

# Miena Cider Gum

*Eucalyptus gunnii* subsp. *divaricata*

## Action Plan 2013–23



June 2014

## Acknowledgements

NRM South would like to thank the following people for their time and input into the development of this plan: Kerry Bridle (Tasmanian Institute of Agriculture), Sally Bryant (Tasmanian Land Conservancy (TLC)), Neil Davidson (Greening Australia), Peter Downie, Louise Gilfedder (Department of Primary Industries, Water and Environment (DPIPWE)), Steve Joyce (Derwent Catchment NRM), Brad Potts (University of Tasmania), Wendy Potts (DPIPWE), Daniel Sprod (TLC), Michael Swanton (Threatened Plants Tasmania), Matt Taylor (TLC), James Wood (Royal Tasmanian Botanic Gardens), and Magali Wright (NRM South).



Miena Cider Gum, Central Highlands. (Photo: Matt Taylor, TLC)

## Contact details for publication

NRM South  
313 Macquarie St,  
Hobart Tas 7004  
(03) 6221 6111  
[www.nrmsouth.org.au](http://www.nrmsouth.org.au)

## Summary

Miena Cider Gum (*Eucalyptus gunnii* subsp. *divaricata*) is an iconic endemic eucalypt of conservation significance from the Central Plateau of Tasmania. Miena Cider Gum is a cold-adapted and frost resistant species, most often associated with frost hollows in the landscape of Tasmania's high country.

With significant loss of mature trees across its range in the last 20 years, the most critical problems driving the ongoing decline of Miena Cider Gum are those that cause a lack of recruitment in healthy stands, particularly browsing by native and introduced and reduced genetic diversity. These are compounded by an increasingly variable climate and more frequent extreme events (such as drought).

To address these issues, in the absence of coordinated resourcing, this Action Plan recommends that Miena Cider Gum survival begins with:

1. **Management of key sites:** reducing pressure on recruitment in the healthiest stands rather than recovering sites in poor condition
2. **Ex-situ seed conservation:** a 'lifeboat' strategy aimed at building a secure repository of genetic material
3. **Information and extension support:** building an active community of interest with private landholders, the Aboriginal community and the broader community.

When resources are available they should focus on these issues as a priority ahead of other strategies such as replanting, fencing populations in highly degraded sites, or other methods of ex-situ conservation.

## About this Action Plan

This Action Plan has been developed by NRM South in collaboration with key specialists in the ecology and management of Miena Cider Gum (see page 1 for acknowledgements). It is based on the knowledge and assessment of Miena Cider Gum requirements as at February 2013, and should be reviewed annually.

The purpose of the plan is to provide a coordinated basis for the protection and management of Miena Cider Gum in the current absence of a formal Threatened Species Recovery Plan.

The plan was developed using a 'rapid' planning approach based on the Open Standards for the Practice of Conservation, drawing on the knowledge of key specialists in order to provide a clear set of prioritised actions considered to be the most critical for the management of Miena Cider Gum.

## Context, scope, vision

Miena Cider Gum (*Eucalyptus gunnii* subsp. *divaricata*) is an iconic endemic eucalypt species of the Central Highlands of Tasmania and is a symbol of the landscapes that many consider synonymous with the Tasmanian high country. The species is significant for biodiversity conservation and also has an important indigenous heritage value.

Miena Cider Gum is endemic to Tasmania, occurring as the dominant species in grassy open woodland at the exposed edges of treeless flats or frost hollows on Jurassic dolerite around the Great Lake region on the Central Plateau. Sites tend to be poorly drained and prone to frost. The recorded altitude range is at elevations of 865–1150m above sea level.

Miena Cider Gum is listed as **endangered** under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) and the *Threatened Species Protection Act 1995* (Tasmania).

Miena Cider Gum is a subspecies of the Tasmanian Cider Gum *E. gunnii*, having previously been described as a separate species, *E. divaricata* (Potts et al. 2001).

