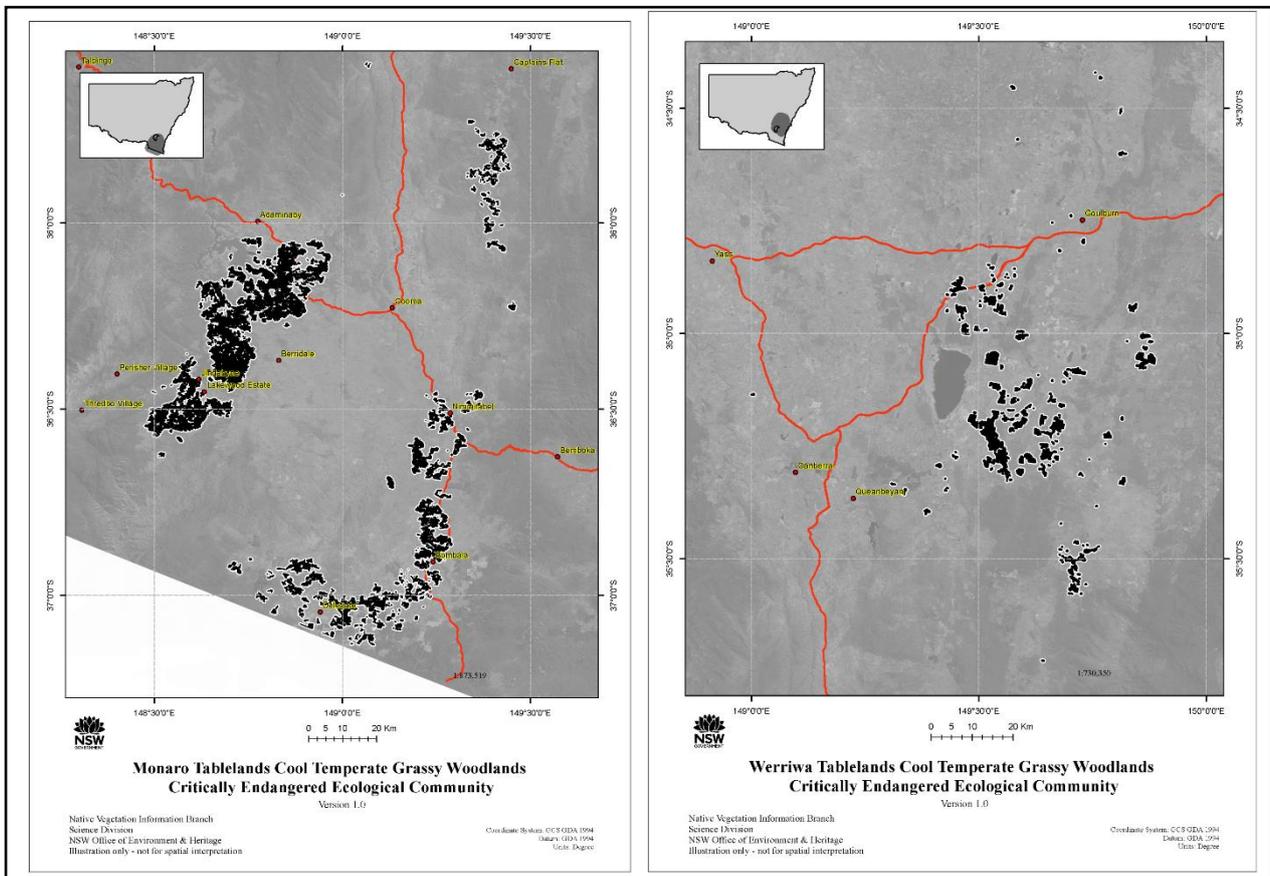


**NSW Critically Endangered Ecological Communities (CEECs)  
 Monaro and Werriwa Tablelands Cool Temperate Grassy Woodlands v1.4  
 Meta Data Summary**



The Monaro and Werriwa Tablelands Cool Temperate Grassy Woodlands (respectively Monaro and Werriwa) have been nominated by the NSW Scientific Advisory Committee as Critically Endangered Ecological Communities (NSW Threatened Species Scientific Committee (2019)). This dataset delineates the extent of these communities as a single presence surface.

This metadata statement provides a summary of the nature of the data and its lineage. Please refer to the technical notes v1.4 for further details.

**Data Type**

The complete dataset is delivered as feature class in an ArcGIS 10.4 compatible geodatabase.

- 📁 MonaroWerriwa\_CEEC\_v1.4
- 🗄️ Monaro\_Werriwa\_CEEC\_v1p4.gdb
- 🗺️ Monaro\_Werriwa\_CEEC\_Advisory\_Layer\_v1p4
- 📄 Monaro\_Werriwa\_CEEC\_v1.4.mxd

**Fields:**

- !CEEC! – Denotes the presence of the CEEC -> 'CEEC Present'

**Map Scale:**

Aerial photo interpretation was performed at scales between 1:500 and 1:5 000 referencing 3-D High Resolution (50cm) ADS imagery.

