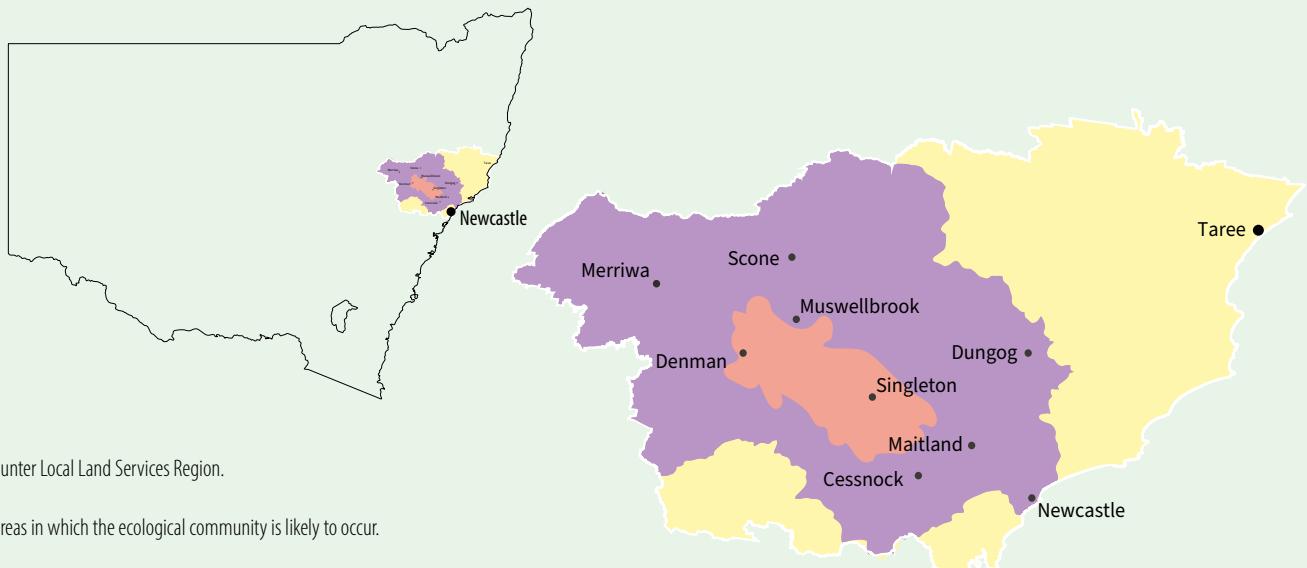


# Threatened Flora of the Hunter & Mid Coast



## Central Hunter Valley Eucalypt Forest and Woodland, and Associated Habitats

This critically endangered ecological community was once widespread in the Hunter Valley between Maitland and Scone, and provides important habitat for a variety of native plants and animals



Map derived from Department of Environment and Energy, 2016

## About

Central Hunter Valley eucalypt forest and woodland (Central Hunter Valley eucalypt forest) is a critically endangered ecological community that only occurs in the Hunter Valley region of NSW. It can be identified by its unique canopy which is dominated by one or more of the following four eucalypt species - narrow-leaved ironbark, spotted gum, slaty gum and grey box. It also has a mid-layer of flowering shrubs and a ground layer of native grasses and forbs including daisies, lilies and orchids.

Central Hunter Valley eucalypt forest provides important habitat for a diverse range of animals, including many threatened mammals and woodland bird species. Currently, less than 30% of this forest type remains due to clearing and fragmentation, weed invasion, overgrazing and changes to fire regimes. This forest only occurs in small, isolated patches that are vulnerable to disturbance and environmental change. It was listed as critically endangered in 2015 under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).



