_2 levels. Whale respiration has been proposed to decrease the efficiency of the Southern Ocean biological pump by returning photosynthetically fixed carbon to the atmosphere. Here we show that by consuming prey at depth and defecating iron-rich liquid faeces into the photic zone, sperm whales (*Physeter macrocephalus*) instead stimulate new primary production and carbon export to the deep ocean. We estimate that Southern and Indian Ocean sperm whales defecate 8×10^3 tonnes of iron into the photic zone each year. Molar ratios of C_{export}:Fe_{added} determined during natural ocean fertilisation events are used to estimate the amount of carbon exported to the

Pre-print.

A pre-print refers to a paper that has been submitted for publication but which has not yet undergone the peer-review process. Depending on the reviewer's comments, the text in a pre-print can sometimes be significantly different from the text in the final document.



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[5] Alfred Wegener Institute for Polar and Marine Research, 27570 Bremerhaven, Germany.
[6] Plant Functional Biology and Climate Change Cluster (C3), University of Technology, Sydney, PO Box 123, Broadway, NSW, 2007, Australia.
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The iron-limited Southern Ocean plays an important role in regulating atmospheric CO_2 levels. Marine mammal respiration has been proposed to decrease the efficiency of the Southern Ocean biological pump by returning photosynthetically fixed carbon to the atmosphere. Here we show that by consuming prey at depth and defecating iron-rich liquid faeces into the photic zone, sperm whales (*Physeter macrocephalus*) instead stimulate new primary production and carbon export to the deep ocean. We estimate that Southern Ocean sperm whales defecate 50 tonnes of iron into the photic zone each year.

Post-print.

A post-print refers to a paper that incorporates the changes suggested during the peer-review process. A post-print is usually identical to the final re-print in text and figures, except it has not been formatted by the journal.

PROCEEDINGS OF THE ROYAL SOCIETY B

Iron defecation by sperm whales stimulates carbon export in the Southern Ocean

Trish J. Lavery[1,2,*], Ben Roudnew[1], Peter Gill[2], Justin Seymour[1,4], Laurent Seuront[1,3], Genevieve Johnson[4], James G. Mitchell[1] and Victor Smetacek[5]

Re-print.

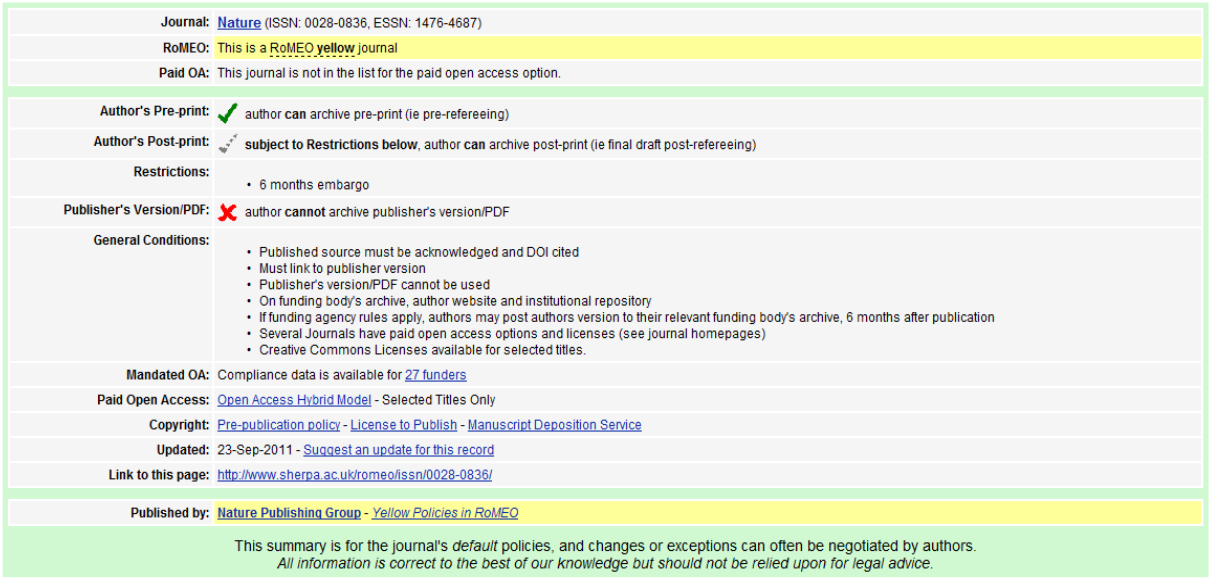
A re-print refers to the final, published copy of the paper which has been formatted by the journal. The information in the re-print is typically identical to that of the post-print but the journal insignia has been added and the paper is now formatted according to the journal specifications.

Attachment D: Internet tools to check journal licensing arrangements

SHERPA/RoMEO (www.sherpa.ac.uk/romeo/)

SHERPA/RoMEO allows you to type in the name of the journal and gives you information on whether the journal allows archiving of the pre-print, post-print or re-print (termed publisher's version) on an internet site. The SHERPA/RoMEO site allows you to search for over 18,000 journals.

Figure 1. Results of a search for “Nature” journal on SHERPA/RoMEO.



Journal:	Nature (ISSN: 0028-0836, ESSN: 1476-4687)
RoMEO:	This is a RoMEO **yellow** journal
Paid OA:	This journal is not in the list for the paid open access option.
Author's Pre-print:	✓ author **can** archive pre-print (ie pre-refereeing)
Author's Post-print:	**subject to Restrictions below**, author **can** archive post-print (ie final draft post-refereeing)
Restrictions:	• 6 months embargo
Publisher's Version/PDF:	✗ author **cannot** archive publisher's version/PDF
General Conditions:	• Published source must be acknowledged and DOI cited • Must link to publisher version • Publisher's version/PDF cannot be used • On funding body's archive, author website and institutional repository • If funding agency rules apply, authors may post authors version to their relevant funding body's archive, 6 months after publication • Several Journals have paid open access options and licenses (see journal homepages) • Creative Commons Licenses available for selected titles.
Mandated OA:	Compliance data is available for 27 funders
Paid Open Access:	Open Access Hybrid Model - Selected Titles Only
Copyright:	Pre-publication policy - License to Publish - Manuscript Deposition Service
Updated:	23-Sep-2011 - Suggest an update for this record
Link to this page:	http://www.sherpa.ac.uk/romeo/issn/0028-0836/
Published by:	Nature Publishing Group - *Yellow Policies in RoMEO*

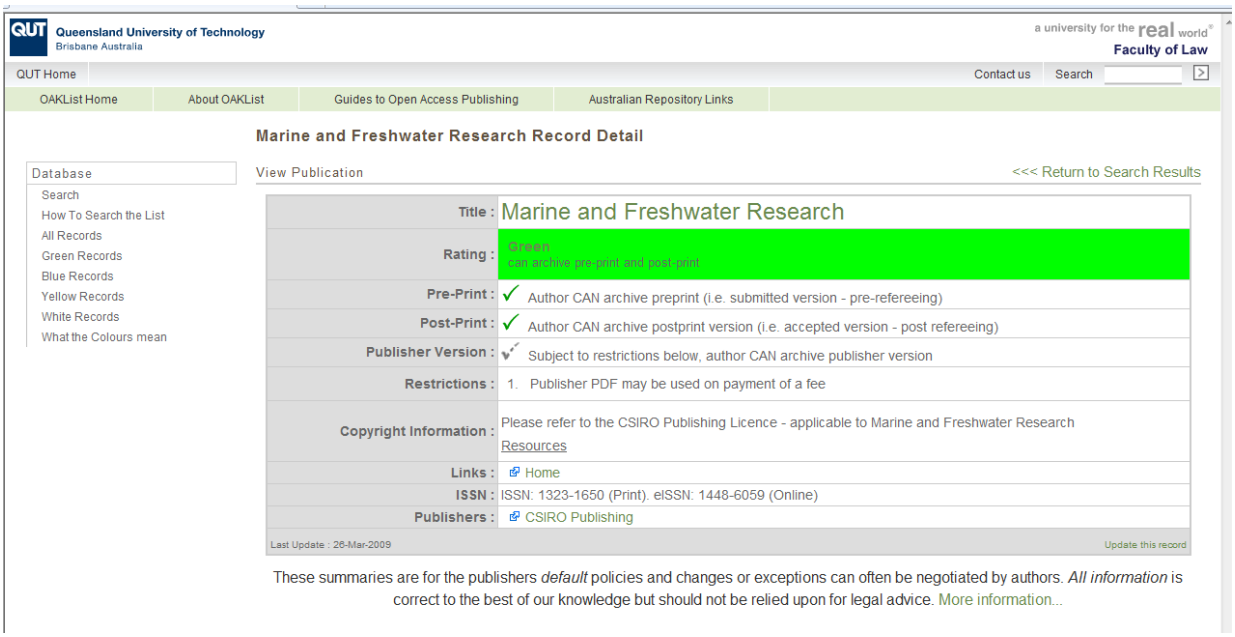
This summary is for the journal's *default* policies, and changes or exceptions can often be negotiated by authors.
All information is correct to the best of our knowledge but should not be relied upon for legal advice.

The above example shows that the journal “Nature” allows for uploading of pre-prints. Post-prints can be made publicly available 6 months after the date of publication. The re-print is not able to be made publicly available on the researcher’s website at any time. SHERPA/RoMEO also provides information on the general conditions which govern the publication being made publicly available.

OAKlist (www.oaklist.qut.edu.au)

Oaklist contains similar information to SHERPA/RoMEO but is an Australian based database which contains information on Australian journals that may not be featured in SHERPA/RoMEO.

Figure 2. Results of a search for "Marine and Freshwater Research" journal in Oaklist.



QUT Queensland University of Technology, Brisbane Australia — a university for the real world — Faculty of Law

QUT Home | Contact us | Search

OAKList Home | About OAKList | Guides to Open Access Publishing | Australian Repository Links

Marine and Freshwater Research Record Detail

Database
- Search
- How To Search the List
- All Records
- Green Records
- Blue Records
- Yellow Records
- White Records
- What the Colours mean

View Publication — <<< Return to Search Results

Title :	Marine and Freshwater Research
Rating :	Green can archive pre-print and post-print
Pre-Print :	✓ Author CAN archive preprint (i.e. submitted version - pre-refereeing)
Post-Print :	✓ Author CAN archive postprint version (i.e. accepted version - post refereeing)
Publisher Version :	Subject to restrictions below, author CAN archive publisher version
Restrictions :	1. Publisher PDF may be used on payment of a fee
Copyright Information :	Please refer to the CSIRO Publishing Licence - applicable to Marine and Freshwater Research Resources
Links :	Home
ISSN :	ISSN: 1323-1650 (Print). eISSN: 1448-6059 (Online)
Publishers :	CSIRO Publishing

Last Update : 26-Mar-2009 — Update this record

These summaries are for the publishers *default* policies and changes or exceptions can often be negotiated by authors. *All information* is correct to the best of our knowledge but should not be relied upon for legal advice. More information...

The above example shows that the journal “Marine and Freshwater Research” allows for making both the pre-print and post-print publicly available on the internet, however, the re-print is only able to made publicly available upon payment of a fee.

Please note that both SHERPA/RoMEO and OAKlist state that their information is correct to the best of their knowledge but should not be relied upon for legal advice. It is the responsibility of the research hub to ensure the information obtained is correct and current.

Attachment E: Suggestions for best practice publication and management of grey literature

Amanda Lawrence, Grey literature Strategies ARC Linkage Project Swinburne University

DRAFT 1.0 12 March 2014

Production

What: Meet basic bibliographic standards.

Why: to ensure that when your document is discovered by whatever means or is printed or downloaded that users are still able to track its origins, provide correct acknowledgement of the source and make an assessment of its quality and relevance.

Include on your document:

Minimum essentials:

- Title
- Year of publication (or more specific date if you wish)
- Author(s) – optional for corporate author
- Producing organisation
- Page number on each page

Highly recommended:

- URL to document or abstract page or DOI or link to repository location
- Copyright or Creative Commons license – it is a government recommendation that material is published CC By unless there are grounds to do otherwise.
- Header/Footer on every page with title or some other way of identifying the document.
- Location of producing organisation – City and Country
- Contact details of producing organisation and/or URL

Nice to have:

- Identifier: this could be an ISBN (International Standard Book Number), ISSN, an internal identification number, a handle or a Digital Object Identifier (DOI).
- Email contact of author
- Author institution (if different from Producing organisation

Publishing formats

- Main options: PDF, Word, HTML
  Providing at least two of these is a government requirement. Providing all three is the optimal situation. HTML is preferred by many for accessibility reasons but a PDF is better than nothing.
- Aim for optimal accessibility: all formats are made more accessible by the use of headings, bullets, tables.
  More on PDF and web publishing accessibility guidelines is available from AGIMO
  - http://www.finance.gov.au/blog/2012/09/20/pdf-accessibility-becomes-iso-standard/
  - http://www.w3.org/TR/WCAG20-TECHS/

Publishing options

It is preferable when posting content to a website to give it a dedicated page with metadata that includes the above minimum essential bibliographic information along with brief description

Minimum essentials:

- Title and subtitle
- Year of publication (specific date is helpful in a rapid publishing environment)
- Author(s) or corporate author
- Producing organisation
- Brief description of the contents of the document
- Full text or link to full text

Recommended:

- Provide link to institutional or subject repository, archive or DOI
- Indicate copyright status or Creative Commons license
- Metadata such as topics, geographic coverage
- Author institution
- Commissioning organisation and funding declaration

Permanency:

- If posting content on a website consider if your organisation or project will always have the same URL?
- Are there are options for long term storage and access for your document that you could link to from your website to ensure long term stability for others who link to your work?
- It's estimated that at least 30% of web content becomes deadlinks within 2-3 years. Don't let that be your major report.
- Could your work be posted or archived to a repository or database and then linked to from your website? Some options are:

    - Policy Online (http://apo.org.au or editor@apo.org.au)
    - Pandora, NLA archive
    - Internet Archive

Evaluating publications

It is worth considering how will others evaluate your publications and how do you evaluate the material you find online.

