Publication details

Title:

Catchment Scale Land Use of Australia – Update December 2023

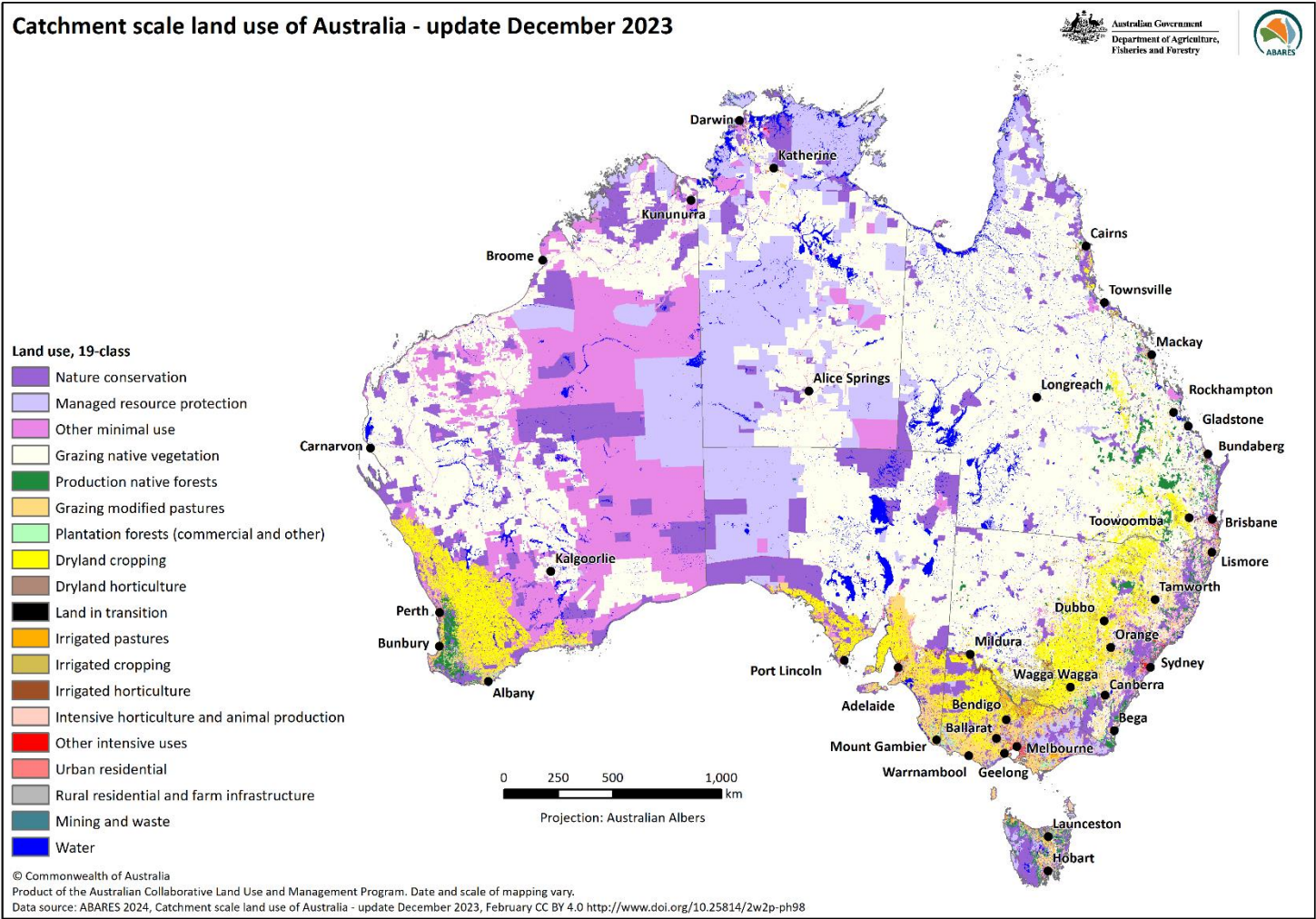**Alternative Title:**
CLUM_50m_2023

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2024-02-26

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2023-12-06

Preview

Catchment scale land use of Australia - update December 2023

Australian Government
Department of Agriculture,
Fisheries and Forestry

ABARES

Land use, 19-class
- Nature conservation
- Managed resource protection
- Other minimal use
- Grazing native vegetation
- Production native forests
- Grazing modified pastures
- Plantation forests (commercial and other)
- Dryland cropping
- Dryland horticulture
- Land in transition
- Irrigated pastures
- Irrigated cropping
- Irrigated horticulture
- Intensive horticulture and animal production
- Other intensive uses
- Urban residential
- Rural residential and farm infrastructure
- Mining and waste
- Water

0   250   500   1,000
km

Projection: Australian Albers

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Product of the Australian Collaborative Land Use and Management Program. Date and scale of mapping vary.
Data source: ABARES 2024, Catchment scale land use of Australia - update December 2023, February CC BY 4.0 http://www.doi.org/10.25814/2w2p-ph98

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Abstract:

The *Catchment Scale Land Use of Australia – Update December 2023* 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?

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.

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.