Central Hunter Valley eucalypt forest (photo: Hunter LLS)

## Distribution

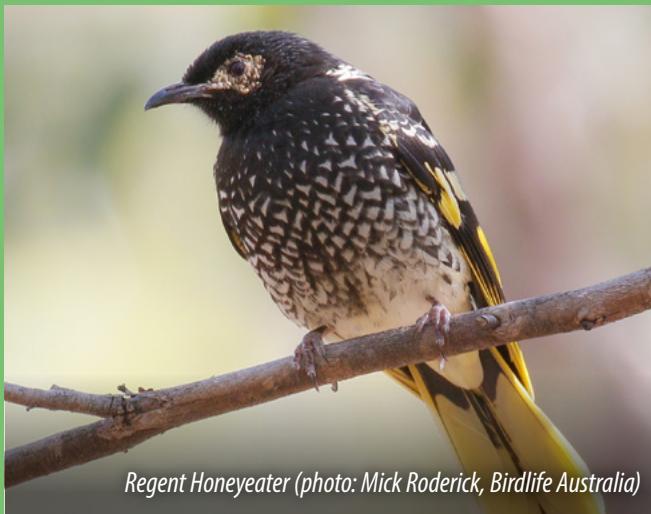
Central Hunter Valley eucalypt forest is restricted to the Hunter Valley region of north-eastern NSW. It predominately occurs within the Central Hunter Valley area in the Muswellbrook, Singleton and Cessnock local government areas. Within the landscape, Central Hunter Valley eucalypt forest can usually be found in undulating country on lower hillslopes, low ridges or valley floors. It prefers medium fertility soils with a high clay content and so it will not grow on alluvial flats, escarpments or sandy soils.

## Threats

- Habitat loss and fragmentation
- Invasion and spread of weeds
- Trampling, browsing and grazing by feral animals such as rabbits, foxes and deer
- Removal of trees and logs, including firewood
- Changes to understorey species as a result of grazing by stock and mowing
- Altered fire regimes including increased frequency and intensity of fires
- Disturbance and damage caused by recreational users such as motorbikes and 4WDs
- Climate change
- Rubbish dumping and arson

## Regent Honeyeater

With less than 400 individuals remaining, the critically endangered Regent Honeyeater has become a flagship species for the conservation of declining woodland birds and mammals. The Central Hunter Valley region hosts one of four key breeding areas for the Regent Honeyeater in Australia, as well as vital feeding habitats. The birds travel large distances every year to feed on flowering trees in the area and rely heavily on mistletoe for nectar and nesting. One of the biggest threats to Regent Honeyeaters is habitat loss and degradation, so areas of high quality remnant Central Hunter Valley eucalypt forest are vital for their survival.



Regent Honeyeater (photo: Mick Roderick, Birdlife Australia)



Long-flowered Mistletoe in a Spotted Gum (photo: Hunter LLS)

## Why is it important?

Areas of Central Hunter Valley eucalypt forest have largely been cleared of vegetation with only isolated remnants remaining. These remnant patches provide important habitat for a variety of native plants and animals. This includes 11 nationally threatened animal species such as the Green and Golden Bell Frog, Grey-headed Flying Fox, Brush-tailed Rock-wallaby, New Holland Mouse and Spotted-tailed Quoll.

The community is important for a diverse range of threatened woodland birds (of which 28 found in the Hunter are in decline across Australia due to habitat loss) including the vulnerable Painted Honeyeater and the critically endangered Regent Honeyeater and Swift Parrot that migrate to the area to feed on winter-flowering eucalypts. Some of these species nest in core habitat areas within the Central Hunter Valley eucalypt forest including Werakata National Park, Aboriginal owned lands and adjoining uncleared lands on private property within the Cessnock Key Biodiversity Area. Remnant patches of Central Hunter Valley eucalypt forest provide important links between the Greater Blue Mountains and Barrington Tops World Heritage Areas. Habitat connectivity is important to ensure that native plants can disperse and native fauna can travel safely through the landscape. Central Hunter Valley eucalypt forest provides a range of ecosystem services that contribute to our health and wellbeing including cooling the local environment, maintaining our water cycle, improving air quality and preventing soil erosion. It also offers great bushwalking and bird watching opportunities.



