Publication details

**Title:**

**Catchment Scale Land Use of Australia – Update December 2023 version 2**

**Alternative Title:**

CLUM\_50m\_2023v2

**Date published:**

2024-06-27

**Date prepared:**

2023-12-06

**Preview**

**Abstract:**

The *Catchment Scale Land Use of Australia – Update December 2023* *version 2* dataset is the national compilation of catchment scale land use data available for Australia (CLUM), as at December 2023. It replaces the Catchment Scale Land Use of Australia – Update December 2020. It is a seamless raster dataset that combines land use data for all state and territory jurisdictions, compiled at a resolution of 50 metres by 50 metres. The CLUM data shows a single dominant land use for a given area, based on the primary management objective of the land manager (as identified by state and territory agencies). Land use is classified according to the Australian Land Use and Management Classification version 8. It has been compiled from vector land use datasets collected as part of state and territory mapping programs and other authoritative sources, through the Australian Collaborative Land Use and Management Program. Catchment scale land use data was produced by combining land tenure and other types of land use information including, fine-scale satellite data, ancillary datasets, and information collected in the field. The date of mapping (2008 to 2023) and scale of mapping (1:5,000 to 1:250,000) vary, reflecting the source data, capture date and scale. Date and scale of mapping are provided in supporting datasets.

**What’s new?**

2023 updates include more current data and/or reclassification of existing data. The following areas have updated data since the December 2020 version: New South Wales (2017 v1.5 from v1.2); the Northern Territory (2022 from 2020); Tasmania (2021 from 2019), Victoria (2021 from 2017). Data were also added from the Great Barrier Reef Natural Resource Management (NRM) regions in Queensland (2021 from a variety of dates 2009 to 2017), the Australian Tree Crops, Australian Protected Cropping Structures and Queensland Soybean Crops maps as downloaded on 30 November 2023. The capital city of Adelaide was updated using 2021 mesh block information from the Australian Bureau of Statistics. Minor reclassifications were made for Western Australia and mining area within mining tenements more accurately delineated in South Australia.

# Version 2 fixes some issues caused during the conversion of the state vector datasets to rasters, where single pixel horizontal lines were generated in local areas. This does not affect the date or scale of mapping. Areas addressed were in:

* North-east Tasmania
	+ From 146.296, -41.564 to 147.726, -41.436
	+ From 146.628, -41.665 to 147.467, -41.586
* Western Australia
	+ Northern Agricultural Region: from 115.843, -30.078 to 116.178, -30.116
	+ Avon: from 116.916 -30.643 to 115.843, -30.078
	+ Mt Barker: from 117.400, -34.509 to 118.039, -34.568

Users should update any references or links to previous CLUM datasets in their databases.

Descriptive information

**Authors:**

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)

**Acknowledgements:**

This dataset was compiled by Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) within the Australian Government Department of Agriculture, Fisheries and Forestry as part of the Australian Collaborative Land Use and Management Program (ACLUMP).

ACLUMP, of which ABARES is a partner, is a consortium of Australian Government, and state and territory government partners that promotes the development of nationally consistent land use, land cover and land management practice information for Australia. This consortium of Australian and state and territory government partners is critical to providing nationally consistent land use mapping at both catchment and national scale, underpinned by common technical standards including an agreed national land use classification. ACLUMP provides a national land use data directory and the maintenance of land use datasets on Australian and state government data repositories. More information on ACLUMP is available at <https://www.agriculture.gov.au/abares/aclump>.

Datasets were provided by: the New South Wales Department of Climate Change, Energy, the Environment and Water; the Northern Territory Department of Environment, Parks and Water Security; the Queensland Department of Environment, Science and Innovation; the South Australian Department of Environment and Water; the Department of Natural Resources and Environment Tasmania; the Victorian Department of Energy, Environment and Climate Action; the Department of Primary Industries and Regional Development, Western Australia and the Applied Agricultural Remote Sensing Centre, University of New England.

Constraints

**Disclaimer**

The Australian Government acting through the Department of Agriculture, Fisheries and Forestry, represented by the Australian Bureau of Agricultural and Resource Economics and Sciences, has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Agriculture, Fisheries and Forestry, ABARES, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying on any of the information or data in this publication to the maximum extent permitted by law.

**Acknowledgement of Country**

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

**Constraints on using the material:**

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**Citation:**

This publication (and any material sourced from it) should be attributed as:

ABARES 2024, [Catchment Scale Land Use of Australia – Update December 202](https://doi.org/10.25814/aqjw-rq15)3 version 2, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, June, CC BY 4.0, DOI: [10.25814/2w2p-ph98](http://www.doi.org/10.25814/2w2p-ph98).

