

Native Roadside Vegetation GIS Layer



Council Name: Cooma-Monaro Shire Council

Web Address: www.cooma.nsw.gov.au

Size: 5228.5 sq km

Population: 10,416



Abstract: In conjunction with the then NSW Roads and Traffic Authority (RTA) and the then NSW Department of Environment, Climate Change and Water (DECCW), Cooma-Monaro Shire Council undertook a pilot project which uses a 'rapid assessment' technique for sampling remnant vegetation in roadsides and produced a GIS layer of roadside vegetation.

Background:

Working with medium to high conservation value roadside vegetation can be costly, time-consuming and create community and staff angst. It was recognised that if sites with medium to high values could be identified early, then avoidance or mitigation measures could be implemented at the planning of works (including budget), scoping and design stages so that costs and delays could be potentially reduced.

Undertaking the construction, maintenance and noxious weed control of roadsides with moderate to high conservation values in the Cooma-Monaro local government area is problematic for Council for the following reasons:

- Some road reserves contain endangered ecological communities and threatened species. The grassland communities and species can be difficult for non-specialists to accurately identify, particularly outside of the flowering season of forbs and grasses.
- Council does not have a botanist on staff. The identification of native grassland and grassy woodland communities requires experience and specialist knowledge. Council does not have sufficient funds to routinely employ a botanist
- Council does not have an Environmental Management System.

The development of a roadside vegetation layer would form part of a system which would assist with the consideration and management of environmental factors to take place from the earliest planning stages to the final phase of construction. Potentially the layer could be used in conjunction with the asset database and other GIS layers.

Additionally, the project is of state and national significance as it has developed an efficient and accurate method for surveying and recording roadside vegetation which could be applied to rural and semi-rural local government areas across Australia.

The project objective was determined by Cooma-Monaro Shire Council staff and refined with the project team as part of the project scoping process.



The project:

The project primarily targeted Cooma-Monaro Shire Council and RTA staff involved in the management of roadside vegetation. However, in the development of the project consideration was given to the project methods potentially being applied by other road authorities.

The project team consisted of officers from Cooma-Monaro Shire Council, RTA and DECCW. The project commenced in late 2007 and was completed in early 2011.

The project had two parts each with a different method:

1. botanical survey
2. development of the GIS layer

Botanical survey

The roadside assessment was conducted in the Spring and Summer between 25 February 2008 and 4 March 2009 by a botanist.

Data were recorded using a Thales “Mobile Mapper”. One side of the road was assessed at a time. Data was recorded against each feature while the data mapper recorded the location of the feature. Pre-loaded codes were used.

Roadside vegetation was assigned to broad floristic assemblages which are directly linked to endangered ecological communities.

Development of the GIS layer

Data from the mapping tool was placed into the GIS software. Vegetation identified in the data collection phase of the project was classified according to the “Ecological Integrity Index”. The index comprised three levels: low, medium and high. The primary aim of this classification phase was to provide a pragmatic assessment of the type and magnitude of management most likely to be required for each section of roadside vegetation.



A set of standard management strategies was developed based on the road management activities of assessment, construction, rehabilitation and maintenance.

Project funding

Funding for the project was provided by the RTA, the Roadside Vegetation Committee and Cooma- Monaro Shire Council. Currently, Council is developing an Environmental Management System for the management of roads and gravel pits. It is anticipated that in conjunction with Council’s asset management system and GIS layers, the layer will assist with the planning, management and monitoring of native vegetation. Funds have been allocated in Council’s Management Plan for further survey work. It is Council’s aim to undertake survey work annually and eventually the majority of the road network will be assessed.

Review of the draft GIS layer and documents

A review of the draft GIS layer and documents was held in late 2009. Officers from surrounding local government bodies, DECCW and RTA participated. The review included the consideration of the methods used for the survey and development of the GIS layer, the management strategies and how the product would be applied in Cooma-Monaro Shire and other local government bodies. Following the review minor amendments were made to the strategy document and report. Additionally, it was agreed that a vegetation survey be undertaken to validate the survey method used.



The aim of the validation was to assess the level of error in mapping vegetation changes and condition in the roadside vegetation survey. The validation method entailed a DECCW Senior Threatened Species Officer driving sections of the Monaro Highway with a Council staff member. A GIS layer of data from the Mobile Mapper was created and then the length, description and condition index categories of vegetation communities were compared with the roadside survey GIS layer.

Outcomes:

The project has provided a reliable and cost effective method for Council staff to ascertain the type and conservation level of vegetation in a number of roadsides across the Cooma-Monaro local government area. It also provided the opportunity for government agencies to work together, thereby enabling a greater understanding of organisational and officer roles, perspectives and challenges particularly in the areas of native vegetation and road construction and maintenance.

Overall, the data-capture technique used for the project provided an adequate level of accuracy for the purposes of the derivation of a roadside vegetation GIS layer. The layer has been subjected to validation and ground-truthing, and initial expert appraisal that indicates that the layer will provide a high level of reliability for personnel undertaking assessments of the likely affects of proposed activities on roadside vegetation.

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