Miena Cider Gum occurs in seven major locations, with most occurrences within a 40 by 40km area (Potts et al. 2001) (see map). The core range of the Miena Cider Gum occurs in the southern half of the Great Lake area with scattered populations in and around marsh areas on the lower plateau surface to the south-east of Great Lake (Wapstra 2010).

In this Action Plan, Miena Cider Gum is thought about as more than simply the species alone, and includes the ecological, social and cultural communities associated with tree form 'classic old growth' Miena Cider Gum.

### Our vision

That future generations will still find Cider Gums in the sweet spots of Tasmania's Central Highlands and that those cold places will continue to keep Cider Gum secure for as long as possible.



Where are we talking about?

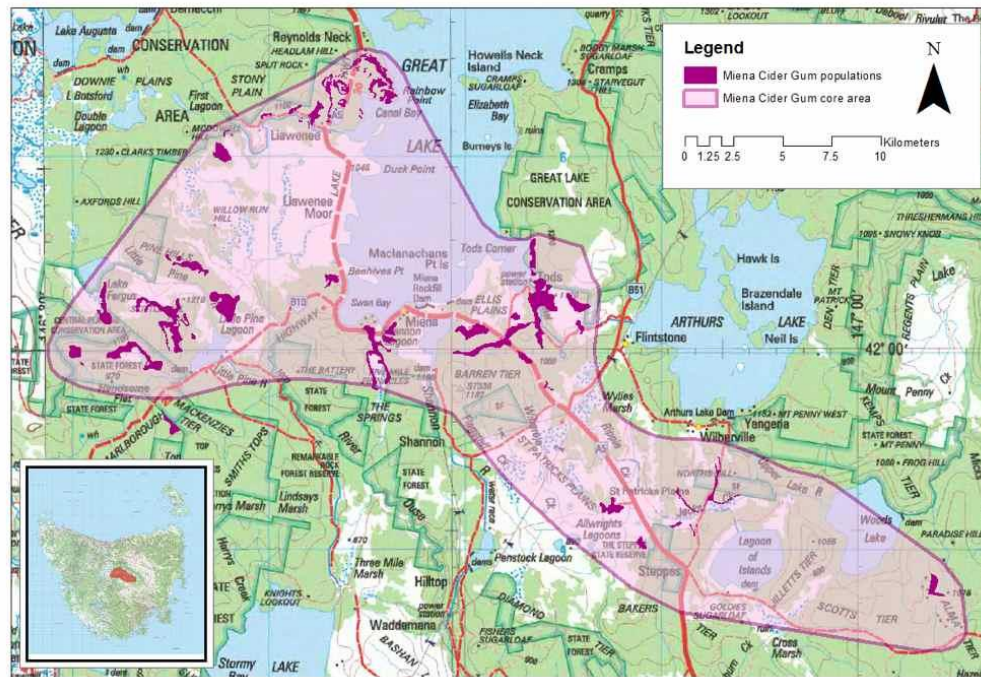


Figure 1: Location of key populations of Miena Cider Gum. (Map produced by TLC)



Photo showing 'Old classic' Miena Cider Gum, Lakes district. (Photo: Matt Taylor, TLC)

## How do we measure the health of Miena Cider Gum?

We considered the key attributes that would indicate the health of the Miena Cider Gum, as shown in Table 1.

Healthy stands are those that contain 'old growth', have active recruitment (suitable niches, good survival), healthy crowns, a mix of tree ages, genetic diversity and suitable habitat.

In most cases these attributes are not currently rated as healthy, and furthermore are in decline. The overall prognosis for the survival of Miena Cider Gum in the wild is poor, particularly in the absence of active management interventions.

Table 1: Attributes of health, current rating and desired state at end of current plan.