Additional information about this material

**Purpose for which the material was obtained:**

This catchment scale land use dataset provides the latest compilation of land use mapping information for Australia’s regions as at December 2023. It is used by the Department of Agriculture, Fisheries and Forestry, state agencies and regional natural resource management groups to address issues such as agricultural productivity and sustainability, biodiversity conservation, biosecurity, land use planning, natural disaster management and natural resource monitoring and investment. The data vary in date of mapping (2008 to 2023) and scale (1:5,000 to 1:250,000).

**How to use this data:**

Use this data to:

* Zoom in to a region to identify, map and analyse land use.
* Inform on land use categories such as irrigated horticulture and dryland cropping, grapes, cotton, cereals, sugar and tree fruits in a region (for more detail on commodities see the supplementary vector dataset Catchment Scale Land Use of Australia – Commodities – Update December 2023).
* Extract or combine with other spatial datasets to provide new insights and analysis concerning land use in Australia.

Do not use this data to:

* Derive national statistics. The Land use of Australia data series should be used for this purpose.
* Calculate land use change. The Land use of Australia data series should be used for this purpose.

It is not possible to calculate land use change statistics between annual CLUM national compilations as not all regions are updated each year; land use mapping methodologies, precision, accuracy and source data and satellite imagery have improved over the years; and the land use classification has changed over time. It is only possible to calculate change when earlier land use datasets have been revised and corrected to ensure that changes detected are real change and not an artefact of the mapping process.

**Progress status of this material:**

Completed

**Maintenance and Update Frequency:**

As needed (approximately annual)

**KEYWORD(S)**

**ANZLIC Search Words:**

AGRICULTURE
AGRICULTURE Crops

AGRICULTURE Horticulture

AGRICULTURE Irrigation

AGRICULTURE Livestock

FORESTS

FORESTS Agroforestry

FORESTS Natural

FORESTS Plantation

HERITAGE Natural

HUMAN ENVIRONMENT

LAND

LAND Topography

LAND Use
VEGETATION

VEGETATION Structural

WATER

WATER Lakes

WATER Surface

WATER Wetlands

**General Keywords:**

Australian Collaborative Land Use and Management Program (ACLUMP)

Land use

Mapping

**TOPICS**

**ABARES Topic categories:**

Agriculture
Land Use
Environment and Natural Resource Management
Models, Risk, Spatial Data and Datasets

**ISO topic categories:**

Farming
Environment

inlandWaters

PlanningCadastre

**SPATIAL EXTENT(S)**

**Description of spatial extent:**

Australian Land

**Spatial bounding box included in:**

North: -1047650 m; South: -4847000 m; East: 21220000 m; West: -1888000 m.

**Spatial area included in:**

Australian Mainland. Australia excluding external territories.

**Projection:**

EPSG: 3577

**Coordinate reference details in Well-Known Text:**

**PROJCS**["GDA94 / Australian Albers",

**GEOGCS**["GDA94",

DATUM["D\_GDA\_1994",

SPHEROID["GRS\_1980",6378137,298.257222101]],

PRIMEM["Greenwich",0],

UNIT["Degree",0.017453292519943295]],

PROJECTION["Albers"],

PARAMETER["standard\_parallel\_1",-18],

PARAMETER["standard\_parallel\_2",-36],

PARAMETER["latitude\_of\_origin",0],

PARAMETER["central\_meridian",132],

PARAMETER["false\_easting",0],

PARAMETER["false\_northing",0],

UNIT["Meter",1]]

**DATA PACKAGE CONTENTS**

**Table 1: Description of CLUM data package**

|  |  |
| --- | --- |
| File name  | File description |
| clum\_50m\_2023\_v2.zip | Zipped folder containing the files below. |
|  clum\_50m\_2023\_v2.tif | Catchment Scale Land Use of Australia (CLUM) – raster (GeoTIFF, 16-bit integer). For attribute table description see Table 3. |
|  Land use, simplified(.lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing the Australian Land Use and Management (ALUM) 19-class summary classification names and colours (Table A2). |
|  Land use, secondary.(lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing the ALUM secondary classes names and colours (Table A1). |
|  Land use, agricultural industries(.lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing the ALUM agricultural industries classification names and colours (Table A3). |
| scale\_date\_update.zip | Zipped folder containing the files below. |
|  date\_clum\_2023.tif | Catchment Scale Land Use of Australia (CLUM) – date of mapping raster package (GeoTIFF, 16-integer). For attribute table description see Table 4. |
|  scale\_clum\_2023.tif | Catchment Scale Land Use of Australia (CLUM) – scale of mapping raster (GeoTIFF, 32-bit). For attribute table description see Table 5. |
|  updates\_clum\_2023.tif | Catchment Scale Land Use of Australia (CLUM) – areas updated since CLUM December 2020 release raster (GeoTIFF, 8-bit integer). For attribute table description see Table 6. |
|  Land use, date of mapping(.lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing year date of mapping and colours. |
|  Land use, scale of mapping(.lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing scale of mapping classes and colours. |
|  Land use, areas updated since 2020(.lyrx, .lyr, .qml) | Layer file (ESRI ArcPro, ArcGIS, and QGIS) showing areas updated since CLUM December 2020 release and colours. |

