Title	Vegetation surveys and mapping of the Crinolyn and Windella Ramsar sites of the Gwydir wetlands 2023

Abstract

This dataset is the Plant Community Type (PCT) mapping for the Crinolyn and Windella Ramsar sites of the Gwydir wetlands based on from the tree demographic and full floristic plot vegetation surveys undertaken by Eco Logical Australia from 12 April to 16 April 2023 under the NSW Department of Planning and Environment Gwydir Reconnecting Watercourse Country Program.

Within Crinolyn, three PCTs were recorded, two of which (PCT 40 and 53) occur in two distinct forms and form the dominant vegetation communities within the site. A total of four PCTs were recorded within Windella, one of which (PCT 53) occurs in two distinct forms. Coolabah woodland (PCT 40a and 40b) occupied a considerable extent (33.02 ha combined) of Crinolyn and the presence of dead Coolabah throughout areas of PCT 53a, indicate a greater previous extent of Coolabah woodland within and surrounding the site. The extent of Coolabah woodland (PCT 40b) across Windella is less extensive, consisting mostly of patches featuring one mature tree and surrounding saplings and seedlings. PCT 182, characterised by dense stands of Typha domingensis (Narrow-leaved Cumbungi), dominates the central and southern portions of Windella. Following recent inundation, Narrow-leaved Cumbungi is widespread across the majority of the site, featuring as a measurable component of the remaining three other PCTs.

A total of two tree demographic / full floristic plots and four full floristic monitoring plots were established in both the Crinolyn and Windella Ramsar sites. A total of 70 flora species (comprising 50 native and 20 exotic species) were recorded within Crinolyn full floristic plots, whilst a total of 48 flora species (comprising 33 native and 15 exotic species) were recorded within Windella full floristic plots. Condition class schemas developed for flood-dependent PCTs were applied to Crinolyn and Windella full floristic plot data. Condition class results were consistent for PCTs across both Crinolyn and Windella, with PCT 40 plots (PCT 40a and 40b) assessed as either Intermediate/Poor or Intermediate, whilst PCT 53a plots ranged from Intermediate to Good or Excellent/Benchmark and PCT 182 plots were assessed as Intermediate.

A total of 45 trees were assessed within the two tree demographic plots (CRIN_3 – PCT 40b and CRIN_6 – PCT 40 a) established and surveyed within Crinolyn Coolabah woodland patches. Despite the two plots occurring in the two different forms of Coolabah woodland (PCT 40a and PCT 40b), major differences in tree condition between the two sites were not apparent. A total of 65 trees were assessed within the two tree demographic plots (WIND_2 and WIND_3 – both PCT 40 b) established and surveyed within Windella Coolabah woodland patches. Both plots recorded consistent results, reflective of the similar structure of the Coolabah woodland patches present within Windella. Landscape features or structures present within and surrounding the Crinolyn and Windella Ramsar sites which may influence inundation and hydrological regimes were noted during the field survey, most evidently drainage channels that have been constructed within both sites. Both drainage channels influence the flow of water across both sites and in doing so, also influence the distribution and composition of vegetation within the sites. Away from site boundaries, and apart from Phyla canescens (Lippia) which was widespread across both sites, weed cover was generally low and no listed weed species for the region were recorded during field surveys (Local Land Services 2017).

Crinolyn and Windella Ramsar sites contain vegetation reflective of functioning wetland systems which vary in form and condition across their extent, and in addition to their individual ecological value, are an important part of the wider Gwydir Wetlands. At a broader scale, the separation of the sites from one another and surrounding wetlands is apparent, as is the influence of external factors such as the scale and intensity of surrounding land use.
The vegetation and conditions within both sites at the time of field surveys were typical of a recent ‘wet’ period and may contrast considerably with ‘dry’ period conditions. Given this, there may be value in assessing condition changes across both sites through remote sensing and a follow up ‘dry period’ field survey. It is also recommended that a revision of the boundaries of both Crinolyn and Windella Ramsar sites be undertaken in order to maximise the extent of remnant vegetation and overall ecological value of both sites.

Resource locator

Data Quality Statement

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for Vegetation Survey and Mapping of the Crinolyn and Windella Ramsar sites 2023

	Function: download
Vegetation Mapping of Windella and Crinolyn Ramsar sites 2023	Name: Vegetation Mapping of Windella and Crinolyn Ramsar sites 2023 Protocol: WWW:DOWNLOAD-1.0-http--download Description: This is the shapefile of the Plant Community Type (PCT) mapping for the Crinolyn and Windella Ramsar sites of the Gwydir wetlands based on from the tree demographic and full floristic plot vegetation surveys undertaken by Eco Logical Australia from 12 April to 16 April 2023. Function: download
Report of Gwydir Wetlands Vegetation Survey 2023 – Crinolyn and Windella Ramsar sites	Name: Report of Gwydir Wetlands Vegetation Survey 2023 – Crinolyn and Windella Ramsar sites Protocol: WWW:DOWNLOAD-1.0-http--download Description: Eco Logical Australia 2023. Vegetation survey and mapping of Crinolyn and Windella Ramsar sites 2023. Prepared for NSW Department of Planning and Environment – Environment and Heritage Group. This report documents tree demographic and full floristic plot vegetation surveys and desktop and in-field Plant Community Type (PCT) mapping in the Crinolyn and Windella Ramsar sites from 12 April to 16 April 2023. Function: download
Report of Gwydir Wetlands Soil Seedbank Assessment 2023 - Crinolyn and Windella Ramsar Sites	Name: Report of Gwydir Wetlands Soil Seedbank Assessment 2023 - Crinolyn and Windella Ramsar Sites Protocol: WWW:DOWNLOAD-1.0-http--download Description: This report documents the soil seedbank assessment of the Crinolyn and Windella Ramsar sites, that complements the field vegetation surveys and mapping undertaken from 12 April to 16 April 2023 detailed in the report "Vegetation survey and mapping of Crinolyn and Windella Ramsar sites 2023" prepare by Eco Logical Australia. Function: download