Large areas of Central Hunter Valley eucalypt forest have been cleared and only isolated patches remain, often with no understory (photo: Hunter LLS)

## Swift Parrot

The Swift Parrot is a critically endangered woodland bird species with estimates suggesting there are less than 1,000 breeding pairs remaining. Every year, they travel from their breeding grounds in Tasmania to the mainland to feed on flowering eucalypt and lerp over autumn and winter. In the Hunter Valley, the Swift Parrot will journey to feed on many of the tree species found within Central Hunter Valley eucalypt forest and its associated habitats so protection of these areas is of critical importance.



Swift Parrot  
(photo: Mick Roderick, Birdlife Australia)

## Identification/Species list

The key identifying feature of Central Hunter Valley eucalypt forest is a canopy dominated by one or more of the following species – narrow-leaved ironbark, spotted gum, slaty gum or grey box. Occasionally, bulloaks (*Allocasuarinas*) can also form part of the dominant canopy species. The composition of these species is usually determined by the surrounding landscape and so it can change between sites. Table 1 contains a species list of native plant species commonly found in Central Hunter Valley eucalypt forest. If you want to restore or enhance your property, contact Hunter Local Land Services to assess your property and discuss suitable species, native nursery suppliers and more to complement the remnant species already growing at your place.

## Legislation

Central Hunter Valley eucalypt forest is listed as a critically endangered ecological community under the EPBC Act. This listing helps to protect the community from further decline, raises awareness of the ecological community and its threats, and supports on-ground activities to ensure long term survival of the community and threatened species that inhabit it. There are three ecological communities associated with the federal listing that are protected under the NSW *Biodiversity Conservation Act 2016* (BC Act). These communities include:

- Central Hunter Grey Box – Ironbark Woodland in the NSW North Coast and Sydney Basin Bioregions (Endangered)
- Central Hunter Ironbark – Spotted Gum – Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions (Endangered)
- Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion (Vulnerable)

Occasionally, some outlying areas of Central Hunter Valley eucalypt forest occur in the Lower Hunter Valley region within a fourth ecological community listed as endangered under the NSW BC Act:

- Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions.

Approvals at multiple government levels may be required depending on the activity taking place and the level of impact on the listed community. For further information regarding those approvals contact:

- Local council
- Local Land Services
- Australian Government – Department of Agriculture, Water and Environment

Table 1. Common native plants occurring in Central Hunter Valley eucalypt forest

Common name	Scientific name
<b>Canopy</b>	
<b>Dominant canopy species</b>	
Bulloak (occasionally)	<i>Allocasuarina luehmannii</i>
Spotted gum	<i>Corymbia maculata</i>
Narrow-leaved ironbark	<i>Eucalyptus crebra</i>
Slaty gum	<i>Eucalyptus dawsonii</i>
Grey box	<i>Eucalyptus moluccana</i>
<b>Sub-dominant or locally dominant species</b>	
Rough barked apple	<i>Angophora floribunda</i>
Blakely's red gum	<i>Eucalyptus blakelyi</i>
Slaty red gum	<i>Eucalyptus glauциna</i>
Forest red gum	<i>Eucalyptus tereticornis</i>
<b>Other characteristic canopy species</b>	
Cooba	<i>Acacia salicina</i>
Kurrajong	<i>Brachychiton populneus subsp. populneus</i>
Black cypress-pine	<i>Callitris endlicheri</i>
White box	<i>Eucalyptus albens</i>
Grey gum	<i>Eucalyptus punctata</i>
<b>Mid storey species</b>	
Fan wattle	<i>Acacia amblygona</i>
Golden wattle	<i>Acacia decora</i>
Sickle wattle	<i>Acacia falcata</i>
Lightwood	<i>Acacia implexa</i>
Silver-stemmed wattle	<i>Acacia parvipinnula</i>
Coffee bush	<i>Breynia oblongifolia</i>
Native blackthorn	<i>Bursaria spinosa</i>
Broom bitter pea	<i>Daviesia genistifolia</i>
Gorse bitter pea	<i>Daviesia ulicifolia</i>
Native olive	<i>Notelaea microcarpa</i>
Spiny bush-pea	<i>Pultenaea spinosa</i>
<b>Groundcover species</b>	
Wire-grass	<i>Aristida ramosa</i>
Poison rock fern	<i>Cheilanthes sieberi subsp. sieberi</i>
Barbed wire grass	<i>Cymbopogon refractus</i>
Slender or variable tick trefoil	<i>Desmodium varians</i>
Kidney weed	<i>Dichondra repens</i>
Winter apple	<i>Eremophila debilis</i>
Many flowered mat rush	<i>Lomandra multiflora subsp. multiflora</i>
Weeping grass	<i>Microlaena stipoides var. stipoides</i>