**Table 2: Maps of the CLUM raster datasets**

|  |  |
| --- | --- |
| File name | File description |
| CLUM\_map\_December2023\_ALUM\_simplified\_v2.png | Land use map showing the CLUM dataset, based on the Australian Land Use and Management (ALUM) 19-class summary classification. Map produced in landscape format suitable for printing at A4 size. |
| CLUM\_map\_December2023\_ALUM\_secondary\_v2.png | Land use map showing the CLUM dataset, based on the ALUM secondary classes. Map produced in landscape format suitable for printing at A4 size. |
| CLUM\_map\_December2023\_ALUM\_agricultural\_industries\_v2.png | Land use map showing the CLUM dataset, based on the ALUM agricultural industries classification. Map produced in landscape format suitable for printing at A4 size. |
| CLUM\_map\_December2023\_dateofmapping.png | This map shows the year land use was mapped in the vector data used to compile the CLUM raster. Map produced in landscape format suitable for printing at A4 size. |
| CLUM\_map\_December2023\_scaleofmapping.png | This map shows the mapping scale of the source vector data used to compile the CLUM raster. Map produced in landscape format suitable for printing at A4 size. |
| CLUM\_map\_December2023\_areasupdatedsince2020.png | This map shows the areas updated since the CLUM December 2020 release. Map produced in landscape format suitable for printing at A4 size. |

**DATA DICTIONARY**

**Table 3: Attributes of the CLUM raster dataset (clum\_50m\_2023.tif)**

| Field name | Field description | Code values |
| --- | --- | --- |
| OID | Internal feature number that uniquely identifies each row | Integer numeric value |
| Value | ALUM code as a three-digit integer. First digit is primary code, second digit is secondary code, and third digit is tertiary code. | Integer numeric value. Range: 110 to 663 |
| Count | Count of the number of raster cells in each class of VALUE | Integer count  |
| LU\_CODEV8 | ALUM code as a string. | Text, width 254 |
| LU\_V8N | ALUM code as a three-digit integer. First digit is primary code, second digit is secondary code, and third digit is tertiary code. | Integer numeric value. Range: 110 to 663 |
| TERTV8 | ALUM tertiary code and description as a string. Examples:1.1.1 Strict nature reserves6.6.3 Estuary/coastal waters - intensive use | Text, width 254 |
| SECV8 | ALUM secondary code and description as a string.Examples:1.1 Nature conservation6.6 Estuary/coastal waters | Text, width 254 |
| PRIMV8 | ALUM primary code and description as a string. Examples:1 Conservation and natural environments6 Water | Text, width 254 |
| SIMPN | Code for simplified land use classification based on ALUM | Integer numeric value. Range: 0 to 19\* |
| SIMP | Description of the simplified land use classification (See table A2 for list). Examples:Nature conservation Urban residential Water | Text, width 254 |
| AGIND  | Description of agricultural industries. See Table A3 for list.Examples:Grazing native vegetationHorticulture | Text, width 254 |

Note: All ALUM codes refer to the Australian Land Use and Management Classification, version 8.

\*SIMPN 0 = No data is not present in Catchment Scale land Use of Australia 2023

**Table 4: Attributes of the CLUM date raster (date\_clum2023.tif)**

| Field name | Field description | Code values |
| --- | --- | --- |
| OID | Internal feature number that uniquely identifies each row | Integer numeric value |
| Value | The year for which land use was mapped in the vector data provided by state and territory agencies or others | Integer numeric value.Range: 2008 to 2023 |
| Count | Count of the number of raster cells in each class of VALUE | Integer count  |

**Table 5: Attributes of the CLUM scale raster (scale\_clum2023.tif)**

| Field name | Field description | Code values |
| --- | --- | --- |
| OID | Internal feature number that uniquely identifies each row | Integer numeric value |
| Value | The scale at which land use was mapped in the vector catchment scale land use data provided by state and territory agencies or others:1:5,000, 1:10,000, 1:20,000, 1:25,000, 1:50,000, 1:100,000 or 1:250,000 | Integer numeric value.Range: 5,000 to 250,000 |
| Count | Count of the number of raster cells in each class of VALUE | Integer count  |

