THREATENED SPECIES STATUS ASSESSMENT MANUAL

A guide to undertaking status assessments, including the preparation and submission of a status report for threatened species.

Knowledge of species and their status improves continuously. Due to the large numbers of both listed and non-listed species, government resources are not generally available to carry out regular and comprehensive assessments of all listed species that are threatened or assess all non-listed species to determine their listing status. A status assessment by a group of experts, with their extensive collection of knowledge of a particular taxon or group of species could help to ensure that advice is the most current and accurate available, and provide for collective expert discussion and decisions regarding any uncertainties. The development of a status report by such groups will therefore assist in maintaining the accuracy of the list of threatened species under the EPBC Act and ensure that protection through listing is afforded to the correct species.

1. What is a status assessment?

A status assessment is a assessment of the conservation status of a specific group of taxa (e.g. birds, frogs, snakes) or multiple species in a region (e.g. Sydney Basin heathland flora) that occur within Australia. For each species or subspecies (referred to as a species in this paper) assessed in a status assessment the aim is to:

- provide an evidence-based assessment against the criteria for listing as nationally threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for those species where listing, removal from the list or status change is recommended;
- assess the status of all species in a particular group against the International Union for the Conservation of Nature (IUCN) Red List criteria;
- identify areas of habitat critical to the survival of particular species and, where relevant, important sub-populations[1] of the species;
- identify key threats and provide recommendations for ways to abate the threats; and
- identify conservation objectives and actions that could aid in the stopping the decline of the species and support recovery.

2. Purpose of preparing and submitting a status report

A final status report for a taxon or group of species that has been developed using these guidelines, and that includes the required information, will subsequently allow the Threatened Species Scientific Committee (the Committee) to undertake a rapid assessment of the species identified in the status report and potentially lead to recommendations to the Minister for the Environment to amend the EPBC Act List of Threatened Species.

By summarising and synthesising recent knowledge of a threatened species, a status assessment can also inform other management decisions, such as the implementation and assessment of recovery plans, or development approval decisions and associated conditions.

[1] Note assessments for listing are undertaken at species or subspecies level across their entire Australian extent; important populations are identified only for management actions.

3. Criteria used by the Committee for assessing eligibility for listing under the EPBC Act

The criteria the Committee are required to use to determine a species' eligibility for listing and in which category are detailed in Part 7 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (Appendix 1, Part A). The criteria define situations in which a risk of extinction in the wild, sometime in the future, is deemed to exist for a species (for the purposes of section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)). It is not essential to quantify the risk of extinction, but it is important to ensure that judgements about the criteria (for example, whether a reduction in numbers represents a severe decline) are made in the context of risk of extinction.

When assessing a species' eligibility against the listing criteria, the Committee exercises its judgement to give practical meaning to the subjective terms of the criteria. To help inform its decision the Committee has adopted indicative thresholds, which have been adapted from "IUCN[2] Red List Categories and Criteria Version 3.1, 2001" (Appendix 1, Part B).

It should also be noted that the Committee is informed by, but not bound by, the indicative thresholds of the criteria. When considering whether to use the thresholds, the Committee judges whether they are appropriate to the species in question and the standard of evidence available when making a recommendation.

4. Differences between the criteria and assessment approach for listing under the EPBC Act vs. IUCN Red List

Assessments undertaken by the Committee are for the most part the same as the IUCN assessment for inclusion on the Red List. The major difference is that under the EPBC Act there is no equivalent of IUCN criteria D2 (restricted area of occupancy) and no near threatened or data deficient categories.

The other difference between the EPBC Act listing assessment verses IUCN Red list assessment lies in the consideration of supporting evidence to justify a decision. Listing under the EPBC Act is a statutory process with regulatory implications, therefore inclusion on the list must be based on documented robust evidence. Inclusion on the list makes any item a matter of national environmental significance. Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance requires approval from the Australian Government Minister for the Environment.

The IUCN Red List is not a statutory list with regulatory implications, and therefore assessment can be more precautionary with less imperative to document the evidence that justifies listing decisions. This is discussed further in Section 7 below under 'Standard of evidence'.