Central Hunter Valley eucalypt forest (photo: Hunter LLS)

# Identifying dominant species



Photo: Brooker and Kleinig © Australian National Botanic Gardens



Photo: NSW DPI



Photo: Brooker and Kleinig © Australian National Botanic Gardens



Photo: NSW DPI



Photo: NSW DPI



Photo: NSW DPI

## Narrow-leaved Ironbark (*Eucalyptus crebra*)

A tree to 35m high with thick, deeply furrowed, dark bark that is persistent from the base of the trunk up to small branches. Leaves are a dull green to dull grey-green and are narrow-lanceolate or lanceolate in shape. It can be found flowering in all months except February and produces a white flower.



Photo: NSW DPI



Photo: Brooker and Kleinig © Australian National Botanic Gardens

## Slaty gum (*Eucalyptus dawsonii*)

Tree to 30m high with smooth bark, shedding imperfectly in short ribbons and white, grey or yellow in colour. Leaves are lanceolate in shape and are a dull grey-green colour. Flowers are white and flowering occurs in March and November.



Photo: NSW DPI



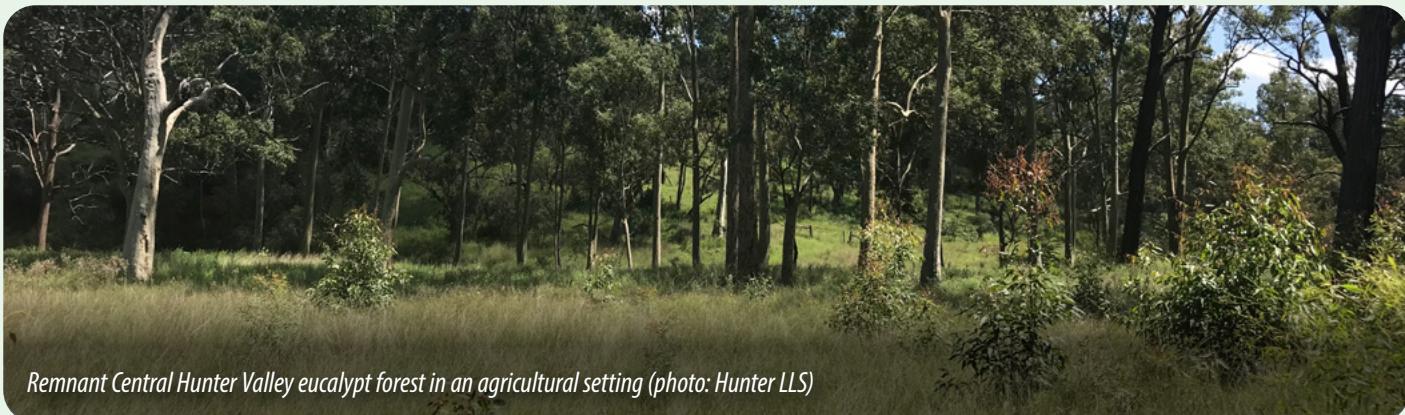
Photo: Australian National Botanic Gardens, 1970



Photo: Brooker and Kleinig © Australian National Botanic Gardens

## Grey box (*Eucalyptus moluccana*)

Tree to 25m high with persistent, fibrous-flaky bark on lower or full trunk and smooth grey bark above. Leaves are lanceolate to ovate and are glossy green. It can be found flowering for most of the year but not in July or September. Flowers are white.