AACODS – Authority, Accuracy, Coverage, Objectivity, Date, Significance

AACODS is a checklist for evaluating grey literature based on the work of Jess Tyndall, Medical Librarian at Flinders University and adapted by the UK National Institute for Health and Care Excellence.

http://publications.nice.org.uk/interim-methods-guide-for-developing-service-guidance-pmg8/appendix-1-checklists#19-checklist-grey-literature

Consider the following questions as a guide when reviewing publications:

Authority

Identifying who is responsible for the intellectual content.

Individual author:

- Associated with a reputable organisation?
- Professional qualifications or considerable experience?
- Produced/published other work (grey/black) in the field?
- Recognised expert, identified in other sources?
- Cited by others? (use Google Scholar as a quick check)
- Higher degree student under 'expert' supervision?

Organisation or group:

- Is the organisation reputable? (e.g. W.H.O)
- Is the organisation an authority in the field?

Reference:

- Does the item have a detailed reference list or bibliography?

Accuracy:

- Does the item have a clearly stated aim or brief?
- Does the item meet its aims?
- Does the item have a stated methodology?
- Has the item been peer reviewed?
- Has the item been edited by a reputable authority?
- Is the item supported by authoritative, documented references or credible sources?
- Is the item representative of work in the field?
- If no, is it a valid counterbalance?
- Is any data collection explicit and appropriate for the research?
- If the item is secondary material (e.g. a policy brief of a technical report), does it provide an accurate, unbiased interpretation or analysis of the original document?

Coverage:

- Are any limits to the item clearly stated?

Objectivity

- Is the author's standpoint clear?
- Does the work seem to be balanced in presentation?

Date

- Does the item have a clearly stated date related to content?
- If no date is given, but can be accurately ascertained, is there a valid reason for its absence?
- Has key contemporary material been included in the bibliography?

Significance

- Is the item meaningful (i.e. does it incorporate feasibility, utility and relevance)?

- Does it add context?
- Does it enrich or add something unique to the research?
- Does it strengthen or refute a current position?
- Would the research area be lesser without it?
- Is it integral, representative, typical?
- Does it have impact (in the sense of influencing the work or behaviour of others)?

Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER (RFT) 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

ADDENDUM NUMBER 1

Questions and Answers

As at 6 June 2017

1. **Is there an existing database for storage of the data collected in the program, and if so, what are the details/format of this database?**

   Answer 1: The current data is stored within an Access database. The Department is open to the use of other data storage platforms. The expectation is that data collection and storage systems are well-structured, reduce data handling and error, and are appropriately described with industry standard metadata (e.g. lineage attributes and positional accuracy).

2. **Can you please provide an indicative budget? Or at least an indication of the budget for the previous monitoring program?**

   Answer 2: The Department does not intend to disclose the budget for this procurement activity.

Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER (RFT) 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

ADDENDUM NUMBER 2

Questions and Answers

As at 7 June 2017

1. **Will alternative tenders and/or consortium tenders be accepted by the Department?**

   Answer 1:
   The Request for Tender allows you to submit an alternative tender provided that a compliant tender is also submitted. Refer Clause 12.3 Alternative tenders in the Request for Tender document (excerpt below):

   12.3 Alternative tenders
   (a) A Tenderer must submit a tender that complies with the requirements of this RFT. However, the Tenderer may also submit an alternative tender provided that a compliant tender is also submitted. If a Tenderer submits an alternative tender, the advantages, disadvantages, limitations and capabilities of the alternative tender should be clearly stated.

   The Request for Tender document also allows for consortium tenders. Refer Clause 12.4 Consortium tenders in the Request for Tender document (excerpt below):

   12.4 Consortium tenders
   (a) A consortium may submit a tender on the basis that one legal entity will take full responsibility. The tender should provide full details of that legal entity, the consortium members and any proposed subcontractors.

Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER (RFT) 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

ADDENDUM NUMBER 3

Questions and Answers

As at 13 June 2017

1. **Is it a requirement that the tenderer have experience in management of the listed ecological communities in relation to the ESP sites? Or have experience with Environmental Stewardship Programs?**

   Answer 1: Tenderer capability and competitiveness will be assessed on the total package proposed by Tenderers, and through comparison with other Tenderers.

   It is not a mandatory requirement to have experience with the limited number of stewardship programs which have been conducted in Australia to date. It is desirable to have some demonstrated knowledge, or a clear capability to gain knowledge about the conservation management of *Environment Protection and Biodiversity Conservation Act 1999* threatened ecological communities targeted by the Australian Government Environmental Stewardship Program in New South Wales.

Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER (RFT) 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

ADDENDUM NUMBER 4

Questions and Answers

As at 15 June 2017

Q1. Can I talk to someone within the Department regarding aspects of the Tender?

Answer 1: All queries communication about the Tender must be managed through the ESPmonitoring@environment.gov.au email, and answers published on AusTender so that all prospective Tenderers are supplied with the same information. For probity reasons, the Department cannot engage in one-to-one communication with potential Tenderers.

If Tenderers are concerned that answers supplied do not adequately address the questions asked, then please ask further clarifying questions through the ESPmonitoring@environment.gov.au email.

Q2: How much room there is for altering the methodology for collecting the ecological data at each site?

Answer 2: The Department is open to alternative methodologies being proposed. However, the Department is keen to ensure that the data collected to date can be reutilised and contribute to the overall assessment of the impact of the Environmental Stewardship Program.

Q3: The Tender says that the Australian Government may contract ecological monitoring services on up to 219 ESP properties depending on the sampling methodologies and costs proposed. How many sites does the Australian Government expect will be surveyed?

Answer 3: This is dependent on the sampling methodology proposed by the Tenderer.

Q4: Is there a map of the sites that groups sites into similar management experiments (treatments) and if so how much replication and over what scales do you require surveying to occur?

Answer 4: The list of management treatments supplied with the Tender generally applies across all ESP sites. The key difference is that there are some sites that are grazed, and others which are not. Please refer to the State and Transition models supplied in the report in Appendix C to gain an understanding of how the management interventions being applied.

In terms of the number of replicates and ‘scale of surveying’, if this is referring to the number of transects within any given site, Tenderers can gain an appreciation of the range of sizes of sites by referencing the shape files provided with the Tender documentation. The

Department recognises that not all details regarding the number and placement of transects / plots within any given ESP site can be fully determined at this stage, but there should be adequate information to enable a general approach to be proposed. This would be finalised once a successful tenderer has been identified. If the question is referring to the scale at which data may be aggregated, then this will be dependent on the types of stratification proposed by Tenderers. The Department does not want to pre-empt this, as there may be novel and innovative ways of approaching the above.

Q5: Bird and reptile surveys are mentioned in Appendix E, there were none mentioned in the methods of the final report (Appendix C)? Is this correct and if so why were these not done in the final report (July 2010)?

Answer 5: The "Final Report" Appendix C describes the assessment metric used to determine Environmental Stewardship program investments. It is not a Final Report associated with monitoring. Bird and reptile surveys were not relevant to investment decisions.

Q6: Can you please confirm whether it necessary to quote on bird, reptile and the grazing experiment?

Answer 6: This is up to the Tenderers. Please refer to the Attachments in the Tender documentation for guidance on mandatory and optional requirements.

Q7: Are the sites (20-24 sites) used for the grazing experiment part of the 150 sites we are already to survey or are they extra sites?

Answer 7: In the current approach, the grazing treatment sites are largely part of the existing set of surveyed sites.

Q8: Is it necessary to use a different survey methodology at the grazing sites or do the same methods apply as per the other sites?

Answer 8: This is dependent on the design proposed by the Tenderers.

Australian Government
Department of the Environment and Energy

REQUEST FOR TENDER (RFT) 2000002148

Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services

ADDENDUM NUMBER 5

Questions and Answers

As at 22 June 2017

Question 1. The Department's Natural Resource Management website shows only 3 Environmental Stewardship (ESP) site locations for "Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland (Natural Grasslands)". These Natural grasslands ESP sites are not differentiated from Box Gum Grassy Woodlands sites in Appendix A and the ESP Shape files. Can the Department confirm the number of Natural Grasslands sites in the current tender and if they have control sites or not?

Answer 1: There are 3 Natural Grasslands sites. They are not currently part of the monitoring program. Please see reattached Shape Files for the program. Please note that these contain data for ESP sites in South Australia. The South Australian sites are not included in the scope of the current Request for Tender.

FOI 180106
Document 19

s22

From: s22
Sent: Thursday, 18 May 2017 4:47 PM
To: s22
Cc:
Subject: RE: Tender Evaluation Panel - potential members [SEC=UNCLASSIFIED]

Thanks heaps

From: s22
Sent: Thursday, 18 May 2017 2:34 PM
To: s22 @environment.gov.au>
Cc: s22 @environment.gov.au>; s22 @environment.gov.au>
Subject: RE: Tender Evaluation Panel - potential members [SEC=UNCLASSIFIED]

Hi, chatted with s22 and s22

How bout:

s22

s22 said no
s22

From: s22
Sent: Thursday, 18 May 2017 11:18 AM
To: s22
Subject: Tender Evaluation Panel - potential members [SEC=UNCLASSIFIED]

Hi there,

Just wanted to pick your brains on a potential person from Science Division to sit on the ESP monitoring tender evaluation panel.

Criteria is that they have an understanding of sampling design and don't have any current work relationships with any of the potential tenderers we know may be likely to put in s47E(d) ANU s47E(d) – they put in last time.

I'd hope to secure s22 (no luck) and s22 (as she was just back in, and going off line), but no luck. People we're excluding: yourselves, s22 (and anyone managing NESP researchers).

Is there anyone else I should be asking?

The hyper vigilant approach is because we're fully expecting to get FOI-ed on this process – and being able to demonstrate independence of the panel will help us risk manage.

Let me know.

Cheers, s22

s22
Monitoring and Reporting

Biodiversity Conservation Division
Department of the Environment and Energy
GPO Box 787, ACT, 2601
Location: Level 3, Nishi Building, 25 Edinburgh Avenue, ACT, 2601
Phone: 02 6275 s22

FOI 180106
Document 20

s22

From: s22
Sent: Friday, 26 May 2017 10:55 AM
To: Costello, Steve
Subject: RE: Tender Evaluation Panel & RFT [SEC=UNCLASSIFIED]

Great. Thanks Steve.

From: Costello, Steve
Sent: Thursday, 25 May 2017 5:40 PM
To: s22 @environment.gov.au>
Subject: RE: Tender Evaluation Panel & RFT [SEC=UNCLASSIFIED]

Hi s22

I don't know Trudy, but based on your description I would be happy to have her on the Tender Evaluation Panel.

Thanks

Steve

From: s22
Sent: Thursday, 25 May 2017 4:28 PM
To: Costello, Steve <Steve.Costello@environment.gov.au>
Subject: Tender Evaluation Panel & RFT [SEC=UNCLASSIFIED]

Hi Steve,

Just checking up on the final make-up of the Tender Evaluation Panel.

In terms of a BCD external staff member, I haven't had luck with the Science Division. In order to bring in someone with decent knowledge of design, Trudy O'Connor, who works in the Threatened Ecological Communities section, would be a good addition. She has expressed willingness to participate, but I haven't confirmed with her yet. Let me know if you're comfortable with this.

Otherwise, it is yourself, Neil Riches and Nicola Webb. Nicola has detailed knowledge of ESP (and worked in the ESP section) and Neil is great at rigorous evaluation and has the on-ground expertise too. Trudy O'Connor has good general knowledge about Box Gum Grassy Woodlands too.

I'll send tender documentation around once this is confirmed.

Still hoping to go to market tomorrow.

Cheers, s22

s22
Monitoring and Reporting
Biodiversity Conservation Division
Department of the Environment and Energy
GPO Box 787, ACT, 2601
Location: Level 3, Nishi Building, 25 Edinburgh Avenue, ACT, 2601
Phone: 02 6275 s22

ATTACHMENT C – CONFLICT OF INTEREST DECLARATION TEMPLATE

I, Nicola Webb

of s47F

Declare that to the best of my knowledge, I do not have:

1. any financial interest in the Tenders for the Environmental Stewardship Program Ecological Monitoring and Evaluation Services contract ("the Subject")
2. any relatives or friends with a financial interest in the Subject
3. Any personal bias or inclination which would in any way affect my decisions in relation to the Subject
4. Any personal obligation, allegiance or loyalty which would in any way affect my decisions in relation to the Subject

(a 'conflict'), except as set out below :

1. I was employed by CSIRO from 1994-95 (part time)
2. I undertook a post-doc project at s47F in 1993 and was employed then in 1994/5 (part time)
3. I worked with s47F in 1997 and was a co-trustee with him for a conservation reserve in NSW
4. I briefly collaborated with s47F (CSIRO) in 1996/97 on a DNSW Conservation agreement for Monteagle Cemetery at Young
5. I did my PhD and was a share house mate with s47F in 1987/8
6.
7.
8.
9.

I undertake to make a further declaration detailing any conflict, potential conflict or apparent conflict which may arise during the contract period. Should any conflict appear to compromise me, I agree to abstain from any related decision.