**Table 6: Attributes of the CLUM updates since December 2020 release raster (updates\_clum2023.tif)**

| Field name | Field description | Code values |
| --- | --- | --- |
| OID | Internal feature number that uniquely identifies each row | Integer numeric value |
| Value | Code for areas updated since CLUM December 2020 release (1); areas not updated (0) | Integer numeric value.Range: 0 to 1 |
| Count | Count of the number of raster cells in each class of VALUE | Integer count  |

**RESPONSIBILITY FOR THIS MATERIAL**

**Custodian**

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Data Manager
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**PROCESS USED TO GENERATE THIS MATERIAL**

**Lineage Statement**

# **Lineage:** Version 2 released in June 2024 replaces the data and maps from February 2024. This version fixes some issues caused during the conversion of the state vector datasets to rasters, where single pixel horizontal lines were generated in local areas. The corrections were completed by clipping the vector data to these small areas in WA and Tas, repair geometry, single-part to multipart, dissolve, rasterise and mosaic to selectively replace small sections of the data in WA and Tas. This does not affect the date or scale of mapping.

# ABARES has produced this raster dataset from vector land use data provided by state and territory agencies and others, as follows: Catchment Scale Land Use Mapping for the Australian Capital Territory 2012; 2017 NSW Land Use v1.5; Land Use Mapping Project of the Northern Territory, 2016 - 2022 (LUMP); Land use mapping – 2021 – Great Barrier Reef NRM regions; Land use mapping – 1999 to Current – Queensland (June 2019); [South Australia] Land Use (ACLUMP) (2017); Tasmanian Land Use 2022; Victorian Land Use Information System [VLUIS] 2021-22; Catchment Scale Land Use Mapping for Western Australia 2018; Australian Tree Crops, Australian Protected Cropping Structures and Queensland Soybean Crops maps (as at 30 November 2023; Applied Agricultural Remote Sensing Centre (AARSC), University of New England). Links to land use mapping datasets and metadata are available at the ACLUMP data download page at:

# [agriculture.gov.au/abares/aclump/land-use/data-download](https://www.agriculture.gov.au/abares/aclump/land-use/data-download)

State and territory vector catchment scale land use data were produced by combining land tenure and other types of land use information, fine-scale satellite data and information collected in the field, as outlined in 'Guidelines for land use mapping in Australia: principles, procedures and definitions, 4th edition' (ABARES 2011). The Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia were mapped to version 8 of the ALUM classification (‘The Australian Land Use and Management Classification Version 8’, ABARES 2016).

The Australian Capital Territory was mapped to version 7 of the ALUM classification and converted to version 8 using a look-up table based on Appendix 1 of ABARES (2016).

The following agricultural (excluding intensive uses) classes were included from the Queensland Great Barrier Reef NRM Regions 2021 modified ALUM classification schema dataset:

* + 2.2.0 Grazing native vegetation
	+ 3.2.0 Grazing modified pastures
	+ 3.3.0 Cropping
	+ 3.3.5 Sugar
	+ 3.4.0 Perennial horticulture
	+ 3.4.1 Tree fruits
	+ 3.5.0 Seasonal horticulture
	+ 3.6.0 Land in transition
	+ 4.2.0 Grazing irrigated modified pastures
	+ 4.3.0 Irrigated cropping
	+ 4.3.5 Irrigated sugar
	+ 4.4.0 Irrigated perennial horticulture
	+ 4.4.1 Irrigated tree fruits
	+ 4.5.0 Irrigated seasonal horticulture
	+ 4.6.0 Irrigated land in transition.

Table 7 provides the translation of the AARSC datasets to ALUM classes:

1. Australian Tree Crops: data were assigned to irrigated perennial or seasonal horticulture ALUM classes, on advice from AARSC.
2. Australian Protected Cropping Structures: data were assigned to the appropriate ALUM class except permanent nets, as no specifics were provided on the crops protected.
3. Queensland Soybean Crops: data was included only where the mapping confidence was ‘certain’. Irrigation status was obtained from the Queensland Great Barrier Reef NRM Regions 2021 dataset.