# Best practice management

## Case study: Natural regeneration

The most beneficial method of reinstating native vegetation is to allow natural regeneration of existing remnants through a combination of stock exclusion, fencing, weed control and supplementary plantings (if needed).

In 2019, Simon Tregoning contacted Hunter Local Land Services seeking support to protect and restore remnant and riparian vegetation on his property. He wanted to better manage stock in these areas to promote natural regeneration of native vegetation, improve water quality and provide habitat for woodland species, including the critically endangered Regent Honeyeater.

The project involved:

- Installing stock exclusion fencing and an off-stream watering system to protect 640 metres of river bank and native vegetation and improve water quality.
- Implementing sustainable grazing practices over approximately 33 hectares of remnant and riparian vegetation.
- Promoting natural regeneration of native vegetation across the project area through stock exclusion and weed and pest control.

The project was able to protect areas of remnant Central Hunter Valley eucalypt forest from the impacts of grazing to enable natural regeneration. This has helped to protect and regenerate habitat for endangered woodland species, including the critically endangered Regent Honeyeater which is known to feed in the area and was observed on the property.



## Revegetation



Revegetation can have a range of benefits for Central Hunter Valley eucalypt forest by creating new, or linking existing remnant vegetation patches, and helping to improve habitat connectivity. For revegetation to be successful it is important to:

- Control weeds in revegetation areas to remove competition for resources.
- Use locally sourced natives as these are adapted to local conditions.
- Plant a mixture of native tree, shrub, and groundcover species for structural diversity.
- Design your revegetation area to mimic native vegetation and where possible, incorporate different landscape features such as rocky outcrops or waterways.
- Plant at the right time - try to plant seeds when soil moisture is high and evaporation and transpiration are low. This is typically between autumn and early spring.
- ‘Harden off’ plants by exposing them to an environment like the planting area for several days prior to planting. This helps to improve plant survival rates.
- Control vertebrate pests that could damage young plants, or install tree guards.
- Fence off revegetation areas to protect young plants from stock.
- Regularly monitor plants once they have been planted and water them as required.

## Weed control

One of the biggest threats to Central Hunter Valley eucalypt forest is the spread of weeds, particularly lantana, which can outcompete native species and seedlings, including important canopy trees and shrubs, and reduce biodiversity.

Lantana is an introduced woody shrub that forms dense, impenetrable thickets and invades native grasslands and bushland. Plants can produce up to 12,000 seeds every year which are spread by birds and other animals. It can also spread by layering, a form of vegetative reproduction where stems send roots into moist soil and continue growing. Due to its invasiveness, potential for spread and economic and environmental values, lantana is considered a major environmental threat.

Successful control of lantana requires an integrated weed management approach and continuous follow up efforts to monitor and suppress weeds. Lantana can be easily removed and managed.



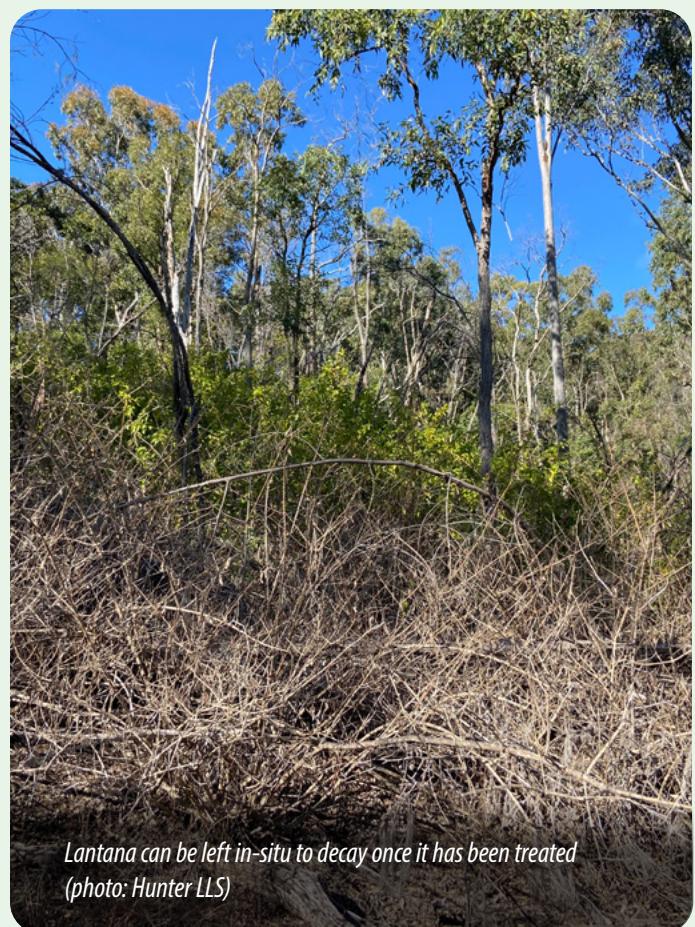
*Lantana invading Central Hunter eucalypt forest (photo: Hunter LLS)*