ATTRIBUTE	Current rating (Poor/Fair/Good/Very Good)	Trend	Target rating by 2023
Presence of 'old classic' Cider Gum	Fair	Declining	Fair
Miena Cider Gum communities valued	Fair	Improving	Very Good (likely by 2016)
Recruitment	Fair	Stable	Good
Recruitment niches	Good	Stable	Very Good
Capsule crop	Fair	Declining	Good
Survival of saplings	Fair	Declining	Good
Crown health	Fair	Declining	Good
Demography	Fair	Declining	Good
Genetic diversity	Fair	Stable	Good
Suitable habitat	Poor	Declining	Fair
Ecological processes	Fair	Declining	Fair

## What are the threats?

The critical threats to Miena Cider Gum (see Table 2) are the combination of factors that limit successful recruitment, particularly in healthy stands. These are changed climatic conditions over the last 30–40 years and future climate change, particularly increasing temperatures and decreasing rainfall, browsing by introduced and native species, and extreme weather events (mainly drought and a reduction in frost events and cold spells/snaps). The legacy of fragmentation and increased isolation of flowering trees reduces the regeneration potential of surviving stands (Potts et al. 2001); and inbreeding effects such as reduced seed set and fitness/health of plants (TSS2010).

In addition to these most significant threats, additional contributing factors include burning for “green pick” and to reduce the shrub layer for summer grazing; clearing of trees for road maintenance or widening; the raising of hydro-electric lake levels; felling of mature trees for firewood and seed collection; and drought (Potts et al. 2001; TSS2010)

Table 2: Threats to the Miena Cider Gum.

THREATS	RATING
<b>Climate change</b> Reduction in extent of climatic conditions required for MCG to thrive	High
<b>Browsing by introduced species</b> Browsing limits recruitment and stops MCG from successfully reproducing	
<b>Extreme weather</b> Drought and flood inhibit recruitment and stress mature trees	
<b>Browsing by native species</b> Browsing limits recruitment and stops MCG from successfully reproducing	
<b>Fragmentation</b> Increasing geographic separation between stands reduces the genetic viability of seeds	Medium
<b>Inappropriate fire regimes</b> Fires can prohibit recruitment and kill mature trees	
<b>Pathogens</b> Such as Myrtle Rust	
<b>Clearing</b> More extensive in the past but some small-scale clearing still occurs	Low
<b>Increased palatability of foliage</b> Noted as a minor and localized issue	

## Goals and programs to manage Miena Cider Gum

Our understanding of the interaction between the threats and Miena Cider Gum (Figure 1) has been used to develop goals and strategies.

### Goals

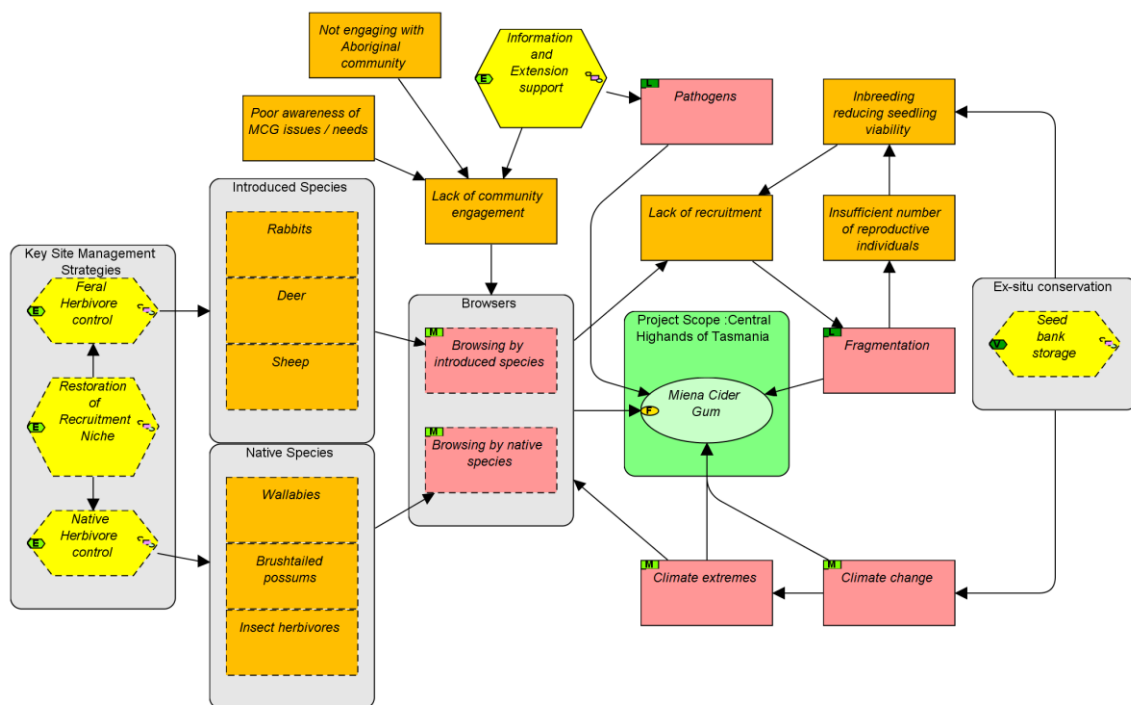
- Protect priority stands (based on Wapstra 2010) of Miena Cider Gum
- In situ conservation management of Miena Cider Gum fully incorporates Aboriginal and non-Aboriginal perspectives within five years
- Recruitment at priority sites is maintained at 'benchmark' levels to ensure the best chance of persistence in the face of climate change and stochastic events.
- Maintain the existing genetic resource of Miena Cider Gum