Signed : s47F

Dated : 22/6/2017

FOI 180106
Document 22

ATTACHMENT C – CONFLICT OF INTEREST DECLARATION TEMPLATE

I, *Trudy Rochelle O'Connor*

of *Department of the Environment and Energy, John Gorton Building, King Edward Terrace, Parkes, ACT 2600*

Declare that to the best of my knowledge, I do not have :

1. any financial interest in the tenderers for the Environmental Stewardship Program Ecological Monitoring and Evaluation service contract ("the Subject")
2. any relatives or friends with a financial interest in the Subject
3. Any personal bias or inclination which would in any way affect my decisions in relation to the Subject
4. Any personal obligation, allegiance or loyalty which would in any way affect my decisions in relation to the Subject

(a 'conflict'), except as set out below :

1.My husband is a past employee of CSIRO (in a different area from the applicants from that organisation). His employment there ended in 2015.

2.My husband is an s47F at s47F This is an unpaid position through which he provides some student supervision and occasionally delivers lectures in computer science (a field unrelated to the subject).

3.Between approximately 2009-2011 I had s47F status at s47F s47F This was an unpaid position, not located at the university. The arrangement was primarily allowed me access to the journals held by the university library. I did not have a close relationship with the current applicants from the s47F s47F

I do not feel that any of the situations above creates any conflict of interest or impairs my ability to make an impartial assessment of the tenders.

I undertake to make a further declaration detailing any conflict, potential conflict or apparent conflict which may arise during the contract period. Should any conflict appear to compromise me, I agree to abstain from any related decision.

Signed : s47F

Dated : 6/7/17

EVALUATION REPORT

The Evaluation report provides business system and audit trail documentation, and is intended for any procurement over $80,000 in value (inclusive of all fees, charges and expenses including GST) where an Open Tender approach to market has been used and where an RFT will be published on AusTender. A copy of the report (including the Tender Assessment Panel (TAP) Chair's endorsement) is to be suitably filed for audit purposes.

This evaluation report is to be used in conjunction with the Department's Procurement Plan for the Environmental Stewardship Program Ecological Monitoring and Evaluation Services tender.

EVALUATION REPORT SUMMARY

Procurement Title:	Environmental Stewardship Program Ecological Monitoring and Evaluation Services
Project Officer:	s22 **Ph:** 6275 s22
Division:	Biodiversity Conservation Division

TABLE OF CONTENTS

1 EVALUATION SUMMARY

Item	Response
Contract Title:	Environmental Stewardship Program Ecological Monitoring and Evaluation Services
Division:	Biodiversity Conservation Division
Procurement Scope:	The Department of the Environment and Energy has a requirement for ecological monitoring and evaluation of the environmental condition of contracted ESP properties in New South Wales and Queensland. The monitoring and evaluation will assess the effectiveness of management actions in achieving improvements in the ecological condition of threatened ecological community remnants on ESP sites. The ecological monitoring will also support adaptive management on contracted ESP properties through ensuring that management actions contracted through the program address local and contemporary environmental conditions and challenges. The services will also include some additional outreach and communications activities. See **'Scope of Contract'** at **Section 2** for further information
Contract Term:	2022/23 Anticipated Contract Commencement: 15 September 2017 Anticipated Contract Completion: 30 June 2023
Recommended *or* Preferred Tenderer:	Commonwealth Scientific and Industrial Research Organisation (CSIRO) See **'Basis of Decision'** at **Section 5**
Total Tenderer Quote: **Pre-Tender Estimate:**	$2,068,012 GST inclusive (or $2,110,937 GST inclusive with Option 1 extension of $42,925). $1.32 million (GST inclusive) The variance in Tenderer quote and Pre-Tender Estimate was anticipated. Only one Tender was priced within the Estimate pricing, however this Tender was not satisfactory.
Price Basis:	Milestone payments

2 SCOPE OF CONTRACT

The Environmental Stewardship Program (ESP) is the Australian Government's largest, long-term investment in environmental management of nationally threatened ecological communities on private land (approximately $147.2 million over 20 years).

The Australian Government currently maintains 219 contracts with private land owners to manage two threatened ecological communities listed under *The Environment Protection and Biodiversity Conservation Act 1999* in New South Wales and Queensland. The two nationally listed threatened ecological communities targeted by ESP are *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (Box Gum Grassy Woodland) and *Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland* (Natural Grasslands).

Conservation management actions funded under ESP can include:

- conservation grazing
- stock exclusion
- cessation of cultivation / fertilisation
- retention of environmental features such as bush rock, standing and fallen timber
- restoration of native vegetation species indigenous to the listed threatened ecological communities
- feral animal management
- management of native herbivores
- biomass control measures (through mechanical means or fire)
- fire regime management

The Department of the Environment and Energy has a requirement for ecological monitoring and evaluation of the environmental condition of contracted ESP properties in New South Wales and Queensland. The monitoring and evaluation will assess the effectiveness of management actions in achieving improvements in the ecological condition of threatened ecological community remnants on ESP sites. The ecological monitoring will also support adaptive management on contracted ESP properties through ensuring that management actions contracted through the program address local and contemporary environmental conditions and challenges. The services will also include some additional outreach and communications activities.

a) The Department of the Environment and Energy will contract ecological monitoring and evaluation services from 2017/18 to 2022/23.

b) In summary, the services and deliverables being procured will be comprised of the following core components:

   (i) Finalisation of:

      i. a Project Plan

ii. a Monitoring and Evaluation Plan

(ii) On-ground ecological monitoring services

(iii) Evaluation and reporting

(iv) Communications and outreach activities

(v) Data management and knowledge transfer

(vi) Project management and administration

3 PROCUREMENT DEVELOPMENT

Item	Response
Procurement Plan Prepared?	*Yes.* Date endorsed by NHT Delegate, Kylie Jonasson: (16/05/2017)
Risk Rating (of Procurement Process):	**Medium** (If managed) **High** (if no treatment applied)
Selection Criteria	**1. Design (40% weighted)** (a) the appropriateness and effectiveness of the proposed monitoring and evaluation approach (30%) (b) the appropriateness and effectiveness of the proposed communications and outreach activities (5%) (c) value add through potential linkages with other research projects (5%) **2. Capability (30% weighted)** The skills and capability of the Tenderer, and their staff to provide the goods or services in accordance with the Statement of Requirement. **3. Capacity (30% weighted)** The capacity of the Tenderer to provide the goods or services in accordance with the Statement of Requirement. **3. Price (unweighted)** All costs, fees, allowances and charges associated with the implementation and completion of contract obligations. **4. Risk (unweighted)** Any risks inherent in the tender. For example: • any actual or perceived conflict of interest • level of compliance with this RFT (including the Draft Form of Contract) • adequacy of insurance proposed by the Tenderer • past performance of Tenderer in delivering Australian Government environmental management or monitoring contracts (where relevant)
RFT Closing Date	26 June 2017
Offer Validity Expiry Date:	26 December 2017. Clause 15.2 of the RFT is listed at 6 months from the Closing Time.

4 THE EVALUATION

4.1 TENDER ASSESMENT PANEL (TAP) PARTICIPANTS

Name	Division	Job Title
Steve Costello (Chair)	Biodiversity Conservation Division (BCD)	Assistant Secretary Program Delivery Branch 6159 7308.
Nicola Webb	BCD	Project Officer
Neil Riches	BCD	Assistant Director
Trudy O'Connor	BCD	Policy Officer

Lynsey Moran, Corporate Strategies Division was Probity Adviser to the TAP.

4.2 RESPONSES RECEIVED

Responses were received from the following organisations:

s47E(d)

c) Commonwealth Scientific and Industrial Research Organisation (CSIRO) (ABN: 41687119230), Canberra, ACT.

s47E(d)

4.3 DESK TOP ASSESSMENT

All Tenderers satisfied the:

- Conditions for Participation; and
- Minimum Content and Format Requirements

All Tenderers were processed through to a Comparative Assessment.

4.4 QUALITATIVE SCORE SUMMARY TABLE

Rank	Tenderer	Design (score out of 40)	Capability (score out of 30)	Capacity (score out of 30)	Total Technical (score out of 100)	Total tendered price (GST inc)	Risk comparison
1	CSIRO	34.16	25.53	24.83	84.52	$2,068,012	Low-medium
2	s47E(d)	32.26	25.14	23.92	81.32	s47E(d)	Medium
3		30.28	24.33	22.9	77.51		N/A^
4		27.43	22.8	25.28	75.51		N/A^
5		18.60	15.44	20.40	54.44		N/A^
6		11.88	11.02	18.00	40.90		N/A^

- Scores are the mean scores given by Tender Assessment Panel members.
- Summarised Individual Assessments for each Tenderer are listed in **Appendix A**.
- ^See below with respect to shortlisting and risk assessment.

4.5 BASIS FOR SHORTLISTING

The TAP agreed a shortlist of the top two Tenders at its first meeting (28 July 2017). The shortlist was based on assessment of Technical Worth and value for money. Tenders that were not shortlisted were excluded from further consideration and a risk comparison was not undertaken.

The two lowest scoring bids were immediately excluded from contention s47E(d) and s47E(d)) as they were inadequate to meet the Department's needs. The remaining four bids were placed on a value for money curve (see page 15, Price).

On this basis s47E(d) was excluded from contention because of price. This bid ranked third for Technical Worth, but fourth for value for money. Although there was much technical merit in this bid (including innovate design and a highly capable project team), it was concluded that the benefits offered by some of the more innovative approaches would be unlikely to remain if the contract value was reduced within the scope of the available funds. In addition, the Technical Worth was still less than the two higher ranked bids, so didn't offer additional value for the higher price overall.

s47E(d) was also excluded from the shortlisting. It ranked fourth for Technical Worth, and third on value for money. However, although there was great merit in this tender, including with demonstrated capability, it did not offer any additional value over the top ranked bids and did not provide a clear advantage or difference over the current monitoring approach in terms of design.

CSIRO and s47E(d) were both shortlisted on this basis.

4.6 BASIS FOR DECISION

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) (with Queensland Herbarium) is the TAP's Preferred Supplier.

CSIRO was assessed to be the best suited to meet the service requirements at a competitive price, and represents best value for money.

The key advantages of the CSIRO bid over all other Tenders are:

- A scalable approach through which the most efficient allocation of survey effort can be determined based on an early pilot study and appropriate statistical analysis
- A design which will enable assessment of the effectiveness of ESP management, as well as assessment of the conceptual models used to determine ESP investments. The choice of indicators (including plant functional groups) and the planned seasonal timing of surveys (including floristic surveys in spring) is likely to increase the likelihood of detecting changes in environmental condition.
- A clear analytical approach with strong technical oversight from a Technical Advisory and Review Panel
- Linked research that is of significant interest to the Australian Government
- A highly experienced, cross-disciplinary team across two organisations (CSIRO and Queensland Herbarium) that will give confidence in the quality of outcomes. The project staffing profile is large enough to accommodate any staffing turnover without compromising contract delivery.
- A relatively low-cost bid (second lowest price) whilst delivering the most technical merit. This CSIRO bid scored highest for all elements of Technical Worth.

The below is a summary of comments made with respect to Technical Worth (Design, Capability and Capacity) as well as the assessment of Price and Risk.

A) DESIGN

The CSIRO bid was the highest ranked bid for the Design element. The following outlines the strengths and weaknesses of the CSIRO design:

Rationale and logic:
+ The proposal demonstrates a clear understanding of the suite of outcomes the Department is seeking to achieve through the ESP - both improvement in the target Threatened Ecological Communities (TEC) as well as enduring improvement in land manager ability to manage TEC.
+ The timing of the CSIRO monitoring will allow assessment relative to the conceptual models used to determine investment, unlike the next best ranked bid which does not offer appropriately timed monitoring to enable this assessment. CSIRO also propose to rerun the field assessment protocol used to determine investments.

Indicators proposed for monitoring:
+ CSIRO proposes to utilise the existing variables, as well as an additional set of monitoring variables (for example abundance). Consideration of guilds for fauna and plant species indicating high condition is also an advantage.

+ Proposed analysis of response variables will provide an assessment of their ability to detect change.
+ The use of climate variables will enable assessment of the effects of seasonal variation.
+ If Option 1 (Vital Soil Processes) is included, this may offer even greater explanatory power in assessment of management effectiveness. Degraded soil quality and soil processes have been identified in the Box Gum Grassy Woodland community due to livestock grazing and nutrient enrichment, impacting on floristic composition and soil health. This may mean that where soil function is reduced, ESP management alone may not be sufficient to restore some Box Gum community components. Undertaking soil sampling would provide valuable data to inform the design of future Australian Government agri-environment programs.

Timing of monitoring and locations:
+ This proposal offered practical approaches to scaling, unlike the next best ranked bid which did not offer any scaling approach (other than to negotiate with the Department).
+The proposal demonstrates a clear understanding of the importance of monitoring timing - in particular the importance of assessing grassy ecosystem ground layer composition in spring, which would be considered industry best practice, rather than the autumn approach used by the next best rated Tender s47E(d)
+ The proposal outlines the cost benefit of assessing vegetation and fauna at the same visit. The TAP also considers this timing advantageous in terms of engaging landholders, as more species of interest will be present.
+ The Spring timing of monitoring may assist Stewards to build observation skills, and is a useful way of engaging and enthusing Stewards as more species of interest can be shown to Stewards.
- Likely reduction in number of sites monitored, but it is a scalable approach. At a minimum 80 sites (40 + controls) are likely to be monitored every year (and either 92 properties on a 2.3 year rotation or 115 properties on a 2.9 year rotation). Both fauna and flora will be monitored. In addition, 60 sites will be assessed using the MEC Rapid Assessment Protocol in the first year. This equates to 860 surveys over the life of the contract (22% less surveys than the next best rated Tender). If the option of the soil component is included there will 1010 surveys over the life of the contract (8% less surveys than the next best rated Tender).
+ Because the whole design proposed is more strategic in terms of variables and timing, the CSIRO approach is, on balance, considered to have greater potential to deliver meaningful results.
- The selection of monitoring sites will be contingent on an analysis of existing data to identify and exclude outliers and on a power analysis to identify required sample size and frequency of repeat sampling in order to detect significant changes in indicators. This is a very strategic approach and will ensure that the monitoring effort required is thoroughly understood. However, there is a level of uncertainty associated with this.