**Access Queries:**

[Data.broker@environment.nsw.gov.au](mailto:Data.broker@environment.nsw.gov.au)

Or

<https://www.seed.nsw.gov.au/>

**Technical Queries****Mike Day**

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**Legal constraints:**

This data is provided under a Creative Commons licence 4.0. Attribute 'NSW Office of Environment and Heritage' when using this data. For further inquiries contact [data.broker@environment.nsw.gov.au](mailto:data.broker@environment.nsw.gov.au)

**Purpose:**

This dataset was developed under the Department of Planning, Industry and Environment to provide government and community with regional scale information about native vegetation.

**Status:**

Monaro and Werriwa Tablelands Cool Temperate Grass Woodlands v1.4 is complete.

**Date of release:**

9/8/19

**Lineage Summary:****1. Community classification determination**

Determination established by the NSW Threatened Species Scientific Committee under the biodiversity Conservation Act 2016. A copy of these Determinations are available here: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Scientific-Committee/Determinations/2019/werriwa-tableland-final-determination-CEEC.pdf?la=en&hash=92C6D495486B7F36D0F15C133F93E8B5DE5141E8>

Or by contacting the NSW Threatened Species Scientific Committee, PO Box 1967 Hurstville BC 1481. Tel: (02) 9585 6940 or Fax (02) 9585 6606, or in person at the Office of Environment and Heritage Information Centre, Level 14, 59-61 Goulburn Street, Sydney. Copies of the determination may also be obtained from National Parks and Wildlife Service Area Offices and Visitor Centres, subject to availability.

**2. Plot Assignment**

Over 10 000 floristic sites were assessed for allocation to the CEEC. Each site was represented by full floristic vegetation plot that forms part of the OEH Vegetation Information System (VIS) database. All sites were assigned a Plant Community Type (PCT) as part of the new East Coast Vegetation Classification (ECVC). Monaro is represented by the RCP group R4.42E (Monaro -Central-Tablelands

frost hollow grassy woodland), which is historically linked to SCIVI Vegetation Types m31/p220 and UMC types m31/u118). Conversely, the Werriwa is represented by the RCP group R4.141 (Werriwa frost-hollow grassy woodland) which is linked to the SCIVI Vegetation Type p24. As part of the development of the ECVC, the floristic data of individual sites were checked and vetted, and sites strongly influenced by disturbance removed. Additional sites that are assumed to represent the CEEC's were also added. These sites came from surveys conducted by OEH threatened species ecologists and other experts that were not included in the ECVC. They include most, but not all sites identified by the Scientific Committee as representative of the TEC .

### **3. CEEC presence modelling**

A presence-absence (PA) distribution modelling approach was used to create an initial indicative (potential) distribution map of the CEEC's. A total of 84 sites were included in the models as presence sites for Monaro and 59 for Werriwa (Fig 1). While these sets contain an adequate spread of sites over the presumed range of the TECs, the models are strongly influenced by the number of absence sites ascribed to PCTs that are not related to R4.42E and R4.141.

The modelling methodology is described in detail in OEH (2016). The Random Forest (RF) technique was used to predict the potential extent of the communities in terms of their probability of occurrence across the South Eastern Highlands and South East Corner Bioregions.

All models were run with 10-fold cross validation, using held-out data to calculate performance measures which are used to select optimum model parameters and final model fit. Statistics were derived from a confusion matrix, calculating overall accuracy, user and producer accuracies and standard deviations.

Response curves for each predictor to determine if the effect of the variable on the response makes ecological sense reran multiple iterations of models to look at the effects of sequentially removing predictors in an attempt to generate a more parsimonious model. The models show a continuous probability of occurrence surface which varies between 0 and 1.

A sensitivity = specificity threshold, which balances the risk of making commission and omission errors, was used to determine the area of the core candidate CEEC. This was subject of further investigation by API. The sensitivity = specificity threshold is 0.4 for the Combined model, 0.48 for the Monaro-only model and 0.33 for the Werriwa only model.

### **4. Pattern derivation**

The binary core modelled extent was pulled into a net of existing vegetation linework for finer scale manual interrogation and attribution. A multi-resolution segmentation algorithm was used to create image objects with low internal variation. Image objects represent patches of vegetation that can later be classified based on attributes such as crown cover, spectral response, or soil type. The segmentation parameters and scale were derived iteratively based on visual inspection. Vegetation recognised in high spatial resolution imagery (ADS40 – 50cm) were used as a reference point. This process provided the line work for subsequent PCT attribution.

### **5. Fine scale mapping and Aerial Photo Interpretation**

High resolution expert aerial photographic interpretation (API) was then used to assess CEEC spatial presence within the core extent. Some locally adjacent areas where the community was found to occur were also included. This process referenced 50cm 3-D ADS40/80 imagery. Polygon attribution utilised two software packages, ArcGIS Desktop 10.7 and DAT/EM Summit Evolution – Lite Edition (a photogrammetric package enabling 3D stereo viewing of ADS40 imagery).