**Table 7: Translation of AARSC datasets to ALUM v8 classes**

|  |  |  |  |
| --- | --- | --- | --- |
| Dataset | Class | LU\_CODEV8 | TERTV8 |
| Australian Tree Crop Map a | Avocado | 441 | 4.4.1 Irrigated tree fruits |
|  | Banana | 441 | 4.4.1 Irrigated tree fruits |
|  | Citrus  | 448 | 4.4.8 Irrigated citrus |
|  | Macadamia | 443 | 4.4.3 Irrigated tree nuts |
|  | Mango | 441 | 4.4.1 Irrigated tree fruits |
|  | Olive | 442 | 4.4.2 Irrigated olives |
|  | Truffle | 453 | 4.5.3 Irrigated seasonal vegetables and herbs |
| Protected Cropping Structures Map | Net | ­­– | – |
|  | Polyhouse | 513 | 5.1.3 Glasshouses |
|  | Polytunnel | 513 | 5.1.3 Glasshouses |
|  | Shadehouse | 512 | 5.1.2 Shadehouses |
|  | Glasshouse | 513 | 5.1.3 Glasshouses |
| Queensland Soybean Crops Map a | Soybeans (Confidence = Certain) | 334 | 3.3.4 Oilseeds |
|  | 434 | 4.3.4 Irrigated oilseeds |

**a** Commodity data is included in the Catchment scale land use of Australia – Commodities – Update December 2023.

Fixes to known issues included:

* In Western Australia, ALUM classes 4.0.0 Production from Irrigated Agriculture and Plantations, 5.0.0 Intensive Uses and 6.0.0 Water have been attributed to secondary level by visual interpretation using satellite data.
* In South Australia, through consultation with the South Australian Department of Environment and Water,

the mining area (ALUM class 5.8.0 Mining) within mining tenements is more accurately delineated. The area within mining tenements that is not used for mining is now attributed as grazing of native vegetation (ALUM class 2.1.0) within pastoral areas and residual native cover (ALUM class 1.3.3) outside of pastoral areas.

NODATA voids in Adelaide, South Australia were filled with data from mesh block land use attributes (Australian Bureau of Statistics 2021) according to Table 8. All other NODATA voids were filled using the ESRI ArcGIS focal statistics command.

**Table 8: Translation of 2021 Mesh Blocks categories to the ALUM classes for the Adelaide area**

|  |  |  |
| --- | --- | --- |
| MB\_CAT21 | LU\_CODEV8N | TERTV8 |
| Residential | 541 | 5.4.1 Urban residential |
| Commercial | 551 | 5.5.1 Commercial services |
| Industrial | 530 | 5.3.0 Manufacturing and industrial |
| Parkland | 553 (urban area)  | 5.5.3 Recreation and culture |
|  | 133 (rural area)  | 1.3.3 Residual native cover |
| Education | 552 | 5.5.2 Public services |
| Hospital/Medical | 552 | 5.5.2 Public services |
| Transport | 570 | 5.7.0 Transport and communication |
| Primary Production | 321 | 3.2.1 Native/exotic pasture mosaic |
| Water | 610 - 660 **a**  | For example: 6.2.0 Reservoir/dam; 6.6.0 Estuary/coastal waters |
| Other | Various **a**  | For example: 2.1.0 Grazing native vegetation; 3.2.1 Native/exotic pasture mosaic;  |

**a** Assigned to ALUM secondary class using visual interpretation of imagery.

ABARES converted all contributing polygon datasets to rasters based on the ALUM code using a model in ESRI ArcMap 10.8.2. These datasets were then mosaicked and clipped to the Statistical Areas Level 2 2021 coastline (Australian Bureau of Statistics 2021). The mosaic command was in order with the newest data having the highest priority:

1. Australian Tree Crop map
2. Australian Protected Cropping Structures map
3. Queensland Soybean Crops map
4. 2021 - Great Barrier Reef NRM regions (select uses)
5. Fixes to Western Australia data
6. Fixes to South Australia mining data
7. Adelaide update
8. State/Territory data

**Land use classification**

The Australian Land Use and Management (ALUM) Classification version 8 is a three-tiered hierarchical structure. There are five primary classes, identified in order of increasing levels of intervention or potential impact on the natural landscape. Water is included separately as a sixth primary class. Primary and secondary levels relate to the principal land use. Tertiary classes may include additional information on commodity groups, specific commodities, land management practices or vegetation information. The primary, secondary and tertiary codes work together to provide increasing levels of detail about the land use. Land may be subject to concurrent uses. For example, while the main management objective of a multiple-use production forest may be timber production, it may also provide conservation, recreation, grazing and water catchment land uses. In these cases, production forestry is commonly identified in the ALUM code as the prime land use.