Analytical methods
+ The inclusion of climate, condition baselines and reference sites to inform stratification approaches provides significant analytical power above and beyond the

next best rated Tender. Analysis includes linear responses and multivariate methods to look at compositional change and pathways of change.
+ Proposed stratifications make ecological sense and include starting state, environmental variables (temperature, rainfall), groups of management actions and time since implementation. The next best-rated bid only offers geographic approaches to stratification.
+ Proposed analysis should permit discrimination of the important factors driving ecological change.

On-ground monitoring protocols
+ The monitoring protocols are as per existing (for continuity) but include two enhancements for vegetation monitoring that will bring this up to a higher standard. This includes collection of plant composition and abundance data which provides information on important indicator species for the ground layer, and permits comparison with high quality reference sites.

Continuity with existing data
- The change in monitoring season for vegetation means there will not be a one-to-one relationship with the existing monitoring. However, the variables previously monitored in autumn are also present in spring, whilst the additional variables proposed to be monitored by CSIRO are only likely to be present in spring. The TAP are confident that CSIRO offer a sensible strategy for harmonisation and demonstrate how they will be able to continue to utilise the existing monitoring data.

Additional monitoring
+ CSIRO proposes to monitor fauna (birds and reptiles), including derived measures of guild, functional group and species richness. In addition, for an additional $42,925 CSIRO proposes to undertake soil surveys at a majority of sites (totalling 150 surveys altogether). This offers significant additional explanatory power to assessments of management effectiveness.

Data management
- Data collection will be via paper in the field (which is less efficient than electronic data capture), translated to custom designed Excel or Access databases. These will have metadata. This may be able to be negotiated with CSIRO.
+ Data management approaches are demonstrated best practice and are compliant with Australian Government environmental information policy and industry standards. This capability is evidenced in the staffing profile for this bid.

Reporting schedule
+ Completion dates for reports are in June each year which provides summer and autumn for their preparation after the spring field season.
- Proposed content of reports is appropriate but very data focussed. A mid-term report that includes an update on analyses would be highly desirable to prompt discussion with the Department of any issue that may be arising with the proposed suite of analyses. This may be negotiable.

Effectiveness of proposed communications and outreach

+ Outreach activities listed in the timeline table are appropriate and timing appears practical and achievable.

+ Timing of monitoring may facilitate more in-depth engagement with Stewards.

- Reduction in total no of farms visited does mean slightly reduced engagement across the Stewardship community. However, this might be remedied through holding field days or other engagement approaches.

- Acknowledgement of the likely older demographic of ESP land managers in terms of the suitability of various forms of engagement (in person, in print, electronic) would have improved the Tender.

Links to other research

+ CSIRO offers three specific linked research projects. The next best ranked Tender did not tangibly demonstrate the value of any linked research to the Australian Government beyond suggesting that the approach can be linked to other woodland monitoring. The CSIRO linked research will have the following benefits to the Australian Government including:

a. An understanding of which variables can inform improvement in remote sensing analytical capability and so enable more efficient integrated monitoring between remote sensing and on ground monitoring.
b. Informing an understanding of how landscape fragmentation can impact on species persistence (which is also potentially useful for the threatened species monitoring approach (e.g. for Regent's Honeyeater and other threatened species present in the ESP TEC).
c. Assisting in an improved understanding of National Reserve System (NRS) representativeness and the role of private land conservation in providing complementary protections for biodiversity.

B) CAPABILITY

CSIRO demonstrates strong capability to undertake the required services both at an organisational level, and within the identified project team. They were the highest ranked bid from this perspective. The following outlines the strengths and weaknesses of the CSIRO capability:

+ CSIRO / Queensland Herbarium evidence strong organisational capability with respect to long-term monitoring design, Geographic Information System (GIS), statistical analysis, project management and data management.

+ It includes a large team of 17 highly experienced staff with overlapping, multi-disciplinary capabilities. This includes staff in CSIRO and within the Queensland Herbarium. Risk from any staff losses would be minimised, because the capability is spread across a large team and two organisations. This is in contrast to the next best rated bid, which is heavily reliant on a single staff member, with unclear contributions from the other three nominated staff. In the event that any of the four identified staff were no longer able to participate in the project, contingency planning for this bid was not seen as adequate by the TAP.

+The core project team staff are identified with specific capabilities and permanent (not casual) in both organisations. The next best rated bid relies on casual staffing for some field data collection and specific capabilities of these staff are unknown.
+The project team includes highly experienced field staff, who are already trained. The reliance on casual field staff in the next best rated bid was seen as a risk by the TAP (with no clarity about what training would be in place for casual staff).
+The project team includes two dedicated career statisticians from its Data61 unit and eight other staff with highly developed statistical and analytical skills. The statistical approach will also be overseen by a CSIRO Technical Advisory and Review Panel (in addition to the core project team). This oversight and staffing is evidenced in the statistical design and approach of CSIRO bid. This offers much greater confidence in the long-term value of the data and analysis than the next best-rated bid s47E(d) which did not offer any scaling and stratification approaches (other than in negotiation with the Department).
+ Nationally outstanding capability with respect to ecological knowledge, particularly with the grassy ecosystem communities of interest to ESP.
+ Good experience and knowledge of sustainable agricultural practices evidenced in CVs.
+ They are experienced professional data managers (16 identified staff members have data management skills) which differentiate them from the next best rated bid, which is heavily reliant on the data management capabilities of one staff member.
+ Professional level of project management skill for 16 of the project staff. There will be one dedicated project manager working with the principal research scientist and Queensland Herbarium to develop the project plan. The project will also be overseen by the CSIRO Technical Advisory and Review Panel.
- The establishment of new relationships will be a transaction cost. However, 13 staff have identified engagement skills. The proposed lead project manager has extensive experience in rural community in Australia particularly in the MDB.

C) CAPACITY

+ Staff allocated to various roles are all very experienced and appropriately allocated, with no additional recruitment of staff required so all participants are known to the Australian Government from the outset. This is in contrast to the next best rated bid which is proposing the use of casual and unidentified staff.
+ Staffing is appropriate to a large complex project with a large team of appropriately skilled and experienced staff. This is important for risk management. This is in contrast to the next best rated bid, which is heavily reliant on one staff member.
+ Staff in Canberra are well located for southern NSW ESP sites, staff in Brisbane reasonably close to Qld and northern NSW sites. The next best rated bid is well located for the Southern NSW sites, but no so well located for the Northern NSW and Queensland sites.
+ Tender suggests CSIRO already has all the appropriate resources to undertake the project and is not looking to purchase capital assets. The next best rated bid is looking to purchase vehicles and other capital assets.
- Tenderer has misinterpreted senior management section of RFT and listed very senior staff who are not engaged on the project. This was an issue with the RFT design as many bids misinterpreted this requirement.

D) PRICE

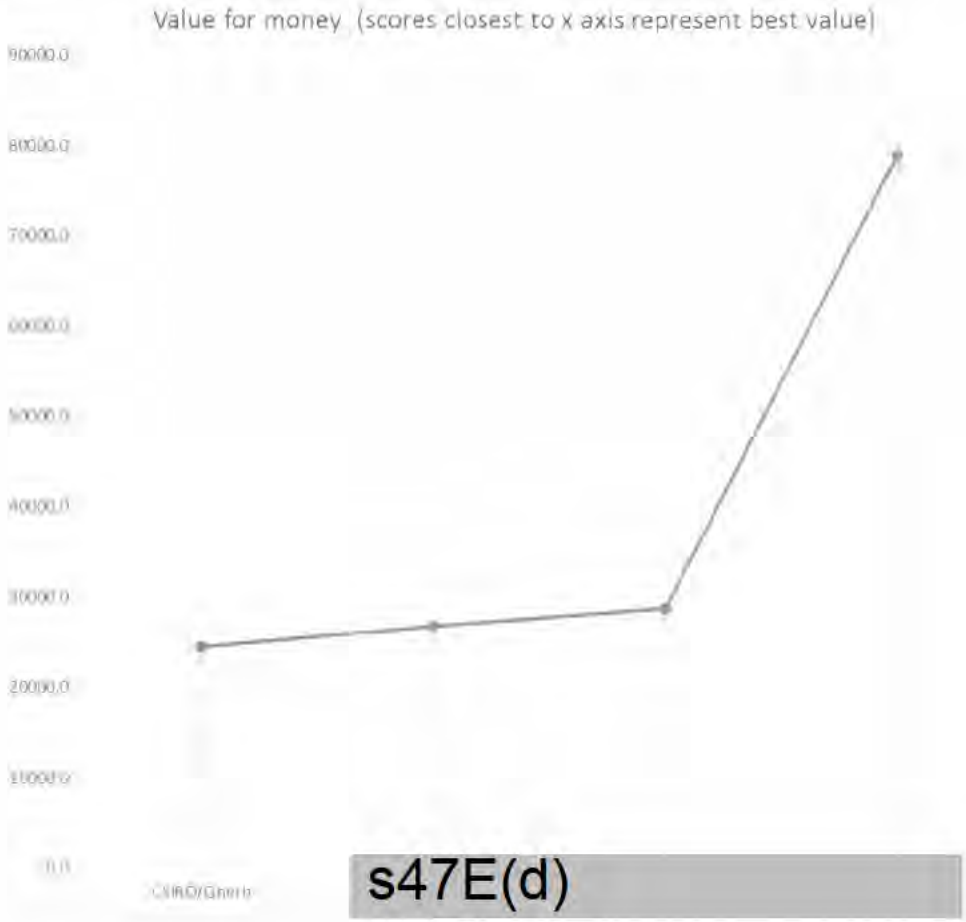
The CSIRO tender was the second lowest priced bid in the Tender at $2,068,012 (GST inclusive). If the contract includes the additional soil monitoring element, the cost would be $2,110,937 (GST inclusive). It was also the highest ranked bid. CSIRO will also make a co-contribution of s47E(d)

The lowest priced bid was from s47E(d) However, they were not shortlisted as they were scored as unsatisfactory and unlikely to be able to deliver the services required. The most expensive bid from s47E(d) s47E(d) was also not shortlisted, as at s47E(d) this did not represent greater Technical Worth than CSIRO.

As demonstrated by the value for money curve on page 15, the CSIRO bid offers the best value for money.

However, the CSIRO approach is more costly per survey and they will be monitoring less sites than the next highest ranked bid from ANU.

See **Appendix B** for a direct cost comparison based on the number of surveys.



[1] Note that the CSIRO contribution is GST exclusive as the organisation does not charge itself GST.

E) RISK

An assessment of risk was undertaken for the two shortlisted Tenderers. Tenders were ranked for risk out of 40, with higher scores indicating higher risk as indicated in the following table.

Low risk	0-10
Low-Medium risk	11-20
Medium risk	21-30
High risk	31-40

The scoring table is provided below. A table with comments is provided at **Appendix C.**

Risk assessment		
H = 3; M = 2; L = 1		
Element	s47E(d)	**CSIRO**
Team		1.25
Casual staff		1
Identified field staff capabilities		1.25
Statistical capability		1
Data management capability		1
Engagement with Stewardship / rural community		1.75
Monitoring timing		1.75
# sites sampled and sampling frequency.		1.75
Monitoring variables		1
Monitoring against conceptual models used for investment		1
Data harmonisation with existing dataset		2
Analytical power relative to program outcomes		1.25
Scalability		1.25
		17.25

s47E(d) was rated as Medium Risk overall, whilst the CSIRO was rated as Low-Medium Risk. A key advantage for CSIRO was a large team of permanent staff, across two organisations with clearly identified, relevant skills. The s47E(d) bid was generally deemed higher risk as they are heavily reliant on a single staff member and use of casual staff

who do not have identified skills in the bid. The statistical approach offered by CSIRO was also deemed more robust than the s47E(d) bid and therefore lower risk.

4.7 REFEREE REPORTS

Referees were not contacted as part of the evaluation process.

4.8 ISSUES TO BE RESOLVED

Based on the pricing of tenders received, increased funding is required in order to meet the basic level of service provision. Whether to include funding for additional monitoring proposed by CSIRO, such as 'Additional module 1: Vital soil processes', will also need to be resolved.

4.9 NEGOTIATION ISSUES TO BE RAISED WITH THE PREFERRED TENDERER

The following points will require negotiation with the tenderer:

- Scaling the number of sites/properties surveyed to enable contract costs to meet available Commonwealth funds. This will be negotiated with the Preferred Supplier. This may also be dependent upon the outcome of a power analysis early in the first six months of the contract period. For this reason, it is likely the contract will be staged into two parts.
- Some members of the TAP recommend consideration of the proposed 'Additional Module 1: Vital Soil Processes', which will yield important data on management effectiveness.
- Funding Additional option 3. If this option was pursued, some Panel members felt that the $3,200 (GST exclusive) costed for 'journal and publication fees' should not be funded by the Commonwealth.
- Draft form of contract. CSIRO outlined three clauses in the draft contract that they **partially** agreed with. These are outlined in Attachment 10 of the response to the request for tender and relate to:
    - Clause 13.1(b) – CSIRO would prefer to limit the licence provided to the Department to Pre-existing Material incorporated into the Agreement Material.
    - Clause 13.4(1) – CSIRO requests a licence to use the Agreement Material for non-commercial purposes.
    - Clause 21.3 – CSIRO requests that 21.3 be made mutual insofar as it allows disclosure to the responsible Minister or the Parliament of the Commonwealth to enable CSIRO to meet its reporting obligations.