The *IUCN Guidance Documents* for all IUCN Red List assessments (http://www.iucnredlist.org/technical-documents/red-list-documents) provides guidelines for assessing species for eligibility and provides a basis for assessing species that can be adapted to EPBC Act assessment.

[2] International Union for Conservation of Nature

5. Advice for groups considering undertaking a status assessment

Types of status assessments

A status assessment can be undertaken for any group of taxa or species. Previous examples of status assessments include the *Action Plan for Australian Birds 2010* (Garnett et al., 2011) and The *Action Plan for Australian Mammals 2012* (Woinarski et al; 2014). These examples of status assessments have focused on entire taxa. Smaller regional or species based status assessments could also be developed, but noting that assessments must consider the national extent of a species.

Initiation of a status assessment and assistance from the Department

Groups proposing to undertake a status assessment are asked to contact the Department as early as possible to discuss the proposed assessment and seek advice. It is important to note that while the Committee encourages groups to undertake status assessment, timing is important. The Department and the Committee have a significant quality assurance role and can only progress a certain amount of work at one time. To prevent status assessments being undertaken and then not being able to be progress in a timely manner resulting in currency issues, groups should contact the Department prior to initiating any work.

Once the Department is aware that a status assessment is planned a Department contact officer will:

- provide advice and guidance on the assessment;
- advise if there are other groups/experts that the group might want to involve;
- provide advice on formatting, use and access to assessment software and submission of the status report;
- provide advice on quality assurance;
- clarify questions on assessment against the EPBC Act listing criteria and processes;
- provide any relevant material held by the Department, such as information received through state list alignment arrangements or Department funded research programs;
- highlight any known problematic species;
- highlight those species whose status has not been reviewed for many years;
- liaise between the group and the Threatened Species Scientific Committee; and
- help liaise with relevant state departments.

Contractual arrangements

The department will establish a contract with the coordinator of a formed group. The contract will formalise the agreement for the provision of the work and provide clear guidance of what is to be provided and timings.

6. Preparation of a status report

Structure of a status report

To achieve the most benefit from assessments, all species should be assessed against the IUCN listing criteria in the first instance and an initial recommendation for those species made. Species identified for listing in the vulnerable, endangered or critically endangered categories, removal from the list or transfer to a different threat category will require a more comprehensive assessment against the Committee's indicative thresholds with evidentiary data to support a recommendation.

Note that species that are assessed as eligible under IUCN criteria D2 or recommended for listing in the near threatened or data deficient categories would not be found eligible for listing in any category under EPBC Act.

A template for assessment of each species for inclusion in a status report is provided at Appendix 2. The key components of each assessment include: details regarding the distribution of the species, identification of threats, assessment against the listing criteria using the Committee's thresholds, identification of habitat critical for survival and recommendations for conservation objectives and actions. Additional information and things that should be considered when undertaking an assessment are included in Section 7 below.

Software, formatting and templates

A secure open source content management system for undertaking status assessments is being investigated by the Department. Once available the Department contact officer will advise how access to the software is gained, how it is used and what outcomes are required by the Department for submission of the status report.

A great deal of work is required in assessing each species against the criteria and thresholds. In the absence of a software programme provided by the Department, groups are advised to investigate options for facilitating assessment external to the Government such as Dropbox etc. The software allows input from multiple assessors, peer assessment and the production of a final report.

For submission of a status report the Department requires the final versions of the completed template for each species and access to data and references. The Department requires a licence agreement and an electronic copy of all final versions of the assessments to be able to use them to brief the Committee, and to potentially publish them for the public consultation as required by the EPBC Act. The group's work would be credited appropriately.

Consultation

When undertaking a status assessment consideration should be given to undertaking broad consultation with experts, NGOs, relevant state and territory government agencies and state and territory threatened species committees. Broad consultation elicits the greatest number of contributions to the assessment resulting in a more comprehensive and accurate assessment of a species' status in addition to a broader range of options of conservation and recovery. The Committee will need to be confident that appropriate expert consultation has been undertaken to ensure sufficient rigour in the assessments.