Unique resource identifier

Code	6a3b6fd4-c758-4387-b163-081653acd84a

Presentation form	Map digital
Edition	1
Dataset language	English

Metadata standard

Name	ISO 19115
Edition	2016

Dataset URI	https://datasets.seed.nsw.gov.au/dataset/6a3b6fd4-c758-4387-b163-081653acd84a
Purpose	To assist the planning, management and strategic delivery of environmental water to maintain and/or enhance key ecological assets in Ramsar listed wetlands in the Gwydir catchment of the Murray-Darling Basin.
Status	Completed

Spatial representation

Type	vector

Spatial reference system

Code identifying the spatial reference system	4283

Spatial resolution	100 m

Topic category

Keyword set

keyword value	WATER-Wetlands VEGETATION VEGETATION-Floristic VEGETATION-Structural
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

West bounding longitude	149.09134
East bounding longitude	149.12859
North bounding latitude	-29.22608
South bounding latitude	-29.19812
NSW Place Name	Gwydir Catchment

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	2023-12-04
End position	N/A

Dataset reference date

Resource maintenance

Maintenance and update frequency	As needed
Contact info	
Contact position	Data Broker
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Responsible party role	pointOfContact

Lineage

An accurate and comprehensive vegetation map is a key component of understanding the ecological assets contained within any site. The type and extent of Plant Community Types (PCTs) present within the Crinolyn and Windella Ramsar sites were mapped using desktop and field survey methodologies detailed in the sub-sections below.

Pre-field desktop assessment Recent vegetation mapping of the Crinolyn and Windella Ramsar sites from the following two sources was assessed to provide information concerning the potential PCTs within and surrounding both sites: • Vegetation extent and condition mapping of the Gwydir Wetlands and floodplains 2008 – 2015 (Bowen et al 2019) • NSW State Vegetation Type Map (DPE 2022a). Associated reports for both vegetation mapping sources were reviewed to provide an insight into the mapping methodology applied (Bowen et al 2019) and relevant qualitative data associated with the likely PCTs (Benson et al 2010).
The location and floristic composition of existing vegetation survey plots established and surveyed in 2008 (Bowen unpub.) and 2019 (ELA unpub.) was assessed. Only one survey plot, located within Crinolyn (CRIN_1 V26, see Results section below), was deemed suitable for re-survey, as the other existing plots were located outside of the Ramsar boundary. The following data sources provided by DPE-EHG were also assessed to help determine target areas for the field survey and plot locations: • Ramsar site boundaries • Airborne Digital Sensor 40 cm (ADS40) aerial imagery captured August 2022 • 1m LiDAR Digital Elevation Model captured in 2009 • Gwydir Wetlands 10 year flood frequency map: 2012-2022 (DPE 2022b) • NSW hydro line mapping.

Field survey A total of 31 and 38 rapid vegetation assessment plots were completed across Crinolyn (Figure 2) and Windella (Figure 3) Ramsar sites respectively, with the following data collected using ESRI Field Maps digital data collection software at each site: • Dominant overstorey, midstorey and ground stratum species • Relevant soil and landscape features or positioning • Initial field assigned PCT number • Photograph (where relevant). Utilising Field Maps, the spatial extent of vegetation community patches encountered in the field were mapped in real-time, via the use of GPS-enabled georeferenced polygons. This allowed for an initial in-field PCT map to be produced, which included the delineation of vegetation community boundaries based on vegetation and landscape conditions present at the time of survey. Whilst the majority of both sites were able to be surveyed on the ground, the south-west corner and central portion of Windella (Figure 6) was not able to be accessed due to the presence of surface water and highly dense vegetation growth. These areas were surveyed from a distance using binoculars and aerial photograph interpretation in order to delineate PCT boundaries.

Post-field desktop mapping Data collected from the field was downloaded directly into ESRI Arc Pro digital mapping software and Microsoft Excel formats for analysis and further refinement. In-field allocation of initial PCTs, along with rapid vegetation assessment and full floristic plot data, was quantitatively assessed against the PCT descriptions and species compositions detailed in the NSW BioNet Vegetation Information System (DPE 2023), along with previous mapping sources (Benson et al 2011 and Bowen pers. comm.). Attributes included Interim Biogeographic Regionalisation for Australia (IBRA) region and subregion, landscape position and features, soils, vegetation formation, vegetation class, dominant flora species in each stratum and their relative abundance. Once final PCT allocations were determined, a final PCT map was produced utilising ESRI Arc Pro with output files set to Geocentric Datum of Australia 2020 (GDA2020).

Limitations on public access

Responsible party

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Responsible party role	pointOfContact

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