ENDORSEMENT BY TENDER ASSESSMENT PANEL

TAP Chairperson

Steve Costello _____ 1/9/17

Panel Member

Trudy O'Connor s22 _____ 24/8/17

Panel Member

Neil Riches _____ / /

Panel Member

Nicola Webb s22 _____ 1/9/17

ENDORSEMENT BY TENDER ASSESSMENT PANEL

TAP Chairperson

Steve Costello _____ / /

Panel Member

Trudy O'Connor

_____ / /

Panel Member

Neil Riches s22 _____ 1 / 09 / 2017

Panel Member

Nicola Webb _____ / /

APPENDIX A – TENDER EVALUATION INDIVIDUAL ASSESSMENT

Ratings Scale

Judgement against criteria	Unsatisfactory	Satisfactory	Good	Very good	Excellent
Ratings against criteria:					
Design (40%)	0 - 19.99	20 - 25.99	26 - 31.99	32 - 35.99	36 - 40
Capability (30%)	0 - 14.99	15 - 19.49	19.5 - 23.99	24 - 26.99	27 -30
Capacity (30%)	0 - 14.99	15 - 19.49	19.5 - 23.99	24 - 26.99	27 - 30
Out of 100 %	0 – 49.99	50 - 64.99	65 - 79.99	80 - 89.99	90 - 100

s47E(d)

Price (GST Inclusive) s47E(d)

	Design (out of 40)	Capability (out of 30)	Capacity (out of 30)	Total Technical score (out of 100)	Risk
Assessment	Very good	Very good	Good	**VERY GOOD**	N/A
Score	32.26	25.14	23.93	**81.32**	Medium
Summary	**Rationale and logic:** - Clear understanding of the brief as evidenced by discussion of design of long-term monitoring; reference to landholder engagement; importance of monitoring to guide adaptive management. - Discusses conceptual benchmarks and relation to data being collected, and the potential to test the applicability of the models for the future. However, the timing of the monitoring proposed by s47E(d) would not allow this to occur. **Indicators proposed for monitoring:** - A comprehensive set of indicators (variables) measured relate to ESP management actions. Continuation of previous methodology. However, some key vegetation response indicators are not able to be monitored due to the autumn timing of the monitoring. - Bird and reptile monitoring is well justified as indicators of habitat condition and response, as well as value adding in terms of landholder engagement and harmonisation with other woodland fauna data sets. - The indicators are a continuation of previous contract and no assessment of the explanatory power of these variables has been proposed. **Timing of monitoring and locations:** - continue to monitor vegetation in autumn and fauna in spring, using existing methodology. No proposal to change locations but prepared to discuss scaling options. However, no specific options were provided in the bid. - No discussion for the ecological basis of monitoring fauna in spring and vegetation in autumn, other than continuation of methods to ensure data consistency, for project management purpose and to maintain contact with landholders (as this approach means properties visited annually). - The bid does not state why/how set of sites that will continue to be monitored were selected initially (apart from control sites). **Analytical methods / stratification:** - Analytical methods seem to permit data aggregation/stratification and this is discussed in relation to various geographical/physical site attributes and presumably would tease out effects of specific management actions and groups of actions if the effects are significant (having accounted for controls). - Potential use of multi-spectral analysis with respect to vegetation condition and ESP management actions sounds interesting but as yet unproven. - Somewhat vague in description of statistical methods- there must be established practice, but seem to rely on expertise rather	**Large-scale, long-term monitoring design:** - The organisation as whole has this capability. 5 long term studies, including peer reviewed publications on the results, and books on design and implementation. However, this is not necessarily reflective of the capability of the whole project team. **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Organisation as a whole does have capacity. However, there is no clearly identified person dedicated in this contract with respect to GIS capacity (i.e. reliant on sourcing other ANU staff without clarity on whether officially funded through the project). - No example provided of study(s) where similar analysis to that required for this project has been successfully applied. **Industry standard data and information management practices:** - Good experience based on establishment of LTERN. - Previous mention of new relational database being developed for data. - Development of a Data Management Plan as part of Project Plan. **Project management and administration of large-scale, complex project:** - Good experience over two decades but tender would have been improved by detailing a few examples of how the highly developed management has ensured success for these other long-term projects. **Outreach and communication within the agricultural and natural resource management sectors:** - Tenderer maintains relationships, establishes partnerships and demonstrates clear connections with relevant Local Land Services (LLS) through ESP and other projects.	**Appropriateness of the roles/tasks allocated to specified personnel *(including not under/over-qualified for the job):** - Lead manager (Senior research Officer?) has appropriate experience. Highly reliant on s47E(d) in the field, but efficiency outlined in continuing established relationships. - Testimonials provided on how well the team relates to landholders - Additional field staff are not named so experience can't be assessed. s47E(d) role is not well defined. - High reliance on particular people. Could be somewhat risky in case of unavailability due to illness etc. **Efficient and effective allocation of staffing resources:** - Information inadequate to make judgement. - Project seems a little understaffed for the volume of work in the field and for analysis (statistician). - Not clear who is doing what tasks. - Budget mentions two field officers at different levels but not clear who these are – s47E(d) is the only one mentioned. Bird survey requires two observers. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - mention need to plan for staff turnover but not specific - No strategy mentioned for ensuring consistency of data collection by additional field staff. **Senior management engagement:** - Tender misinterpreted requirement at Attachment 7 3. iv) (this was a fault of the RFT wording).	This tender outlines continuation of the design and methodology for ESP Monitoring and Evaluation Services (2013 – 2017). The Tenderer has very good design and capability to undertake the required services. Capability ranked as good, although heavy reliance on a small team, some of whose roles were not well outlined, was considered a weakness in this tender.	The Tenderer is heavily reliant on one identified staff member which is a risk if this staff member is not retained. There are many unidentified staff members and the use of casual staff with unknown field skills and no training identified for those staff. The timing of monitoring is not as well parameterised to pick up some key responses that define the relevant TECs, and is not ideal to provide assessment against the conceptual models used for investment decisions.

s47E(d)					
Price (GST Inclusive) s47E(d)					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	than detailed explanation of approach. Unclear how many variables, including management actions may have effects on each site. Tender does list the individual management actions and indicators (though indicators don't all seem very convincing). - A power analysis on existing data would have been desirable, particularly in connection with decisions about sample size for the next phase, but is not discussed. **On-ground monitoring protocols:** - Vegetation monitoring protocol is clearly described and includes most attributes required to monitor change in relation to ESP management actions. Emphasis on status quo with vegetation characteristics, rock, bird and herpetofauna. Not entirely clear here how these are related to each other in the model. Small thing but bird census seems to have gone from 10mins to 5mins per point count. - Correlated variables are not discussed but the variables selected are standard. **Continuity with existing data:** - Same protocols, same sites and some of the same field staff. **Additional monitoring:** - Rationale for choosing birds and reptiles is well described and importance of these surveys to maintain land manager interest is very important. **Data management strategy:** - Comprehensive description of a data management plan covers all relevant aspects. - Tender proposing creation of an agreed Data Management Plan. - Data to be stored in new relational database under development at s47E(d). - Proposed use of in-field tablets to replace current paper methodology. **Reporting schedule:** - Timing of reports will permit analysis of vegetation data collected in autumn but doesn't leave much time between fauna survey in spring and reporting in early December. - More detail on report content would have been desirable. **Effectiveness of proposed communications and outreach:** - Continue to publish newsletter to landholders, field guide pamphlets, woodland monitoring books, website, social media updates and responses to landholder queries, presentations at field days. Committed to developing a communication strategy. - Outreach activities are comprehensive and appropriate. Potential for demonstration farms is an exciting initiative. - Suggested detailed comms strategy for the Dept. and s47E(d) shows understanding that the Dept. is a key stakeholder.	**Botanical field skills:** - Senior Research Officer has high level of experience. However, it is not possible to comment on skills of others as they are still to be recruited and may be casual staff. s47E(d) s47E(d) r has outstanding skills but his involvement in field work is not able to be determined from the tender documentation. **Statistical/analytical skills:** - Experienced statistician with relevant experience will oversee analysis. **Ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the TECs targeted through the ESP:** - Good experience on restoration practices of the main ESP Threatened Ecological Communities. - Key staff lack professional experience in sustainable agriculture. **Engagement and community outreach:** - Good relationships established with existing landholders in network. **Report writing skills:** - s47E(d) r has vast experience, but it is unclear from the tender what his involvement will be. Tender would have been improved by documenting SRO reporting experience. **Project management skills, including logistics and planning:** - A strong project plan is consistently outlined across all the answers. - Project manager's admin/finance skills relevant.	- s47E(d) role is not well defined so it is not clear if he has the senior management role. - s47E(d) is the project manager but does not hold a 'senior' management role at s47E(d). **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - Tenderer is fully resourced, adequately described equipment available and training undertaken. **Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Located centrally to the spread of sites (Cowra and Canberra) with good supporting governance.		

	s47E(d)				
	Price (GST Inclusive) s47E(d)				
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	- Mention of advice to the Dept. for adaptive management of sites would have improved the tender as this was a requirement of the RFT (services and deliverables point 6). **Links to other research work:** - Importance of maintaining the current protocols to ensure consistent data is emphasised through the tender as means of optimising value of data. - Use of standard veg and fauna protocols to permit use of ESP data in wider woodland analyses (e.g. other s47E(d) long-term woodland monitoring) is also emphasised. - Carbon accounting studies referenced, and suggestion that data of wider use for State of the Environment and environmental accounting. - Tender mentions the context of other research projects and usefulness of this data. However, it's not clear where in the reporting this will be used. - Largely follows existing approach without much further evaluation of this, apart from criticism of state and transition models. Some of the proposal seems to just follow the earlier wording - unclear if some things have already been commenced.				

s47E(d)					
Price (GST Inclusive) s47E(d)					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
Assessment	Unsatisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	N/A
Score	11.88	11.02	18	40.9	N/A
Summary:	**Rationale and logic:** - The tenderer demonstrates a reasonable understanding of ESP and apparently understands the brief (RFT). - There is no discussion of the conceptual models nor explanation of the meaning behind the statement that the 'monitoring program will be metric based'. - The tender does not deal with specific management actions other than by referring to Appendix D. **Indicators proposed for monitoring:** - proposes to use same indicators as existing (ANU) project. - Tender proposes to use the same indicators as the current (ANU) project but does not discuss the pros and cons of this approach. - No mention of conceptual models or their relationship to indicators. No substantial thought on variables. **Timing of monitoring and locations:** - Tenderer does understand need to be consistent about when sites are monitored (but see 'weaknesses'). - Tenderer does understand the need to be consistent about when sites are monitored but expression of this is rather unclear. - Doesn't discuss ecological rationale for scheduling. **Analytical methods:** - No analytical methods are outlined in the tender. **Proposed stratification:** - No proposed stratifications are outlined in the tender. **On-ground monitoring protocols:** - Commit to continuing current procedures and methodology. - There is no discussion of number of variables to be monitored or critique of the existing set of variables. - Little thought re: efficient approach apart from suggestion that not all variables could be measured each year. Mention BACI design but unclear how this will be used given context of prior work. **Continuity with existing data:** - Will replicate existing methods. - Proposing fauna survey potentially from Feb to June (depending on number of sites) concurrent with veg survey rather than in Spring as current protocol, except in 2017. **Additional monitoring:** - Focus of expertise is on fauna. Mentions plant surveys could "impinge" on fauna surveying time.	**Large-scale, long-term monitoring design:** - Only two long term studies are mentioned in tender - both involve fauna only. - Examples of ongoing monitoring provided but scale of examples provided is limited. **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Some GIS capacity and data analysis but limited evidence of expertise. **Industry standard data and information management practices:** - It appears they will take direction on data collection, but do not identify a strong data analysis capability or adaptable evaluation methodology. **Project management and administration of large-scale, complex project:** - No examples are given of how BMS undertakes successful project management of large, complex projects. **Outreach and communication within the agricultural and natural resource management sectors:** - Experience in communications with agricultural and NRM sectors is not addressed. **Botanical field skills:** - Assert that current members have sufficient botanical expertise for the botanical structural information required. **Statistical/analytical skills:** - Staff have some statistical skills and outlined that they have undertaken courses in statistical modelling. - These skills are not discussed in detail, and not at all in terms of the analyses that will be undertaken on ESP data. **Ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the TECs targeted through the ESP:** - Some NRM knowledge evident through past projects (e.g. one of the lead staff has experience in fauna monitoring and remediation advice for box gum woodland and derived grassland.) - No specific knowledge of Threatened Ecological Communities stated. Some NRM knowledge evident	**Appropriateness of the roles/tasks allocated to specified personnel *(including not under/over-qualified for the job):** - Not clear that there is sufficient experience and skill of personnel. **Efficient and effective allocation of staffing resources:** - Only three staff outlined. Efficiency might be enhanced if one of the experienced botanists was involved in survey - at least for year 1. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - Mitigation of the risk of loss of key staff is not discussed. - Reference to botanical experts, but unclear that this will be sufficient for undertaking high quality field surveys. **Senior management engagement:** - Senior manager is one of the key field staff which presents inherent risks (but this may be unavoidable in a small company). **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - Have field equipment and vehicles as well as GIS software. - Unclear if statistical software also available. **Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Will base themselves in relevant nearby town for duration of site surveys. Based in Lithgow.	This tender did not sufficiently address the scope of requirement. The Tender Evaluation Panel agreed to exclude this tender from further consideration at their meeting on 28 July 2017.	N/A – tender was not shortlisted based on low Technical Worth Score.

	s47E(d)				
	Price (GST Inclusive) s47E(d)				
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	Data management strategy: - Outlined that data will be quality controlled and that data storage will be backed up. - Limited information on data management strategy. **Reporting schedule:** - Reporting schedule is ok. - No discussion of report content. **Effectiveness of proposed communications and outreach:** - Recognition of the value of ESP land manager input is good. - The commitment to workshops is not decisive and has limited rationale for why and how they would do each set of meetings. - No mention of advice to Dept. about adaptive management or how the project can lead to an understanding of the effects of management. - No print/electronic newsletters proposed for land managers. **Links to other research:** - Nil linkages provided.	through past projects. Focus seems to be on mining impacts, not agriculture. **Engagement and community outreach:** - Limited information on experience. **Report writing skills:** - Report writing is briefly mentioned but not addressed in detail. **Project management skills, including logistics and planning:** - Lead staff have considerable experience in logistics and planning. - Tender does not focus on how logistics and planning experience skills are translated into successfully delivering projects. One or two brief examples would have significantly improved this part of the tender.			