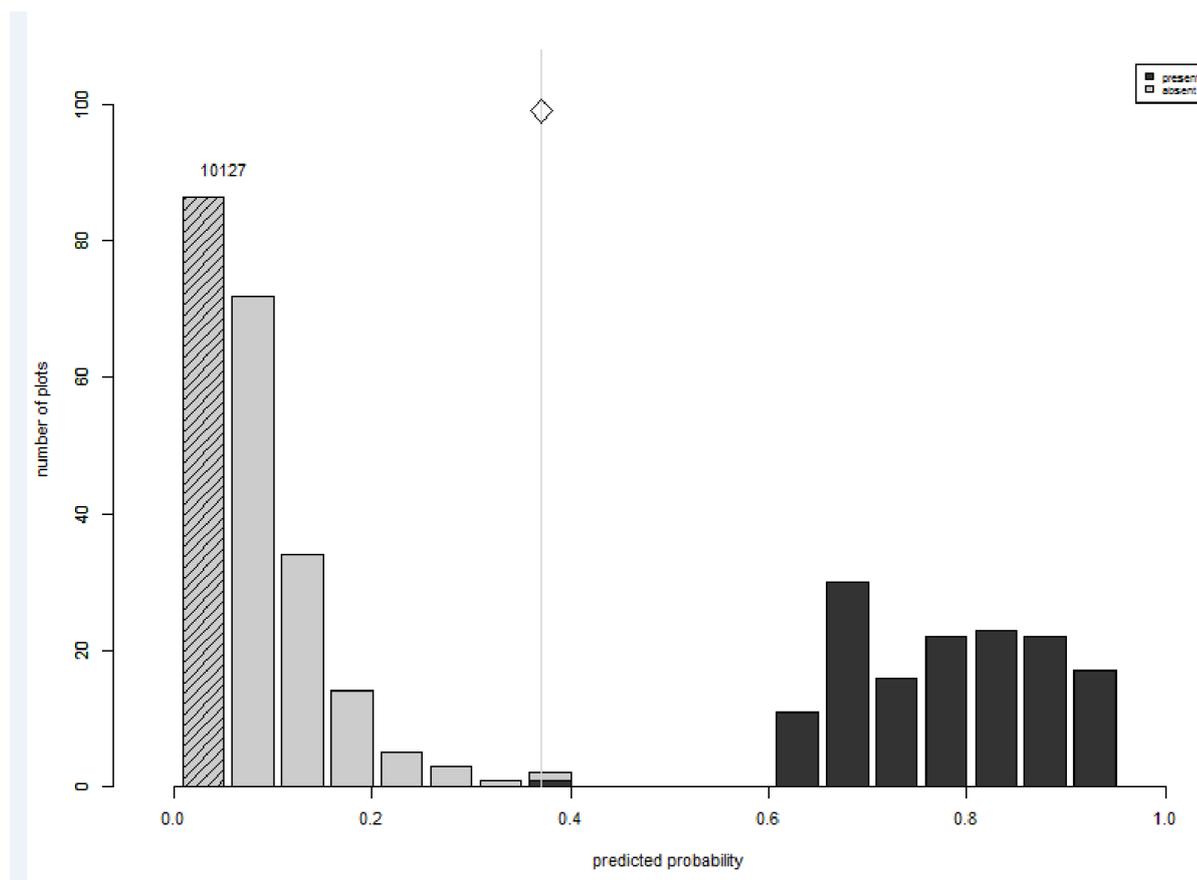
## 6. Extension of CEEC presence to adjacent candidate native grasslands

After rigorous 3-D API, the spatial extent of the CEEC was extended by default into adjacent candidate native grassland as attributed by 2-D 50cm aerial imagery. This extension was constrained by lot boundaries. Please refer to the technical notes for further details on the manual stage decision logic.

### Validation Summary:

The image below summarises the modelled surface (prior to the fine scale manual 3-D aerial photo interpretation).

Black = CEEC plot presence      Grey = CEEC plot absence.



### References

Office of Environment and Heritage (2016) Assessment of Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland TEC on NSW Crown Forest Estate: Survey, Classification and Mapping Completed for the NSW Environment Protection Authority. Published by Environment Protection Authority, Sydney, NSW. (<https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/forestagreements/assessment-tablelands-snow-gum-tec-160623.pdf?la=en&hash=E4953EB1E7DE37DB5A80BAF0351525ECA25E3CE1>)

NSW Threatened Species Scientific Committee (2019) Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions – critically endangered ecological community listing (<https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Scientific-Committee/Determinations/2019/werriwa-tableland-final-determination-CEEC.pdf?la=en&hash=92C6D495486B7F36D0F15C133F93E8B5DE5141E8>)