The primary classes of land use in the ALUM Classification are:

1. Conservation and natural environments—land used primarily for conservation purposes, based on maintaining the essentially natural ecosystems present.
2. Production from relatively natural environments—land used mainly for primary production with limited change to the native vegetation.
3. Production from dryland agriculture and plantations—land used mainly for primary production based on dryland farming systems.
4. Production from irrigated agriculture and plantations—land used mostly for primary production based on irrigated farming systems.
5. Intensive uses—land subject to extensive modification, generally in association with closer residential settlement, commercial or industrial uses.
6. Water—water features (water is regarded as an essential aspect of the classification, even though it is primarily a land cover type, not a land use).

**Positional Accuracy:**
The scale of the source data varies from 1:5,000 to 1:250,000. The operational scales of catchment scale mapping vary according to the intensity of land use activities and landscape context. Scales range from 1:5,000 and 1:25,000 for irrigated and peri-urban areas, to 1:100,000 for broadacre cropping regions and 1:250,000 for the semi-arid and arid pastoral zone. Refer to the metadata of the individual source land use mapping dataset for specific measures of accuracy.

**Attribute Accuracy:**The methods for mapping and classifying land use adhere to the standards outlined in 'Guidelines for land use mapping in Australia: principles, procedures and definitions, 4th edition' (ABARES 2011) with the exception that most of the mapping was attributed to the newest version of ‘The Australian Land Use and Management Classification Version 8’ (ABARES 2016). Datasets mapped to version 7 of the ALUM Classification were converted to version 8 using a look-up table based on Appendix 1 in ABARES (2016). The date of mapping generally reflects the intensity of land use. The most current mapping occurs in intensive agricultural areas; older mapping generally occurs in the semi-arid and pastoral zones.

**Logical Consistency:**All input polygon datasets were checked for topological consistency.

**Completeness:**Complete. NODATA voids were filled with ancillary data and modelling, as described in lineage.

References

ABARES 2011, [Guidelines for land use mapping in Australia: principles, procedures and definitions](https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1031500/0), A technical handbook supporting the Australian Collaborative Land Use and Management Program, 4th edition, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

ABARES 2015, [Addendum to the Guidelines for land use mapping in Australia: principles, procedures and definitions, 4th edition](https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1031480/0), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

ABARES 2016, [The Australian Land Use and Management Classification Version 8](https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1027181/0) , Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

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ABARES 2024, [Land Use Data Download](https://www.agriculture.gov.au/abares/aclump/land-use/data-download), Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Australian Bureau of Statistics 2021, [Australian Statistical Geography Standard (ASGS) Edition 3](https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/latest-release), Australian Bureau of Statistics, Canberra.

APPENDIX 1 – Colour tables

**Table A1: Secondary land use classification symbology as RGB and hexadecimal colour values (Land use, secondary .lyrx, .lyr, .qml)**

