Title	Vegetation of the Gwydir Wetlands 2022

Abstract	This is a vegetation map of the Gwydir wetlands. It was produced using air photo interpretation from high resolution 40cm ADS40 aerial imagery collected in August 2022, and high resolution 15cm aerial imagery collected in January 2023.
	This mapping project was funded by the NSW Water for the Environment Program, and the Gwydir Reconnecting Watercourse Country Program.

Resource locator

Data Quality Statement	Name: Data Quality Statement
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	Data quality statement for Vegetation of the Gwydir Wetlands 2022
	Function: download
Download Package	Name: Download Package
	Protocol: WWW:DOWNLOAD-1.0-http--download
	Description:
	Data (Shapefile)
	Function: download

Unique resource identifier

Code	3b6ddd44-0ad9-417d-84b5-33bbc4ff755f

Presentation form	Document digital

Edition	Version 1 June 2024

Dataset language	English

Metadata standard

Name	ISO 19115
Edition	2016

Dataset URI	https://datasets.seed.nsw.gov.au/dataset/3b6ddd44-0ad9-417d-84b5-33bbc4ff755f

Purpose	Monitoring of wetland health, and environmental water planning (Long Term Watering Plans)

Status	Completed

Spatial representation

Type	vector

Spatial reference system

Code identifying the spatial reference system	4283

Equivalent scale	1:None
Additional information source	This dataset is produced from aerial imagery collected in August 2022 and from 05 to 12 May 2023.
Topic category	

Keyword set

keyword value	WATER-Wetlands
	VEGETATION

Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

West bounding longitude	148.560791
East bounding longitude	149.796753
North bounding latitude	-29.691532
South bounding latitude	-29.304264
NSW Place Name	Gwydir wetlands

Vertical extent information

Minimum value	-100
Maximum value	2228

Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711

Temporal extent

Begin position	2022-01-08
End position	N/A

Dataset reference date

Resource maintenance

Maintenance and update frequency	Not planned

Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Lineage

This is a vegetation map of the Gwydir wetlands. It was produced using air photo interpretation from high resolution 40cm ADS40 aerial imagery collected in August 2022, and high resolution 15cm aerial imagery collected in January 2023.

Map development began with the collection of high-resolution aerial colour (Red-Green-Blue) imagery. The imagery was provided as an orthomosaic (ie a straight down view) with a 40 cm ground sampling distance covering the whole study area at each wetland. This formed the primary input of information for vegetation extent mapping. This aerial imagery was acquired in August 2022 for the Gwydir Wetlands. In addition, 15 cm high-resolution colour (RGB) imagery, collected by Woolpert between 12th January and 9th May 2023, was also sourced from the Gwydir Reconnecting Watercourse Program and provided as an orthomosaic. This additional imagery helped inform the aerial interpretation of vegetation community extents for an eastern portion of the Gwydir Wetlands study area.

Several interpreters were then trained in Aerial Photographic Interpretation (API) to visually analyse the imagery to identify and delineate different vegetation types. The vegetation types were identified based on their spectral characteristics, colour, texture, shape, spatial patterns and associations with predictive environmental layers (such as flood frequency categories, elevation and geomorphology type).

Existing survey data was also used to help identify vegetation types from imagery. This included BioNet species data, floristic data and other grey literature. Oblique aerial handheld photos captured from a helicopter were also sourced from another project to inform the aerial imagery interpretation. A subset of the available oblique handheld photos was selected to correspond to the timing (within two years) of the 40cm aerial imagery acquired for vegetation map development. The subset of oblique handheld photos adopted to inform the air photo interpretation included photos collected over the study area between January-December 2022.

A polygon layer divided into small regions was sourced to overlay on the 40cm aerial imagery. This segmentation spatial layer was produced using the Definiens eCognition software package and the methods developed by Roff et al (2022). A computer-based image analysis tool was applied to a set of raster datasets with a 5m grid cell size. This produced a spatial layer of 'segments' or very small polygons based on the combined spectral and textural features of the input rasters.

The segmented layer was overlayed on the 40cm aerial imagery. Interpreters then manually selected groups of segments and assigned classes ('attributes') to the polygons to delineate vegetation patterns. The use of the segmented spatial layer enabled more efficient mapping, as interpreters did not have to manually draw polygon linework with a mouse.

Vegetation patterns were interpreted from the high-resolution 40cm aerial imagery at a scale of 1:25 000 for non-flood dependent vegetation and at a scale of 1:10 000 for wetland communities. The minimum map unit (smallest polygon) was 2 ha.

Selected polygons from the segmentation process were initially assigned to an artificial class referred to as a Vegetation Photo Pattern (VPP), analogous to NSW Vegetation Classes (for more information on NSW Vegetation Classes see https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/the-nsw-vegetation-classification-framework).

The VPPs were then aligned with plant community types (PCTs) as described in the NSW BioNet Vegetation Classification Database (see https://vegetation.bionet.nsw.gov.au/).

Each PCT was also aligned to a vegetation functional group corresponding to the vegetation objectives in the Gwydir Long-term Water Plan (LTWP).

The accuracy of the map vegetation functional groups was assessed using 780 independently collected field validation points. The overall accuracy was 0.77 and the Kappa statistic was 0.7.

Accuracies and 95% confidence intervals for individual map classes (wetland vegetation functional groups) were:

Non woody wetland: 0.80 (0.73-0.87)

Flood dependent woodland 0.81 (0.76-0.86)

River red gum forest: 0.77 (0.68-0.86)

River red gum woodland: no field data, not assessed.

Flood-dependent shrublands 0.72 (0.62-0.81)

Terrestrial vegetation: 0.68 (0.62-0.75)

Non-native or other (includes pasture, cropping, infrastructure, dams): 0.89 (0.81-0.98)

This mapping project was funded by the NSW Water for the Environment Program, and the Gwydir Reconnecting Watercourse Country Program.

The segmentation dataset was provided by DCCEEW, for further details on this dataset and method see:

Roff A, Day M, Thonell J and Denholm B (2022) NSW State Vegetation Type Map: Technical Notes, NSW Department of Planning and Environment, Parramatta, Australia.

Limitations on public access

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Metadata point of contact

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Metadata date	2024-12-11T20:27:56.277214

Metadata language