Commonwealth Scientific and Industrial Research Organisation (CSIRO)					
Price (GST inclusive) $2,068,012					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
Assessment	Very good	Very good	Very good	**VERY GOOD**	N/A
Score	34.16	25.53	24.83	84.52	Low-Medium
Summary	**Rationale and logic:** - Discussion of the Statement of Requirements, and of the use of the Conservation Value Metric in assessing ESP proposals demonstrates a clear understanding of the brief. It recognises the dual requirement for assessing effects of ESP management on site condition and assessing the effectiveness of the state and transition model for application to similar programs in the future. - It also recognises the multiple outcomes the Dept. seeks to achieve through the ESP (TEC improvement and enduring improvement in land manager ability to manage TEC.). **Indicators proposed for monitoring:** - Tender proposes to utilise the existing variables, and then value add with additional indicators that the tender's previous research suggests may be important. - Good understanding of box gum grassy woodland underpinning suggestions for modifying variables. - Good to include consideration of guilds for fauna and particular plant species indicating high condition, also soil as a measure of function and capacity for improvement. - Includes collection of plant composition and abundance data which provides info on important indicator species for the ground layer, and permits comparison with high quality reference sites if desired. - Proposed power analysis of existing data will, as discussed, potentially permit redundant or insensitive indicators to be dropped from future monitoring. Analysis of key response variables for existing data will permit ranking of response variables for their ability to detect change which could permit adjustment of the suite of variables that are measured. - Proposes a valuable re-assessment of the Conservation Value Metric using data collected in 2017 at approx. 60 ESP sites. This will permit the state to be compared with that calculated at the start of the program, and permit exploration of potentially enhanced indicators (plant composition rather than richness) to the calculation of the state for use in the conceptual state and transition model. **Timing of monitoring and locations:** - Clear understanding of the importance of monitoring timing - in particular the importance of assessing grassy ecosystem ground layer composition in spring rather than autumn. - Collection of veg ground layer data in spring rather than autumn (as per existing approach) is a much better option for herbaceous plant identification and would be considered industry standard practice. - Will look at options to reduce monitoring and costs, including analysis of potentially redundant variables. - Discusses cost saving benefits of assessing veg and fauna at the same visit. - Choice of monitoring sites has not been made for the tender but will be contingent on an analysis of existing data and on a power analysis to	**Large-scale, long-term monitoring design:** - Tenderer presents examples of four complex long-term studies it has undertaken. Two of these involve very similar data collection and analysis to that proposed for this RFT, with one of these in box gum woodland. Long-term study examples above show CSIRO already using relevant statistical analyses to look at the relationship between management and vegetation condition. **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Tenderer very experienced in GIS and spatial analysis. - Experienced stats people have time allocated to the project. Specifics of their skills are in their CVs. - Reporting capability is not explicitly addressed but the references provided for the long term study examples provide evidence of capability to synthesise, analyse and report on research. Numerous staff from project team have experience in report writing according to table 6.1. - Tender would be improved by some examples of CSIRO data visualisations. **Industry standard data and information management practices:** - Tenderer has internal procedures around record keeping, and a specific procedure for research data which is consistent with Australian standards. Research projects must develop a Research Data Management Plan. - The CSIRO research data service and portal are recognised as best practice. **Project management and administration of large-scale, complex project:** - Tender (p39) recognises that project management is not just about delivering good science and refers to a recent CSIRO initiative (project management quality assurance system - SAP) to improve project delivery for clients. - Describes managing large scale projects, but does not specifically outline how that will benefit the governance of this project. **Outreach and communication within the agricultural and natural resource management sectors:** - Tender provides a good example where the tenderer has successfully engaged with the NRM sector to communicate climate change science and translate this to on ground action.	**Appropriateness of the roles/tasks allocated to specified personnel *(including not under/over-qualified for the job):** - Staff allocated to various roles are all very experienced in those roles, with no additional recruitment of staff required so all participants are known to the Australian Government from the outset. **Efficient and effective allocation of staffing resources:** - Staffing is appropriate to a large complex project with a large team of appropriately skilled and experienced staff. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - As a large organisation CSIRO has a pool of staff with the experience and skills required if additional people are required beyond the large core team. **Senior management engagement:** - Principal researcher well engaged. Technical Advisory and Review Panel well described and useful to project. - Tenderer has also misinterpreted senior management section of RFT and listed very senior staff who are not engaged on the project. **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - Tender suggests CSIRO already has all the appropriate resources to undertake the project. **Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Staff in Canberra well located for southern NSW ESP sites, staff in Brisbane reasonably close to Qld and northern NSW sites.	This tender scored highest across the design, capability and capacity criteria. The tender proposes to continue the existing methodology to ensure data harmonisation with the first phase of ESP monitoring. The tender demonstrates a clear understanding of the service requirement and provides options for additional monitoring, as well as linkages with other highly relevant research. The proposed team is very experienced and appropriate to the complexity of the project. There is clear value add in this Tender over the competing approaches	Fewer sites sampled than ANU. The reduction in total no of farms visited does mean slightly reduced engagement across Stewardship community. However, this might be remedied through holding field days. The data harmonisation with existing data set will be both a technical and communication challenge. However, CSIRO offer a sensible strategy for harmonisation and demonstrate they will be able to use the data.

Commonwealth Scientific and Industrial Research Organisation (CSIRO)					
Price (GST inclusive) $2,068,012					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	identify required sample size and frequency of repeat sampling in order to detect significant changes in indicators. This is a very strategic approach. - Likely reduction in number of sites monitored but scalable. Review and power analysis should determine how much reduction in information collected. Useful to review effectiveness of variables in showing change. Rotational strategy seems sensible to improve efficiency and allow scaling -they may mean inter-annual variation, rather than seasonal variation. **Analytical methods and stratification:** - Proposed analytical modelling is well described. - It will permit data aggregation to examine the effects of specific management actions, and determine the most important drivers of condition change. - Analysis seems sensible, including linear responses and multivariate methods to look at compositional change. - Proposed stratifications (p21) make ecological sense and include starting state, environmental variables (temp, rainfall), groups of management actions and time since implementation (ESP box gum rounds started in different years). - Assuming significant effects of the variables are detected the reporting should be useful for the AG to assess the outcomes of ESP and assist with design of future programs. - Some risks with reduced sample size / frequency but appropriate expertise to ensure it retains validity. **On-ground monitoring protocols:** - The monitoring protocols are as per existing but include enhancements for veg monitoring that will bring this up to a higher standard. This includes collection of plant composition and abundance data which provides info on important indicator species for the ground layer, and permits comparison with high quality reference sites if desired. **Continuity with existing data:** - Tender proposes use of the same monitoring sites and transects and identical methodology for veg and fauna which will ensure continuity with existing data. However, some additional indicators will be measured. - The tender would have benefitted from discussion of how collection of veg data in spring rather than autumn will affect data continuity. **Additional monitoring:** - Continue bird and reptile monitoring. - Proposes two potential additional monitoring components - soil condition, and collection of several indicators to detect ecological change that may occur in <6 years. Both would add considerable value to the ESP monitoring. Citizen science and additional analysis of past data seems valuable. **Data management strategy:** - The CSIRO data access portal permits secure storage of long term data and meta data and permits public access, peer review for quality control, and ability to track usage.	- No specific examples provided of engagement with the agriculture sector were provided in this section of the Tender (although one team member J. Stol has experience in this area (see CV)). **Botanical field skills:** - Many staff in the project team have very well developed botanical skills, including for box gum grassy woodlands in the ESP project area. - Well covered and include Qld Herbarium botanical experts **Statistical/analytical skills:** - Several team member have highly developed statistical/analytical skills as evidenced by their CVs, and the outcomes of the four example long-term studies provided. - Well covered by project staff and additional resources of CSIROs Data61 business unit. **Ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the TECs targeted through the ESP:** - Several staff in the project team have experience in sustainable Ag practices, including with box gum grassy ecosystems targeted by ESP. - Expertise well outlined. High levels of experience in box gum condition and restoration by Suzanne Prober. Advice provided by Sue McIntyre specific to this EC also. - Tender could have been improved by expanding sustainable Ag experience more in the text rather than relying on the attached CVs to demonstrate it. **Engagement and community outreach:** - Skills of people are outlined, but Tender could have made more of team member experience in the context of communications with the agricultural sector. **Report writing skills:** - All team members other than the two main field technicians have report writing experience. - Tender would have been improved by a brief outline of what factors the team consider contribute to a good report to the AG as a client. **Project management skills, including logistics and planning:**- Project management skills, including logistics and planning: Most team members are listed as possessing these with a couple where the CV demonstrates this is their core business. - Technical Advisory and Review Panel that would oversee the project will be pivotal in ensuring the project delivers the required outcomes.			

Commonwealth Scientific and Industrial Research Organisation (CSIRO)					
Price (GST inclusive) $2,068,012					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	- Attachment 6 provides detail of CSIRO data management practices which are compliant with Australian, and AG standards. - Data collection will be via paper in the field (which is less efficient than electronic data capture), translated to custom designed Excel or Access databases. **Reporting schedule:** - Completion dates for reports are in June each year which permits which provides summer and autumn for their preparation after the spring field season. - Proposed content of reports is appropriate but very data focussed. - A mid-term report that includes an update on analyses would be highly desirable to prompt discussion with the Dept. of any issue that may be arising with the proposed suite of analyses. **Effectiveness of proposed communications and outreach:** - Outreach activities - listed in the timeline table are appropriate and timing appears practical and achievable. The proposed 2017 repeat of CVM assessment will permit early, in person engagement with land managers at many of the set of final sites. - Communications and outreach approach is adequate but not much innovation. - Doesn't really discuss the nature of the groups (e.g. acknowledgement of the likely older demographic of ESP land managers in terms of suitability of various forms of engagement would have improved the tender). **Links to other research:** - Value of ESP data can definitely be optimised through the three linked studies. - Outcomes of all three projects would provide useful information to inform future NRM and program development.				