| **VALUE**  | **SECV8** | **Red**  | **Green**  | **Blue**  | **Hex**  | **Colour**  |
| --- | --- | --- | --- | --- | --- | --- |
| 110; 111; 112; 113; 114; 115; 116; 117  | 1.1 Nature conservation  | 150  | 102  | 204  | #9666CC  |    |
| 120; 121; 122; 123; 124; 125  | 1.2 Managed resource protection  | 201  | 190  | 255  | #C9BEFF  |    |
| 130; 131; 132; 133; 134  | 1.3 Other minimal use  | 222  | 135  | 221  | #DE87DD  |    |
| 210  | 2.1 Grazing native vegetation  | 255  | 255  | 229  | #FFFFE5  |    |
| 220; 221; 222  | 2.2 Production native forests  | 41  | 137  | 68  | #298944  |    |
| 310; 311; 312; 313; 314  | 3.1 Plantation forests   | 173  | 255  | 181  | #ADFFB5  |    |
| 320; 321; 322; 323; 324; 325  | 3.2 Grazing modified pastures  | 255  | 211  | 127  | #FFD37F  |    |
| 330; 331; 332; 333; 334.; 335; 336; 337; 338  | 3.3 Cropping  | 255  | 255  | 0  | #FFFF00  |    |
| 340; 341; 342; 343; 344; 345; 346; 347; 348; 349  | 3.4 Perennial horticulture  | 171  | 135  | 120  | #AB8778  |    |
| 350; 351; 352; 353  | 3.5 Seasonal horticulture  | 87  | 58  | 64  | #573A40  |    |
| 360; 361; 362; 363; 364; 365  | 3.6 Land in transition  | 0  | 0  | 0  | #000000  |    |
| 410; 411; 412; 413; 414  | 4.1 Irrigated plantation forests  | 236  | 255  | 224  | #ECFFE0  |    |
| 420; 421; 422; 423; 424  | 4.2 Grazing irrigated modified pastures  | 255  | 170  | 0  | #FFAA00  |    |
| 430; 431; 432; 433; 434; 435; 436; 437; 438; 439  | 4.3 Irrigated cropping  | 201  | 184  | 84  | #C9B854  |    |
| 440; 441; 442; 443; 444; 445; 446; 447; 448; 449  | 4.4 Irrigated perennial horticulture  | 156  | 84  | 46  | #9C542E  |    |
| 450; 451; 452; 453; 454  | 4.5 Irrigated seasonal horticulture  | 79  | 43  | 23  | #4F2B17  |    |
| 460; 461; 462; 463; 464; 465  | 4.6 Irrigated land in transition  | 52  | 52  | 52  | #343434  |    |
| 510; 511; 512; 513; 514; 515  | 5.1 Intensive horticulture  | 255  | 201  | 190  | #FFC9BE  |    |
| 520; 521; 522; 523; 524; 525; 526; 527; 528  | 5.2 Intensive animal production  | 255  | 135  | 190  | #FF87BE  |    |
| 530; 531; 532; 533; 534; 535; 536; 537; 538  | 5.3 Manufacturing and industrial  | 115  | 76  | 0  | #734C00  |    |
| 540; 541  | 5.4.0, 5.4.1 Urban residential  | 255  | 0  | 0  | #FF0000  |    |
| 542; 543; 544; 545  | 5.4.2, 5.4.3, 5.4.4, 5.4.5 Rural residential and farm infrastructure  | 156  | 156  | 156  | #9C9C9C  |    |
| 550; 551; 552; 553; 554; 555  | 5.5 Services  | 155  | 0  | 0  | #9B0000  |    |
| 560; 561; 562; 563; 564; 565; 566; 567  | 5.6 Utilities  | 255  | 127  | 127  | #FF7F7F  |    |
| 570; 571; 572; 573; 574; 575  | 5.7 Transport and communication  | 168  | 0  | 0  | #A80000  |    |
| 580; 581; 582; 583; 584  | 5.8 Mining  | 71  | 130  | 143  | #47828F  |    |
| 590; 591; 592; 593; 594; 595  | 5.9 Waste treatment and disposal  | 41  | 73  | 82  | #294952  |    |
| 610; 611; 612; 613; 614  | 6.1 Lake  | 0  | 0  | 255  | #0000FF  |    |
| 620; 621; 622; 623  | 6.2 Reservoir/dam  | 0  | 197  | 255  | #00C5FF  |    |
| 630; 631; 632; 633  | 6.3 River  | 0  | 112  | 255  | #0070FF  |    |
| 640; 641; 642; 643  | 6.4 Channel/aqueduct  | 0  | 77  | 168  | #004DA8  |    |
| 650; 651; 652; 653; 654  | 6.5 Marsh/wetland  | 115  | 178  | 255  | #73B2FF  |    |
| 660; 661; 662; 663  | 6.6 Estuary/coastal waters  | 190  | 210  | 255  | #BED2FF  |    |

Note: Codes refer to the Australian Land Use and Management (ALUM) Classification, version 8.

**Table A2: Simplified land use classification symbology as RGB and hexadecimal colour values (Land use, 19-class .lyrx, .lyr, .qml)**