The Committee is required by the EPBC Act to undertake public consultation on any species recommended to the Minister for inclusion to the list of threatened species, exclusion from the list, or change in listing category. This is a separate consultation process from that which the group under the action plan would undertake (see Section 7 below).

7. Assessment considerations

Standard of evidence

The Committee carefully considers the standard of the evidence provided to support a threat category recommendation. The factors for consideration for standard of evidence include:

- the nature of the data;
- the number of data sets;
- the degree of consistency between different data sets;
- the source of the data and it credibility; and
- the relevance of the data to the species assessment criterion.

That is, if the data have little influence on the listing decision, then it is less important that it be rigorously collected. However, if a decision against a criterion is based largely on a single study, then that study needs to be sufficiently well described and supported that the recommendation by the Committee can be made with confidence. Additional information regarding how the Committee considers standard of evidence is provided at Appendix 3.

Assessment for IUCN purposes

Groups undertaking status assessments may wish to also submit the assessment to the IUCN for consideration for changes to the Red List. If this is the intent of the group, the group coordinator should contact the IUCN directly for advice on requirements for undertaking a assessment for IUCN purposes.

Precautionary vs. evidentiary approach

When dealing with uncertainty, the IUCN guidelines (IUCN Standards and Petitions Subcommittee 2013) recommend that assessors take a precautionary approach (i.e. low risk tolerance), rather than an evidentiary approach, to the assessment. A precautionary approach results in the taxon being found as eligible for listing as threatened unless there is evidence to demonstrate that it is not threatened. An evidentiary approach only classifies a species as threatened when there is strong evidence to support the listing recommendation.

The Committee is able to use the precautionary principle in its listing assessments. However, as listing under the EPBC Act is statutory and has regulatory implications for community members and businesses, the Committee generally applies an approach that is more evidentiary than advocated by IUCN guidance. For example, while the IUCN advocates the use of plausible lower bounds for estimates, the Committee would recommend using the most plausible estimate in determining the quantities used for an EPBC assessment.

Assessment targeted at species and subspecies at the national extent

Assessments for status reports are set by the EPBC Act at species or subspecies level. When undertaking a status assessment the focus should be on species and subspecies at the national extent (the latter are considered species for the purposes of the Act). Under the EPBC Act if a taxon is listed at species level then all the subspecies are also protected under Act. Assessors should give consideration to assessment at species level, if all subspecies within a genus are found eligible for listing it is more efficient and as effective to list the species rather than all the subspecies.

Data deficient species

There is no formal 'Data Deficient' category under the EPBC Act, therefore species that are assessed as being ineligible for listing due to data deficiency are not offered protection under the Act. In many cases data deficiency is due to the species being poorly known and studied, resulting in little or uncertain available information to properly assess the species against the criteria. When assessing a species status it is necessary to try to justify the assessment recommendation with as much data or information as is available to support the conclusion.

A lack of data is often an issue for wide ranging species where information is only known on a small part of its range. In some cases there may be scope to extrapolate these data to other parts of the range, but this should be done with caution and only where there is sound justification that such extrapolation is appropriate. For example, where both the habitat and threats are qualitatively similar, it may be possible to infer a decline across the habitat of similar magnitude to that demonstrated in a subset of the range.

The use of such extrapolation may overcome a data deficiency, but also introduces a level of uncertainty. It is important that key sources of uncertainty are acknowledged in the assessment. A method to do this explicitly is via the use of sensitivity analysis, whereby the range of possible values of the parameter are used to determine their influence on the overall estimate. An example of this approach can be seen in the listing advice for the koala (*Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT)) [3] .

Extralimital range

When assessing the status of species with an extralimital[4] range from Australia it is important to assess the species' abundance within Australia against all the listing criteria. Under the EPBC Act, Subsection 5(2) of the Act stipulates that it "… applies to acts, omissions, matters and things in the Australian jurisdiction, and does not apply to acts, omissions, matters and things outside the Australian jurisdiction." However, it is open to the Minister and the Committee to take account of the abundance or otherwise of a species outside Australia to the extent that this may influence the abundance or otherwise of the species within Australia.