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Citation:
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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]],

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UNIT["Degree",0.017453292519943295]],
PROJECTION["Albers"],
PARAMETER["standard_parallel_1",-18],
PARAMETER["standard_parallel_2",-36],
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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.zip	Zipped folder containing the files below.
clum_50m_2023.tif	Catchment Scale Land Use of Australia (CLUM) – raster (GeoTIFF, 16-bit integer). For attribute table description see Table 3.
Land use, 19-class.lyr	ESRI ArcGIS layer file showing the Australian Land Use and Management (ALUM) 19-class summary classification names and colours (Table A2).
Land use, secondary.lyr	ESRI ArcGIS layer file showing the ALUM secondary classes names and colours (Table A1).
Land use, agricultural industries.lyr	ESRI ArcGIS layer file 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.lyr	ESRI ArcGIS layer file showing year date of mapping and colours.
Land use, scale of mapping.lyr	ESRI ArcGIS layer file showing scale of mapping classes and colours.
Land use, areas updated since 2020.lyr	ESRI ArcGIS layer file 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_19class.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.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.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 reserves 6.6.3 Estuary/coastal waters - intensive use	Text, width 254
SECV8	ALUM secondary code and description as a string. Examples: 1.1 Nature conservation 6.6 Estuary/coastal waters	Text, width 254
PRIMV8	ALUM primary code and description as a string. Examples: 1 Conservation and natural environments 6 Water	Text, width 254
CL19N	Class number for the simplified 19-class land use	Double
CL19	Description of the corresponding class in the simplified 19-class land use classification. Examples: Nature conservation Urban residential Water	Text, width 254
AGIND	Description of agricultural industries. See Table A3 for list. Examples: Grazing native vegetation Horticulture	Text, width 254

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

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

Department of Agriculture, Fisheries and Forestry:
Australian Bureau of Agricultural and Resource Economics and Sciences
Data Manager
GPO Box 858 Canberra ACT 2601 AUSTRALIA
Telephone 1800 900 090
Email info.ABARES@aff.gov.au
Web agriculture.gov.au/abares

PROCESS USED TO GENERATE THIS MATERIAL

Lineage Statement

Lineage:

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

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:

(i)   Australian Tree Crops: data were assigned to irrigated perennial or seasonal horticulture ALUM classes, on advice from AARSC.

(ii)   Australian Protected Cropping Structures: data were assigned to the appropriate ALUM class except permanent nets, as no specifics were provided on the crops protected.

(iii)   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, 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, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

ABARES 2016, The Australian Land Use and Management Classification Version 8 , Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

ABARES 2024, Catchment Scale Land Use of Australia – Commodities – Update December 2023, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, CC BY 4.0. DOI: 10.25814/zfjz-jt75

ABARES 2024, 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, Australian Bureau of Statistics, Canberra.
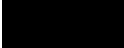
APPENDIX 1 – Colour tables

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

VALUE	SECV8	Red	Green	Blue	Hex	Colour
100; 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	
200; 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	
300; 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	
400; 420; 421; 422; 423; 424	4.2 Grazing irrigated modified pastures	255	170	0	#FFAA00	
430; 431; 432; 433; 434; 435; 436; 437; 438	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	
500; 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	
600; 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 19-class land use classification symbology as RGB and hexadecimal colour values (Land use, 19-class.lyr)

VALUE	CL19	Red	Green	Blue	Hex	Colour
110; 111; 112; 113; 114; 115; 116; 117	Nature conservation	150	102	204	#9666CC	
120; 121; 122; 123; 124; 125	Managed resource protection	201	190	255	#C9BEFF	
130; 131; 132; 133; 134	Other minimal use	222	135	221	#DE87DD	
210	Grazing native vegetation	255	255	229	#FFFFE5	
220; 221; 222	Production native forests	41	137	68	#298944	
320; 321; 322; 323; 324; 325	Grazing modified pastures	255	211	127	#FFD37F	
310; 311; 312; 313; 314; 410; 411; 412; 413; 414	Plantation forests	173	255	181	#ADFFB5	
330; 331; 332; 333; 334; 335; 336; 337; 338	Dryland cropping	255	255	0	#FFFF00	
340; 341; 342; 343; 344; 345; 346; 347; 348; 349; 350; 351; 352; 353	Dryland horticulture	171	135	120	#AB8778	
360; 361; 362; 363; 364; 365; 460; 461; 462; 463; 464; 465	Land in transition	0	0	0	#000000	
420; 421; 422; 423; 424	Irrigated pastures	255	170	0	#FFAA00	
430; 431; 432; 433; 434; 435; 436; 437; 438	Irrigated cropping	201	184	84	#C9B854	
440; 441; 442; 443; 444; 445; 446; 447; 448; 449; 450; 451; 452; 453; 454	Irrigated horticulture	156	84	46	#9C542E	
510; 511; 512; 513; 514; 515; 520; 521; 522; 523; 524; 525; 526; 527; 528	Intensive horticulture and animal production	255	201	190	#FFC9BE	
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	Other intensive uses	255	0	0	#FF0000	
540; 541	Urban residential	255	127	127	#FF7F7F	
542; 543; 544; 545	Rural residential and farm infrastructure	178	178	178	#B2B2B2	
580; 581; 582; 583; 584; 590; 591; 592; 593; 594; 595	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	Water	0	0	255	#0000FF	

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

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

VALUE	AGIND	Red	Green	Blue	Hex	Colour
210	Grazing native vegetation	217	214	207	#D9D6CF	
300; 320; 321; 322; 323; 324; 325; 360; 361; 362; 363; 364; 365; 400; 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	Cropping	114	136	26	#72881A	
340; 341; 342; 343; 344; 345; 346; 347; 348; 349; 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	
100; 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; 500; 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; 600; 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.