s47E(d)					
Price (GST Inclusive) s47E(d)					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
Assessment	Good	Very good	Good	**GOOD**	N/A
Score	30.28	24.33	22.90	77.51	N/A
Summary	**Rationale and logic:** - Demonstrates critical thinking around how the proposed monitoring and analysis can test and improve the original approach. - Propose to use the existing model and build significantly on it and expend scope to social and cultural indicators. - Suggests closer consideration of specific management actions but not clear as yet how these will be addressed. **Indicators proposed for monitoring:** - Will monitor existing indicators (harmonisation) and use this data, and existing dataset to evaluate new indicators that may lead to better understanding of ESP management and outcomes. Potential additional indicators include some very important factors including seed bank/seed dispersal - crucial to natural regeneration of degraded ESP sites. - Big promises re addition of variables though given ambitious scale of project proposed not certain how clearly they have considered priorities and what is most beneficial. **Timing of monitoring and locations:** - Proposing to use existing protocol - sites and timing for dataset harmonisation but may alter spatial set of sample sites if initial analysis suggests an alternate set is better. Selection of sites will be based on analysis of existing data with final sample size based on a sensitivity analysis (very strategic). May add opportunistic sampling of sites that experience disturbance which would contribute useful data for adaptive management following such episodes. Sample size TBA following initial analysis and review. **Analytical methods:** - Analytical methods are aimed at interrogating spatially and temporally aggregated data. It is very good that analyses will test hypotheses based on models rather than 'data mine' for significant trends, also that potential modifying influences (e.g. previous management, climate etc.) will be accounted for. Effects of specific management actions will be considered, along with their interaction with other management actions, and with potential modifiers e.g. climate. - Analytical methods are not described in detail. Response will not be clear until some way into the project. **Proposed stratification:** - analytical methods refer to multiple spatial and temporal scales for stratification, and there is an emphasis on ecological function under rationale/logic which provides confidence that the tenderer is considering all analysis in relation to ecological function. - Tender states that the focus of analysis is to identify the outcomes of ESP management actions - if the analysis is successful with this aim it should provide meaningful reporting to AG. - Tender could have been improved by reference to a study where this type of analysis has been successfully applied in a similar situation. **On ground monitoring protocols:** - monitoring is to be as per existing protocols. There may be new additional indicators chosen which will be analysed in relation to previous data to look for correlations (that could permit retro fitting of existing data to the new indicators).	**Large-scale, long-term monitoring design:** - Leading staff have experience in some large-scale, long-term projects including for the AG, including in relevant subject areas e.g. grazing management. Project will include a Scientific Advisory panel including relevant external experts from other Universities. **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Good experience in using spatial, statistical data. Project team strong credentials. **Industry standard data and info management practices:** - Data management in line with the University's standard which follows best practice. **Project management and administration of large-scale, complex projects:** - Good experience managing some large complex projects, with examples of practices listed to ensure successful management. Will use the university's corporate project management system. - Will use corporate project management tools, but not clear if there is a person with strong experience in this area taking responsibility. **Outreach and communication within the agricultural and natural resource management sectors:** - Some examples of communications products with rural setting. - Team members have some, but not extensive, experience. **Botanical field skills:** - One team member has experience with the relevant ecological community, others have good botanical skills. - tender states that field staff will be employed when required, or student volunteers used so tender would have been improved if it suggested strategies to ensure consistency in data collection with a wider group of people, over time. **Statistical/analytical skills:**	**Appropriateness of the roles/tasks allocated to specified personnel *(including not under/over-qualified for the job):** - Overall very qualified. - Specific tasks are not specified in detail for each team member but previously listed experience suggests appropriate cover of all required elements. - Some qualifications and experience not squarely in area of project. **Efficient and effective allocation of staffing resources:** - A project team of 5 with overlapping skill sets should ensure sufficient resources to manage/undertake project. - Use of a SAP provides additional assurance. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - Multiple staff involved. Confident that they can recruit extra members and plan for turnover. - Bid would have been improved by mention of a strategy to ensure data consistency when collected by additional casual research assistant/students. **Senior management engagement:** - Tenderer has misinterpreted the senior management section of the RFT and listed very senior staff who are not engaged on the project. - The two project leaders s47E(d) and s47E(d) have a key role in the project, but share this role. Their time commitment is not as great in the field element, as would be expected. **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - All relevant resources are available for project, or will be purchased if not available.	Pricing quoted is high in comparison to other tenders and available contract funding. The proposal was not the highest scoring tender for Technical Worth and so the cost differential was not justified. It was unclear that the key innovative elements of this bid could remain if negotiated with the available budget. Following technical scoring, tender was excluded from further consideration on basis of price	N/A – tender was not shortlisted.

	s47E(d)				
	Price (GST Inclusive) s47E(d)				
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	- Considering the relationships between variables but not clear what will be the final set chosen and how efficient that will be. **Continuity with existing data:** - Processes will permit harmonisation with existing data as well as allowing new data to be incorporated and new analyses explored. **Additional monitoring:** - Additional indicators are yet to be determined but tender states these could include a range of other data (see page 3). Of particular importance would be data to assess regeneration potential (seed bank, propagule dispersal). Camera traps and bio-acoustics would monitor additional fauna - native and non-native, although how this data would be analysed and incorporated is not discussed. - How additional data (e.g. camera traps and bio-acoustics) would be analysed and incorporated is not discussed. **Data management strategy:** - Data to be managed according to an accredited standard. - Little detail on field data capture. No discussion re data ownership - likely to be relevant in academic setting. **Reporting schedule:** - Reporting structure is adequate. Timing is linked to milestone payments which are scheduled to follow. - Tenderer recognises the Dept. may wish to comment on a draft plan/report before a final submitted - although this timing is missing for the final plan. Some information is provided in Attachment 5 on report content - including content of mid-term and final reports. **Effectiveness of proposed communications and outreach:** - Range of outreach is appropriate and comprehensive. - Tenderer has very clear understanding of stakeholder groups. - Good to consider citizen science possibilities- further engagement with landholders. - Tender would be improved if it recognised the need to cater for those ESP land managers that are not computer savvy (larger proportion than general community due to age demographic). **Links to other research work** - Proposed treatment of existing data, and collection and analysis of new data will support improved understanding of effects of management provided these can be teased out by the analysis. The required sensitivity will be in part dependent on sample size (which may have cost implication). - New thinking around development of indicators based on ecological function and development and testing of subsequent condition models represents an exciting opportunity for NRM policy/program development.	- Project team appear to have significant experience in statistics including multivariate analysis and GIS. **Ecological and sustainable ag practices knowledge, including specific expertise regarding restoration of TECs targeted through the ESP:** - Team members have some, but not extensive relevant experience. No specific experience listed for restoration of the relevant TECs. **Engagement and community outreach:** - Team members have community outreach experience, with some of this being with the agricultural community. **Report writing skills:** - Project team have extensive experience in report writing/editing. **Project management skills, including logistics and planning:** - Team has relevant large/complex project management experience including a significant project for the Dept.	**Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Project team not located near the majority of ESP sites.		

s47E(d)

Price (GST Inclusive) s47E(d)

	Design (out of 40)	Capability (out of 30)	Capacity (out of 30)	Total Technical score (out of 100)	Risk
Assessment	Unsatisfactory	Satisfactory	Good	**SATISFACTORY**	N/A
Score	18.60	15.44	20.40	54.44	N/A
Summary ***Strengths***	**Rationale and Logic:** - Tender shows understanding of ESP and importance of monitoring. - Conservation Value Score is discussed but not conceptual models behind it. - Specific management actions not addressed. **Indicators proposed for monitoring:** - Addition of track tubes for mammals - may be useful if sufficient information to analyse - need to state how this information will be interpreted and if suitable scales. Landscape analysis to provide context may be useful. - No discussion of why particular indicators chosen, which are a sub set of those currently used. - Some measures seem a bit odd e.g. % exotics seems to be proposed as measure of species richness - No discussion of how condition ranking (1-5) would be assigned. - Conceptual models not referenced. **Timing of monitoring and locations:** - Monitoring timing proposed is consistent with current monitoring timing but the tender does not outline why this is important. - Seem to follow lead on site selection rather than making any proposal - says will monitor sites chosen by department, so probably scalable. Assuming 157 sites. **Analytical methods:** - Data analysis discussion seems a bit confused but commit to largely following ANU methods. - Aggregation only mentioned in terms of spatial location, not management actions. - No discussion of importance of control sites for excluding confounding factors. **Proposed stratification:** - following lead from ANU work. - Stratification only mentioned in relation to landscape scales. **On ground monitoring protocols:** - Protocols match existing ANU methods, with addition of tracking tunnels. - Correlation between variables not discussed. **Continuity with existing data:** - Largely continuation of existing methods. - Same methods but over unspecified number of sites. **Additional monitoring:** - Bird, reptile and small mammal (tracking tunnels), plus macropod scat counts on plots.	**Large-scale, long-term monitoring design:** - Some experience in flora and fauna monitoring although duration of these monitoring projects is not mentioned. - Experience is mainly in survey rather than monitoring. **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Several staff have report and management plan experience. - GIS and data analysis capacity within organisation stated. Allocate GIS work in the budget. - Organisational experience in analysis is not specifically addressed. - Unclear how experienced at drawing together evidence across a wide range of sites. **Industry standard data and information management practices:** - s47E(d) has an accredited quality management system for project admin and management. - Although s47E(d) has an accredited quality management system, tender does not explicitly address data management or systems. **Project management and administration of large-scale, complex projects:** - Tender includes examples of several medium scale/medium complexity projects. **Outreach and communication within the agricultural and natural resource management sectors:** - Discuss communications management plan and team though quite generic content and unclear if have existing networks and relationships within the ag sector in the region. **Botanical field skills:** - Several staff with appropriate skills. - For some of the less experienced members, not so clear if experience would be in relevant areas. **Statistical / analytical skills:** - Statistical / analytical skills of staff are not described.	**Appropriateness of the roles / tasks allocated to specified personnel *(including not under-qualified or over-qualified for the job):** - Jobs shared across several people - good to have some redundancy though it may depend on combination of staff whether results are consistent and reliable as some likely to have a lot more relevant experience than others. - Focus is on site data collection, not data analysis. **Efficient and effective allocation of staffing resources:** - Somewhat unclear roles and rates - there are 'per site' rates and per week per year rates. - Total effort allocated in budget is about 2500 days. Not sure how many sites there are altogether as say this is up to the dept. - Quite a few staff involved- relies on good communication between staff though allowance for unavailability. - Difficult to compare allocation of staff in budget table and staff table - doesn't seem to match up completely. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - In built redundancy with several additional qualified staff. Routine strategies listed for project continuity. **Senior management engagement:** - Lists a senior team member who will be the principal contact with the Dept. and who appears not to be heavily involved in the field. **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - Relevant field equipment. - Capabilities not specifically listed include: IT, transport, GIS licences or other technological equipment.	This tender was the second lowest Technical Worth Score, whilst the second highest priced bid. The Tenderer is offering nothing additional to other approaches and is higher priced. It was excluded from shortlisting on this basis.	This Tender was not shortlisted.

s47E(d)					
Price (GST Inclusive) s47E(d)					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	Data management strategy: - Field data collection system sounds excellent. - Did not address the wider, systematic issues of data control. Missing key information of protocols for data storage. - Does not discuss data ownership. **Reporting:** - Reporting in July sensible as it avoids survey periods. Biennial - Reporting in December will avoid field survey time but require rapid analysis of that season's fauna data. - No detail on report content is provided **Effectiveness of proposed communications and outreach:** - Tender does not demonstrate an understanding of who the stakeholders it refers to are other than ESP land managers and the Dept. - Project management content of this section looks like a generic document and is not tailored to this particular tender. - Proposed outreach activities are relevant although limited. - One field day per year in only on location will not cater for the wide geographic spread if ESP projects. **Links to other research work:** - No links outlined.	**Ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the TECs targeted through the ESP:** - Several staff with appropriate experience in assessing condition of box-gum woodland. - No mention of knowledge in sustainable agriculture. - Not clear if staff have experience in relevant TECS. **Engagement and community outreach** - Communications staff with experience in journalism. - No specific experience relating to agricultural industry or community. **Report writing skills:** - Several staff have report and management plan writing experience. **Project management skills, including logistics and planning:** - Several staff have project management experience. Emphasis on work planning. - No experience with this type of project.	**Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Pricing suggests staff to work out of Newcastle office which is fairly central to range of ESP sites.		

s47E(d)					
Price (GST inclusive) s47E(d)					
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
Assessment	Good	Good	Very good	**GOOD**	N/A
Score	27.43	22.80	25.28	75.50	N/A
Summary	**Rationale and Logic:** - Tender gives a good overview of ESP including consideration of previous monitoring including socioeconomic. - Tender refers to original investment approach but does not discuss the state and transition model nor Conservation Value Metric. - Management actions are listed but not discussed. **Indicators proposed for monitoring:** - Continuing existing methods – have reviewed ANU documentation carefully. - There is no discussion of a power analysis or reanalysis of these (to look for efficiencies or deficiencies) other than to ensure that collected data is consistent with previous data. - The tender does not address the original conceptual models or how indicators (e.g. species richness) relate to these. **Timing of monitoring and locations:** - 255 sites, 149 properties to be covered at some time but in rotation – 70%. Scalable. - The rationale behind monitoring timing is not explicitly discussed in the tender. - Veg surveys to be conducted in late summer-autumn, and one bird/herpetofauna surveys in spring as per existing. The second bird count will be concurrent with veg survey but potential data consistency issues with this are not discussed. **Analytical methods:** - Analysis proposed is as per existing approach. This will be tested to ensure it is appropriate to meet project objectives. - Commit to user friendly interpretations of data. - Tender does not discuss an alternative approach if the analysis shows the existing approach is not appropriate. **Proposed stratification:** - The only stratification discussed is the ESP site versus control comparison which is key to determining if any changes that are detected are attributable to ESP management (this will assist AG in looking at outcome of program). **On ground monitoring protocols:** - This is the only tender that proposes pre-field season staff training to ensure internal consistency in-field - an approach which should be considered industry standard. - Efficiency of proposed (=existing) variables is not discussed. **Continuity with existing data:** - Protocols are as per existing so data should be consistent. - Another approach to ensure data consistency includes loading previous data into in-field data collection devices. - Scope for reducing survey or modifying statistical methods.	**Large-scale, long-term monitoring design:** - Tender includes examples of several large-scale projects which included similar protocols to those proposed for the present project. - Most of the work listed was much smaller in scale (time and space). **Advanced capacity for GIS, data analysis, data visualisation and reporting:** - Seems to have advanced capacity for GIS, data analysis capacity implied. **Industry standard data and information management practices:** - Proposes excellent data and information management processes although some elements of these appear to still be in the testing phase. Tenderer will comply with NESP's Data and Accessibility Guidelines. **Project management and administration of large-scale, complex projects:** - outlines detailed and relevant project management and admin capability based on its certified quality control system. WH&S processes are very good and well demonstrated in the tender. **Outreach and communication within the agricultural and natural resource management sectors:** - Some evidence of this in some projects. They have an 'NRM consultation specialist'. - Section 1.5.4 Attachment 6 states that the tender's experience in this work is detailed in Attachment 5 but this appears to be missing. **Botanical field skills:** - Tender CVs demonstrate very experienced team of field botanists, with good contingency staff if required, and commitment to provide further CVs to Dept. if more field staff are required after initial discussions with Dept. Statistical / analytical skills: - s47E(d) seems to have very good skills though not sure if enough of his time allocated. s47E(d) seems to have good data management experience also. - A bit unclear how consistent is expertise across the regions. Not clear who is where.	**Appropriateness of the roles / tasks allocated to specified personnel *(including not under-qualified or over-qualified for the job):** - Large team with appropriate mix of skills. Relevant prior experience. - Not entirely clear how some of the relationships work and e.g. who is responsible for report writing. **Efficient and effective allocation of staffing resources:** - Very efficient allocation of resources. - More time may need to be allocated to data analysis. **Organisational strategy for securing staff resourcing throughout the life of the contract:** - Tenderer has a large very experienced team and similarly well qualified contingency team (especially for field officers). **Senior management engagement:** - Tenderer has misinterpreted senior management section of RFT and listed very senior staff who are not engaged on the project. The project director and manager estimated work effort seem appropriate although. **Facilities, transport, equipment and other relevant capital assets e.g. IT or other capabilities:** - Tender states that all field equipment and vehicle will be available. IT software seems appropriate to proposed analyses and in field software described is very good. **Location of principal locations for the provision of the services, relative to the geographic spread of ESP sites:** - Excellent distribution of locations relevant to ESP site spread (e.g. Canberra, Newcastle, south-east QLD).	s47E(d) scored for fourth for Technical Worth, but was the second lowest priced bid. They scored third for overall value for money. However, a decision was made not to shortlist as this tender did not offer any significant additional value over the two higher scoring bids.	This bid was not shortlisted.