The IUCN Red List assessments consider threats and the status of the species across its entire range. When the status of a species with a range extralimital to Australia is assessed for listing under the EPBC Act, the threats that make it eligible for listing on the IUCN Red List may not be impacting of the species in Australia and therefore there may not be evidence for listing under the EPBC Act. Therefore, assessments need to focus on the national extent for a species within the Australian jurisdiction.

The Committee is developing a policy approach to extralimital species which will be available in due course.

Calculating generation length

The Committee refers to the IUCN guidelines when determining generation length. The IUCN (http://www.iucnredlist.org/static/categories_criteria_3_1) defines generation length as:

"Generation: Generation length is the average age of parents of the current cohort (i.e. newborn individuals in the population). Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in taxa that breed only once. Where generation length varies under threat, the more natural, i.e. predisturbance, generation length should be used."

[3] http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104
[4] Situated, occurring, or derived from outside Australian territory.

However, the IUCN guidelines ((http://www.iucnredlist.org/technical-documents/red-list-documents) note that the definition of generation length has been widely misunderstood, and offer some alternative methods for calculation based on the biology of the species and the data available. In particular, they note that care should be taken to avoid estimates that may bias the generation length estimate in a non-precautionary way, usually by under-estimating it.

SEAP members are encouraged to refer to the current IUCN guidelines and/or use the calculator developed by IUCN (www.**iucn**redlist.org/documents/**Generation_Length**.xls) in developing an estimate of generation length.

Assessing Area of Occupancy

The Committee uses the standardised 2 x 2 km^2 grid cell approach for determining the area of occupancy. This approach is also recommended by the IUCN (2013). More information on determining the area of occupancy for use in the status assessment can be obtained by referring to the IUCN guidelines.

Documenting threats

When documenting threats in an assessment, identify, name and describe all known and potential threatening processes for each species. Known threats are those for which there is reasonable evidence that they are already causing or are highly likely to cause or contribute to decline in the future. Potential threats are those for which there is no direct evidence but may be causing or contributing to a decline, now or in the near future. If the threats are not known, make a statement saying so.

Apply a qualitative threat assessment (Appendix 4 and 5) to assess the relative risk of known and potential threats. This should involve consideration of the range of potential consequences presented by a given threat and how likely those consequences are to occur. Consequence and likelihood are combined to produce an estimated level of risk associated with the particular threat in question. For each threat identify the area affected in relation to the populations/occurrences. This may be best presented in a table with the other population/site information.

The threat description must differentiate between past threats and the current impacts. For example, if past clearing has reduced habitat but the remaining habitat is not at risk of being cleared, the threat should be a lack of/reduced habitat rather than continuing loss of habitat.

When identifying threats be sure to differentiate between the ‘threat’ and the ‘mechanism’. For example a threat could be trampling of habitat – the mechanism may be bushwalkers, 4WDs, etc. If relevant, include off-site threats that may impact on the entity and include causes as well as symptoms. For example altered hydrology could be the consequence of urban development or road construction.

In determining what threats are impacting on a species, natural events such as drought or grazing by native species are considered by the Committee to be factors that naturally impact on a species and are not necessarily a threat. Similarly stochastic (random) events such as cyclones or major storms are also considered to be a natural occurrence in a species’ life cycle. While these events could be a threat if the population has diminished, they are natural occurrences. Anthropogenic threats are more likely to be the major cause of a species decline. These include all human activities that could impact on a species such as inappropriate fire regimes, grazing by domestic animals, overuse of underground water resulting in significant impact during drought times, building or roads etc.

If you consider climate change to be an important threat to the nominated species, provide referenced information on exactly how climate change might significantly increase the nominated species' vulnerability to extinction. The Committee has developed guidelines to assist in determining how climate change could be assessed as a threat (Appendix 1, Part D).

In assessing threats, the precautionary principle should be applied, such that threats are determined on the basis of likelihood and not discounted on the basis of lack of evidence of a direct threat/impact.