*Lantana flower. Flowers can also be orange or red in colour depending on the type of lantana, age and location. (photo: NSW DPI)*

The following points should be considered to ensure best results:

- Use a combination of weed control methods such as herbicides, physical removal and biological control agents.
- Foliar spraying an entire plant is effective for plants that are less than 2 metres high. Basal bark and cut stump methods of herbicide application are useful for plants greater than 2 metres high. Splatter guns can also be effective and have reduced off-target damage compared to other spray techniques.
- Physical removal of lantana can be effective for light to medium sized infestations but requires regular follow up due to a high likelihood of plants re-shooting.
- Work from areas of light infestation towards heavier infestations. For large infestations, this may involve gradually treating outbreaks from the outside inwards.
- Minimise disturbance to soils to retain healthy pastures and native groundcover and prevent lantana from establishing.
- Continually monitor treatment areas following initial control and treat regrowth and new shoots, preferably before they are 1 metre high.
- Ensure plant material is rafted following removal to prevent layering and further spread of lantana.
- Revegetation with natives or improving pastures can help to limit the re-establishment of lantana by shading and outcompeting lantana seedlings.



*Lantana can be left in-situ to decay once it has been treated (photo: Hunter LLS)*

## How you can help



- Retain and enhance existing native vegetation.
- Plant local native species.
- Control weeds and feral animals.
- Retain old trees with tree hollows.
- Strategically graze stock in woodland areas to prevent overgrazing.
- Seek advice (and approval if required) from Local Land Services before mowing or slashing understorey species.
- Retain native mistletoes in trees.
- Avoid collecting firewood in remnant vegetation areas.
- Report illegal actions such as dumping or unauthorised fires.
- Participate in community events such as tree planting days or join a local conservation group.



Significant remnant Central Hunter Valley eucalypt forest has been fenced to manage access through a Saving Our Species initiative (photo: Hunter LLS)

## For more information, contact

### **Hunter Local Land Services:**

P: 1300 795 299

E: [admin.hunter@lls.nsw.gov.au](mailto:admin.hunter@lls.nsw.gov.au)

W: [www.lls.nsw.gov.au/regions/hunter](http://www.lls.nsw.gov.au/regions/hunter)

Land Management Advice

E: [slm.info@lls.nsw.gov.au](mailto:slm.info@lls.nsw.gov.au)

### **Australian Department of Agriculture, Water and the Environment**

P: 1800 803 772

W: [www.environment.gov.au](http://www.environment.gov.au)

### **NSW Department of Planning, Industry & Environment**

Environment, Energy and Science Group

P: 1300 361 967

E: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)

W: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

### **Hunter Region Landcare Network Inc.**

W: <https://hunterlandcare.org.au/>

Lower Hunter - Stacy Mail

P: 0429 444 305

E: [lowerhunterlandcare@gmail.com](mailto:lowerhunterlandcare@gmail.com)

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