	s47E(d)				
	Price (GST inclusive) s47E(d)				
	Design (out of 40)	**Capability (out of 30)**	**Capacity (out of 30)**	**Total Technical score (out of 100)**	**Risk**
	Additional monitoring: - Tender offering the same fauna monitoring as existing (bird, herpetofauna and mammal scat). - The survey day for fauna is 10 hours but don't s mention time of day, which seems strange for bird surveys as they are highly dependent on time. With only one repeat this bias may not be corrected. **Data management strategy:** - The tender proposes use of a newly developed electronic data collection and management approach which offers efficiencies in data capture, translation, spatial recording, and storage. - The real time data checking component offers advantages for quality control as blank fields will be highlighted before leaving the site. - Allocated funds for peer review. **Reporting schedule:** - Report timing looks realistic with respect to field work. - Report content (specified at page 19 Section 3.4) is excellent and will assist AG to track the project. - RTF requires annual reports but the tender does not meet this as repots are missing in 2019 and 2021. **Effectiveness of proposed communications and outreach:** - Outreach and communications have been well researched and considered and is thus appropriate. - Proposed consultation with LLSs to determine their extension role for ESP land managers is critical to avoid duplication. - Tender assumes workshops to be organised and paid for by Dept. so this is not costed in bid. - Additional outreach activities including talks to wider rural community, social media, case studies and field days have not been costed in the bid. - Tenderer has not considered the Dept. to be a key stakeholder although communications with the Dept. are covered well in other areas of the tender such as project management and reporting. **Links to other research work:** - Tender does not cover these areas other than stating that they will be considered in the Plan for Communications and outreach.	**Statistical / analytical skills:** - Not sure if enough of s47E(d) s time is allocated to statistical / analytical requirements. **Ecological and sustainable agricultural practices knowledge, including specific expertise with regards to restoration of the TECs targeted through the ESP:** - Several team members have experience with rural extension (as detailed in CVs). - Tender would have been improved by making experience in rural extension more explicit. - Reference to experience in restoration of targeted TEC's was also not evident in the main tender. **Engagement and community outreach:** - Tenderer's experience with community outreach was not well documented. **Report writing skills:** - Information on report writing experience, or the tenderer's view on what constitutes a good report was not located in the tender, however there is reference to client feedback on drafts and to third party review of reports (with a budget for such reviews). **Project management skills, including logistics and planning:** - demonstrates excellent capability and systems for project management.			

APPENDIX B

Survey cost comparison and pricing differences between the two best rated tenders for the Environmental Stewardship Program ecological monitoring tender s47E(d) and CSIRO)

Costs per survey

	s47E(d)	CSIRO
Total number of farms in the monitoring program	133	92 or 115 depending on the design
Total number of flora surveys (including multiple sites on properties and controls)	234 (including controls) * 3 times over life of contract = 702 surveys over the life of the contract	80 (including controls) * 5 times over the life of the contract + 60 reassessment using Conservation Value Measure vegetation = 460 surveys over the life of the contract
Total number of fauna surveys	Averaging approx. 200 (based on average of fauna survey numbers conducted 2014 (177) and 2016 (216)) * 2 times over life of contract = 400 surveys over the life of the contract.	80 (including controls) * 5 times over the life of the contract = 400 times over the life of the contract
Data	No additional data	Additional data collected includes key plant composition/ abundance information, & climate variables as well as rerunning the rapid assessment protocol used to determine investments.
Total number of combined survey effort (basic package)	**1102**	**860**
Total cost (GST inclusive)	s47E(d)	**$2,068,012**
Cost per survey		**$2404.65**
Difference		s47E(d)

	s47E(d)	CSIRO
Number of extra surveys associated with additional component (Option 1)	n/a	150
Total number of surveys	1102	1010
Total cost (GST inclusive)	s47E(d)	$2,110,937
Cost per survey		$2090.04
Difference with s47E(d)		s47E(d)

Pricing comments

s47E(d)

CSIRO
Power analysis to optimise sample size and ensure validity
$1,044,009 (36%) co-contribution
No capital purchases noted.

Value of linked research and data

s47E(d)	CSIRO
	CSIRO maintains long-term data sets on Box Gum Grassy Woodland reference sites to enable comparisons to these benchmark sites. In addition, CSIRO offers three specific linked research projects. Benefits to the Australian Government from this work include: 1. An understanding of which variables can inform improvement in remote sensing analytical capability and so enable more efficient integrated monitoring between remote sensing and on ground monitoring. 2. Inform an understanding of how landscape fragmentation can impact on species persistence (which is also potentially useful for the NLP2 TSS monitoring approach (e.g. for Regent's

	Honeyeater and other TSS species present in the ESP TEC communities). 3. Assist in an improved understanding of NRS representativeness and the role of private land conservation in providing complementary protections for biodiversity.

APPENDIX C – RISK ASSESSMENT

Risk comparison scores for services												
Element	s47E(d)	**H-3, M-2, L- 1**					**CSIRO / Queensland Herbarium**	**H-3, M-2, L- 1**				
		Steve Costello	**Trudy O'Connor**	**Neil Riches**	**Nicola Webb**	**Average**		**Steve Costello**	**Trudy O'Connor**	**Neil Riches**	**Nicola Webb**	**Average**
Team	Reliance on 3 positions. One person identified s47E(d) s47E(d) as core.	s47E(d)				**2.25**	Large team of 17 with overlapping, multi-disciplinary capabilities - risk associated with staff losses spread across large team and between two organisations.	1	2	1	1	**1.25**
Casual staff	Use of casual staff, with no training process identified as part of delivery					**2**	Already trained and experienced permanent staff across two organisations.	1	1	1	1	**1**
Identified field staff capabilities	Capability and experience not identified for staff and casuals (other than s47E(d)). s47E(d) is experienced.					**1.75**	Identified experienced field staff	1	2	1	1	**1.25**
Statistical capability	Non-identified statistical capability or dedicated staff					**2**	Identified capability and experience; technical steering committee also	1	1	1	1	**1**
Data management capability	Data management skill set is not evident (casual staffing)					**2**	Experienced data managers (16 identified staff members have data management skills)	1	1	1	1	**1**
Engagement with Stewardship / rural community	s47E(d) has proven engagement skills and excellent established relationships with Environmental Stewardships. Otherwise unknown.					**1.25**	13 staff with identified engagement skills. Lead project manager has extensive experience in rural community in Australia particularly in the MDB. However, the establishment of new relationships will be a transaction cost.	2	3	1	1	**1.75**
Monitoring timing	Monitoring during Autumn - misses some key management response variables that the program is designed to improve and is out of alignment with the program's investment approach. s47E(d)					**2**	Change in timing to Spring. Appropriately timed monitoring to improve capability to identify outcomes from ESP management. Will bring in climate variables to provide greater analytical power from the data and understand the effects of seasonal variation. Timing of monitoring is good to assist Stewards build key observation skills and is a useful way of engaging and enthusing Stewards (more species of interest can be shown to Stewards). However, will need to manage the perception there may be data harmonisation issues, as well as time spent in the data harmonisation exercise.	2	2	2	1	**1.75**

Risk comparison scores for services											
Element	s47E(d)	**H-3, M-2, L- 1**					**CSIRO / Queensland Herbarium**	**H-3, M-2, L- 1**				
		Steve Costello	Trudy O'Connor	Neil Riches	Nicola Webb	Average		Steve Costello	Trudy O'Connor	Neil Riches	Nicola Webb	Average
# sites sampled and sampling frequency.	No power analysis has been conducted on the current sampling regime to inform Tender design. With the majority of sites in South Eastern bioregions it is difficult to assess whether the volume of sites is necessary for analysis (given that there are far fewer sites in Northern NSW & QLD, yet they are still deriving the same statistical power from the analysis). s47E(d) . It is a little unclear whether s47E(d) is proposing to maintain the number of sites sampled based on the price provided and are waiting for a negotiation with eh Australian Government to reduce the number of sites sampled, or if the pricing is for the existing survey effort. However, s47E(d) are visiting more farms and this provides opportunity for engagement.	s47E(d)				**2**	Fewer sites sampled than ANU. However, Tender indicates government can have confidence in the analytical power. Reduction in total no of farms visited does mean slightly reduced engagement across Stewardship community. However, this might be remedied through holding field days.	2	2	1	2	**1.75**
Monitoring variables	Continuing the current regime.				**1.75**	Monitoring variables selected to enable data harmonisation with existing data as well as responses to management regimes. Enhanced number of variables and analytical power provided - for example, by monitoring abundance which may be a key indicator of change (and not currently assessed).	1	1	1	1	**1**
Monitoring against conceptual models used for investment	This is not ideal given the monitoring season. Some key variables cannot be assessed due to timing and approach.				**2**	This is made possible through the CSIRO approach, which will both rerun the investment assessment protocol as well as undertake routine monitoring in Spring to allow assessment against the State and Transition Models.	1	1	1	1	**1**
Data harmonisation with existing dataset	No issue				**1**	This will be both a technical and communications challenge. However, CSIRO offers a sensible strategy for harmonisation and demonstrate how they will be able to continue to utilise the data.	2	2	2	2	**2**
Analytical power relative to program outcomes	The s47E(d) approach is not quite parameterised correctly to enable assessment of the full effects of Stewardship management. A key possible analytical advantage of the s47E(d) proposal is the sampling density and frequency. However, it is not yet clear how this sampling frequency and density translates into greater analytical power. Unproven statistical method proposed without giving any substantial example of how and why this would be advantageous.				**2.25**	Inclusion of climate, condition baselines and reference sites to inform stratification and analysis approaches provides significant analytical power above and beyond the current approach. Timing of monitoring is key.	1	2	1	1	**1.25**

Risk comparison scores for services												
Element	s47E(d)	**H-3, M-2, L- 1**					**CSIRO / Queensland Herbarium**	**H-3, M-2, L- 1**				
		Steve Costello	**Trudy O'Connor**	**Neil Riches**	**Nicola Webb**	**Average**		**Steve Costello**	**Trudy O'Connor**	**Neil Riches**	**Nicola Webb**	**Average**
Scalability	Not clear how this would be approached at this stage. No logic provided as part of the Tender and is suggested as part of a negotiation process.	s47E(d)				**1.75**	Alternatives for scaling provided. Some confidence that the power analyses would enable logical reductions in sampling dependent on budget. However, further work would be required to reduce the number of samples proposed.	1	2	1	1	**1.25**
	Total					**24**	**Total**					**17.25**

ATTACHMENT C – CONFLICT OF INTEREST DECLARATION TEMPLATE

I, *Steve Costello*

of the department of the Environment and Energy

Declare that to the best of my knowledge, I do not have :

1. any financial interest in the companies who may participate in the Environmental Stewardship Program Request for Tender ("the Subject")
2. any relatives or friends with a financial interest in the Subject
3. Any personal bias or inclination which would in any way affect my decisions in relation to the Subject
4. Any personal obligation, allegiance or loyalty which would in any way affect my decisions in relation to the Subject

(a 'conflict'), except as set out below :

1. Nil
2.
3.
4.
5.
6.
7.
8.
9.

I undertake to make a further declaration detailing any conflict, potential conflict or apparent conflict which may arise during the contract period. Should any conflict appear to compromise me, I agree to abstain from any related decision.

Signed : Steve Costello

Dated : 27-6-2017

ATTACHMENT C – CONFLICT OF INTEREST DECLARATION TEMPLATE

I, Neil Riches

of Department of the Environment and Energy, care of Bureau of Meteorology, Level 3, 1 Ord Street, West Perth WA

Declare that to the best of my knowledge, I do not have :

1. any financial interest in the "Request for tender for Environmental Stewardship Program Ecological Monitoring and Evaluation Services" ("the Subject")
2. any relatives or friends with a financial interest in the Subject
3. Any personal bias or inclination which would in any way affect my decisions in relation to the Subject
4. Any personal obligation, allegiance or loyalty which would in any way affect my decisions in relation to the Subject

(a 'conflict'), except as set out below :

1.
2.
3.
4.
5.
6.
7.
8.
9.

I undertake to make a further declaration detailing any conflict, potential conflict or apparent conflict which may arise during the contract period. Should any conflict appear to compromise me, I agree to abstain from any related decision.

Signed s47F

Dated : 12 June 2017