There are a number of key threatening processes listed under the EPBC Act that identify threats to a number of species. The list of key threatening process can be found at the following link http://www.environment.gov.au/biodiversity/threatened/key-threatening-processes and should be referred to when documenting threats for a species.

Identifying a conservation actions

A range of information is used by the Department in both assessing development proposals that affect listed species, and planning and managing for the recovery of species. While a group is preparing a status assessment, the information it collects and analyses is likely to be of great use to the Department beyond the assessment of a species threat category. In particular, this information may be used to develop "approved conservation advices", which are required for all listed species, as well as species recovery plans.

Under the EPBC Act, assessment and approval is required for actions that are likely to have a significant impact on a number of things including a matter of national environmental significance. Listed threatened species are one matter of national environmental significance.

When a person proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposal to the Commonwealth Environment Minister. Some of the criteria for assessing the significance of an action on threatened species/communities refer to the concept of 'habitat critical to the survival of a species'. This includes the habitat critical to survival identified in recovery plans, and habitat listed on the Register of Critical Habitat.

Status assessment groups are encouraged to provide, as far as possible, the following kinds of information in their assessments:

i Primary Conservation Objectives

Conservation objectives identify what needs to be achieved over a period of time to stop the decline and support the recovery of a species. Actions are the activities that need to be implemented to achieve these objectives. Conservation objectives should be measurable, realistic and time bound. Objectives may address (but are not limited to) issues such as:

- reducing rate of decline;
- removing or reducing threatening processes;
- increasing number of populations, number or area of occurrences, area of habitat, overall distribution;
- determining threats and threat abatement activities; and/or
- determining habitat requirements or other ecological information, to define and manage habitat critical to survival and determine recovery and management actions, within specified timeframes.

ii Primary Conservation Actions

Conservation actions should:

- be adaptive, to allow for changes in knowledge and results of assessmenting success of previous actions;
- be determined on the basis of likelihood and not discounted by lack of evidence of a direct threat i.e. if it is likely an action will help it should continue until further information is available;
- be prioritised, with any relative timing noted i.e. dependence on other actions occurring or on outcomes of previous actions;
- be worded appropriately e.g. “determine threats and appropriate threat management activities, through investigating…” rather than “employ a researcher to …”;
- be integrated as far as possible into existing programs/activities; and
- consider and minimise potential negative effects on other native species/ecological communities and on social and economic factors.

iii Management Actions

Where appropriate, management practices should also be identified. These are other actions which are not explicit conservation actions, i.e. not essential to stop decline and promote recovery, but will contribute to the species’ continued existence. These management practices should be applied in order to reduce the chances of significant impacts from existing threats and future possible threats.

This may include specifying methods, timing or locations for activities — such as grazing, slashing, fire management, weed control or water extraction — to occur or not occur, especially for particular populations/sites identified as being under pressure from particular threats. For example if conducting tree-felling, leave buffer of Xm from nest trees, do not burn in Spring, if slashing ensure height is above X cm, follow the Xx guidelines during fire management. Apply the precautionary principle when outlining management prescriptions as explicitly as possible. If there are no relevant management practises or not enough information to specify management practices, this should be stated.

List the more generic broad land management practises that will contribute to the ongoing conservation of the entity/ies involved, which manage large-scale threats that cannot be abated at the local level or are being managed through wider processes. Examples of large-scale threats may include greenhouse gases and salinity. Examples of wider processes include broadscale revegetation strategies, protected area management plans, and local government instruments.

8. Submission and considerations of a status report

Peer assessment and submission of a status report

Prior to submitting the status report the Committee recommends that the assessment of each species is peer reviewed by at least two additional experts other than the author and that the names of the review are included in the report. Peer review of each assessment provides a greater level of certain to the consideration made by the Committee.

Once completed the status report will be submitted via the Department's contact officer to the nominations officer who manages all nominations of species. Status reports will be dealt with through the same process as other nominations received (refer to the diagram for details on the process).