| **VALUE**  | **SIMPN** | **SIMP**  | **Red**  | **Green**  | **Blue**  | **Hex**  | **Colour**  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 110; 111; 112; 113; 114; 115; 116; 117  | 1 | Nature conservation  | 150  | 102  | 204  | #9666CC  |  |
| 120; 121; 122; 123; 124; 125  | 2 | Managed resource protection  | 201  | 190  | 255  | #C9BEFF  |  |
| 130; 131; 132; 133; 134  | 3 | Other minimal use  | 222  | 135  | 221  | #DE87DD  |    |
| 210  | 4 | Grazing native vegetation  | 255  | 255  | 229  | #FFFFE5  |    |
| 220; 221; 222  | 5 | Production native forests  | 41  | 137  | 68  | #298944  |    |
| 310; 311; 312; 313; 314; 410; 411; 412; 413; 414  | 6 | Plantation forests  | 173  | 255  | 181  | #ADFFB5 |  |
| 320; 321; 322; 323; 324; 325  | 7 | Grazing modified pastures  | 255  | 211  | 127  | #FFD37F  |    |
| 330; 331; 332; 333; 334; 335; 336; 337; 338  | 8 | Dryland cropping   | 255  | 255  | 0  | #FFFF00  |    |
| 340; 341; 342; 343; 344; 345; 346; 347; 348; 349; 350; 351; 352; 353  | 9 | Dryland horticulture  | 171  | 135  | 120  | #AB8778  |    |
| 360; 361; 362; 363; 364; 365; 460; 461; 462; 463; 464; 465  | 10 | Land in transition  | 0  | 0  | 0  | #000000  |    |
| 420; 421; 422; 423; 424  | 11 | Irrigated pastures   | 255  | 170  | 0  | #FFAA00  |    |
| 430; 431; 432; 433; 434; 435; 436; 437; 438; 439  | 12 | Irrigated cropping  | 201  | 184  | 84  | #C9B854  |    |
| 440; 441; 442; 443; 444; 445; 446; 447; 448; 449; 450; 451; 452; 453; 454  | 13 | Irrigated horticulture  | 156  | 84  | 46  | #9C542E  |    |
| 510; 511; 512; 513; 514; 515; 520; 521; 522; 523; 524; 525; 526; 527; 528  | 14 | Intensive horticulture and animal production  | 255  | 201  | 190  | #FFC9BE  |    |
| 542; 543; 544; 545  | 15 | Rural residential and farm infrastructure  | 178  | 178  | 178  | #B2B2B2  |    |
| 540; 541 | 16 | Urban residential | 255 | 0 | 0 | #FF0000 |  |
| 530; 531; 532; 533; 534; 535; 536; 537; 538; 550; 551; 552; 553; 554; 555; 560; 561; 562; 563; 564; 565; 566; 567; 570; 571; 572; 573; 574; 575  | 17 | Other intensive uses  | 155  | 0  | 0  | #9B0000  |    |
| 580; 581; 582; 583; 584; 590; 591; 592; 593; 594; 595  | 18 | Mining and waste  | 71  | 130  | 143  | #47828F  |    |
| 610; 611; 612; 613; 614; 620; 621; 622; 623; 630; 631; 632; 633; 640; 641; 642; 643; 650; 651; 652; 653; 654; 660; 661; 662; 663  | 19 | Water  | 0  | 0  | 255  | #0000FF  |    |

Note: Codes refer to the Australian Land Use and Management (ALUM) Classification, version 8.

SIMPN 0 = No data is not present in Catchment Scale land Use of Australia 2023

**Table A3: Agricultural industries classification symbology as RGB and hexadecimal colour values (Land use, agricultural industries .lyrx, .lyr, .qml)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **VALUE** | **AGIND** | **Red** | **Green** | **Blue** | **Hex** | **Colour** |
| 210 | Grazing native vegetation | 217 | 214 | 207 | #D9D6CF |   |
| 320; 321; 322; 323; 324; 325; 360; 361; 362; 363; 364; 365; 420; 421; 422; 423; 424; 460; 461; 462; 463; 464; 465  | Grazing modified pastures | 205 | 213 | 70 | #CDD546 |   |
| 330; 331; 332; 333; 334; 335; 336; 337; 338; 430; 431; 432; 433; 434; 435; 436; 437; 438; 439 | Cropping | 114 | 136 | 26 | #72881A |   |
| 340; 341; 342; 343; 344; 345; 346; 347; 348; 350; 351; 352; 353; 440; 441; 442; 443; 444; 445; 446; 447; 448; 449; 450; 451; 452; 453; 454 | Horticulture | 230 | 0 | 0 | #E60000 |   |
| 510; 511; 512; 513; 514; 515; 520; 521; 522; 523; 524; 525; 526; 527; 528  | Intensive plant and animal industries | 115 | 223 | 255 | #73DFFF |   |
| 110; 111; 112; 113; 114; 115; 116; 117; 120; 121; 122; 123; 124; 125; 130; 131; 132; 133; 134; 220; 221; 222, 310; 311; 312; 313; 314; 410; 411; 412; 413; 414; 530; 531; 532; 533; 534; 535; 536; 537; 538; 540; 541; 550; 551; 552; 553; 554; 555; 560; 561; 562; 563; 564; 565; 566; 567; 570; 571; 572; 573; 574; 575; 542; 543; 544; 545; 580; 581; 582; 583; 584; 590; 591; 592; 593; 594; 595; 610; 611; 612; 613; 614; 620; 621; 622; 623; 630; 631; 632; 633; 640; 641; 642; 643; 650; 651; 652; 653; 654; 660; 661; 662; 663   | Other uses | 255 | 255 | 255 | #FFFFFF |   |

Note: Codes refer to the Australian Land Use and Management (ALUM) Classification, version 8.

Note: Australian Land Use and Management (ALUM) Classification, version 8 classes which are not listed in Table A1-A3 are not present in the CLUM data. Primary classes were resolved to secondary or tertiary classes.