Quality assurance

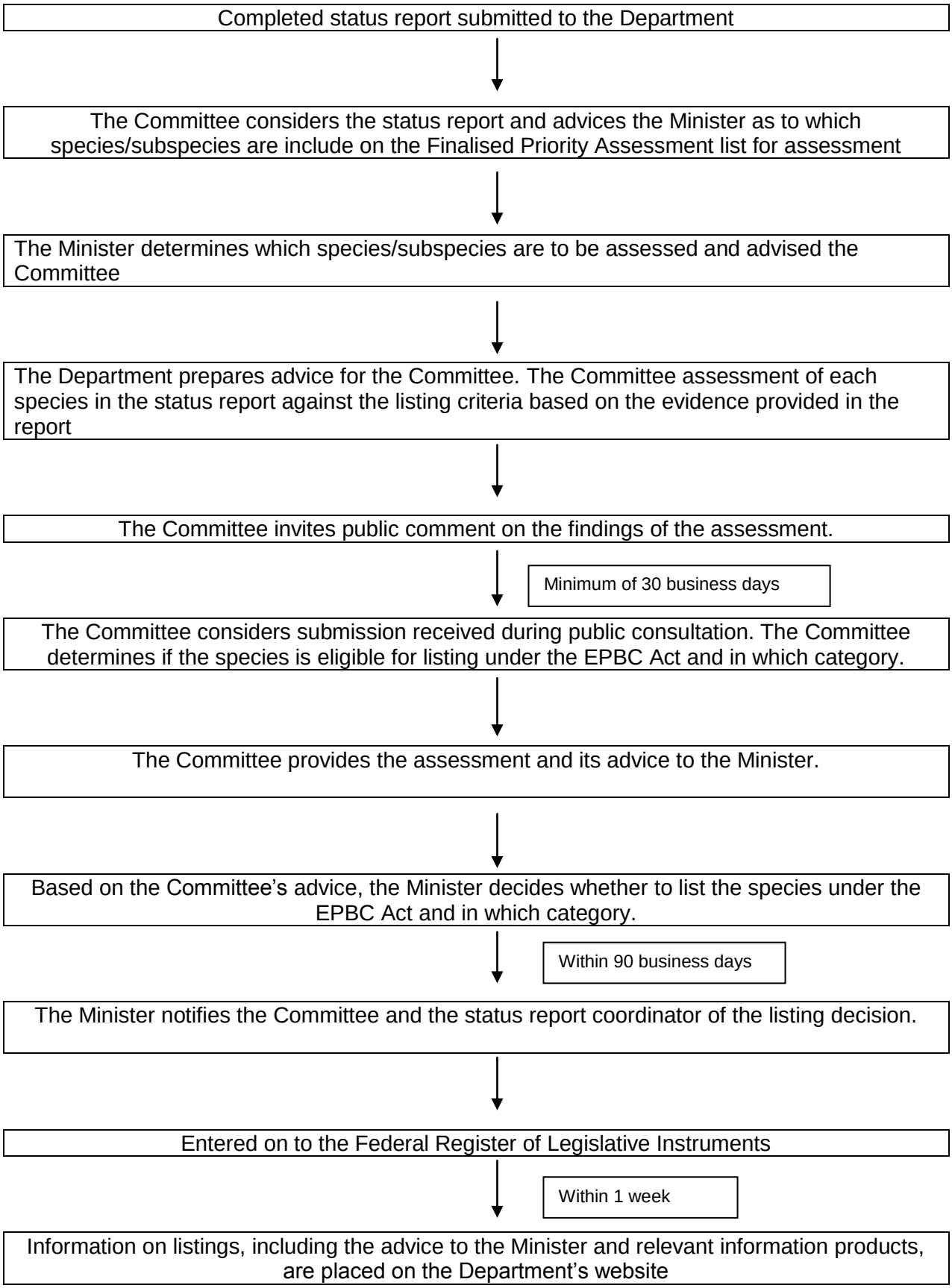
Nominations that are received are required to comply with the regulations detailed at Part 7 of the *Environment Protection and Biodiversity Conservation Regulations 2000 http://www.comlaw.gov.au/Details/F2013C00713.*

The regulations require certain information to be provided in a nomination. If the status report has been developed in consultation with the Department contact officer, the recommended template has been used and the status report assessmented prior to submission, it is likely that the nomination would meet the regulations.

If there was a situation where a nominated species in a status report did not meet the required regulations the Departmental contact officer would provide advice as to why it didn't meet the regulations and there would be an opportunity to include the information and resubmit the relevant parts.

Summary of the process

The following flow diagram provides a summary of the process once a completed status report is submitted to the Department. Timeframes indicated in boxes are statutory timeframes.



Consideration by the Threatened Species Scientific Committee and public consultation

After the regulation checks are completed the status report is provided to the Committee for consideration for inclusion for its assessment. The Committee will consider each of the nominated species and advise the Minister regarding inclusion on the list for the Committee's assessment. If the Minister agrees to the Committee's recommendation to assess the species, they are included on the Finalised Priority Assessment List and the assessment is undertaken by the Committee in conjunction with the Department.

Status reports that have been submitted on the correct template and have been prepared in consultation with the Departmental contact officer are likely to have a short assessment period as all required information is likely to have been provided. If additional information is required the Department will work with the group to obtain the information.

For each species included on a Finalised Priority Assessment List, the Committee is required by the EPBC Act to undertake public consultation. The minimum consultation period is 30 business days where the nominations are placed on the Department's website. The Committee can also consult experts on each of the species and regularly consults with the relevant state and/or territory government agencies and the state scientific committees. The extent of consultation to be undertaken as part of the Committee's assessment of the species will be dependent on the level of consultation undertaken during the development of the status report.

After considering the status report for each species and the comments received during the consultation period, the Committee will produce a conservation advice for each species that makes a recommendation for listing eligibility against each of the criteria. The conservation advice will be based for the most part on the status report submitted, and relevance of comments received during the public and expert consultation process, with relevant changes and formatting to transform it into the Committee's advice. For efficiency, approval to use the status reports verbatim with credits and access to electronic copies will need to be agreed with each group prior to submission. The Committee may also seek further advice from the group at this stage as it refines its advice to the Minister and considers comments that have been received through the public consultation process.

Completion of assessment

Once the assessment has been completed by the Committee, it makes a recommendation to the Minister regarding the eligibility for listing of each species. The Minister is also provided a copy of the Committee's conservation advice for each species, comments received as part of the consultation period and a recommendation as to whether there should be a recovery plan. The Minister has 90 days to make a decision regarding inclusion in the list of threatened species and approve the conservation advice and recovery plan recommendation. Once the Minister has made a decision the legislative instrument is lodged with the Office of Parliamentary Counsel and entered into the Federal Register of Legislative Instruments and at this point becomes law.

9. Contact information and guidance

Contact with the Department of the Environment regarding all stages of the process including consideration of the development of an action plan, initiation development, submission and assessment can be made by contacting the Nomination Officer in the Species Information and Policy Section via email epbcnominations@environment.gov.au

10. References

Garnett ST, JK Szabo and G Dutson (2011). The action plan for Australian Birds 2010. CSIRO publishing, Collingwood Victoria.

IUCN Standards and Petitions Subcommittee. 2013. Guidelines for Using the IUCN Red List Categories and Criteria. Version 10. Prepared by the Standards and Petitions Subcommittee. Downloadable from http://www.iucnredlist.org/documents/RedListGuidelines.pdf

Woinaski JCZ, AA Burbidge and PL Harrison (2014). The Action Plan for Australian Mammals 2012. CSIRO Publishing Collingwood Victoria.

11. Appendices

Appendix 1: Committee's guidelines

Part A Criteria for listing species under the EPBC Act and EPBC Regulations.

Part B Indicative thresholds that may be used by the Committee to judge the subjective terms provided by the criteria for listing

Part C Thresholds for assessing commercially harvested marine fish

Part D Guidelines for assessing climate change as a threat to native species

Appendix 2: Template for undertaking assessments

Appendix 3: Standard of evidence matrix

Appendix 4: Qualitative threat assessment methodology

Appendix 5: Qualitative threat assessment template