### Programs

A number of strategies were evaluated according to the understanding of their effectiveness and cost in meeting the goals and mitigating threats. Five strategies were selected to pursue as a priority, to be achieved through four main programs.

1. **Information and Extension support:** engage landholders and the Aboriginal community in building an active community of interest
2. **Management of key sites:** focus on the healthiest sites to maintain health rather than focusing effort on sites which are in poor condition
3. **Ex situ seed conservation:** support a 'lifeboat' strategy aimed at building a secure repository of genetic material
4. **Recovery action coordination:** support a coordinated effort to avoid further decline towards extinction





**Figure 2: Relationship between Miema Cider Gum, threats and strategies.** The green shape is the Action Plan target – healthy Miema Cider Gums in the central highlands of Tasmania. The red shapes are the threats to this target, and the orange shapes represent the causes of these threats. The yellow shapes represent the strategies outlined in this Action Plan and the arrows show which threats or causes of threats these strategies are developed to mitigate.



Picture showing dead Miema Cider Gum, Lakes District (Photo: Matt Taylor, TLC)

## What are we going to do?

Miena Cider Gum is in decline. Coordinated action and resourcing is critical if this keystone species is to have any prospect of survival beyond seed storage as a genetic safeguard. Ideally, resourcing would enable management across the whole Central Highlands landscape, reducing overall browsing pressure and improving the resilience of the overall landscape for the Miena Cider Gum to withstand threats. In the absence of such an approach, we propose the following actions for the species, building community support for the program, and action on the ground.

We recommend the following be the focus of action, in order of priority. Dates are provided as indicators only.

### **Ex situ conservation**

- Identify seed collection sites (by 2018)
- Engage local shack owners to monitor and record on seed set to deliver/flower set and site health (ongoing)
- Seed collection from healthy stands (by 2018)
- Storage at the Tasmanian Seed Conservation Centre, with duplicate samples held at a separate facility (ongoing)

### **Management of key sites**

- Survey, map, assess, prioritise key sites (as per Wapstra 2010). Proposed sites are: Arthurs Flume Road, Arthurs Flume Road West, Great Pine Tier, Miena, St Patricks Plains, Todds Corner North
- Population viability analysis at key sites

### **Restoration of recruitment niche**

- Identify specific locations in priority sites for fencing/browsing control (by 2015)
- Plant local provenance spiky native shrubs (needle bush, grevilleas etc.) where shrub layer is minimal to reduce browsing
- In priority locations lay slash in conjunction with caging to reduce browsing (trial 2016)
- Caging of seedlings where browsing pressure exists (by 2016)
- Fencing of larger areas where no seedlings/no stock (by 2023)
- Maintain and monitor fences and caged trials at St Patricks Plains/Shannon Lagoon (ongoing)

### **Introduced and native herbivore control**

- Research landholder rabbit control options (by 2014)
- Partnership with recreational shooters around key sites (ongoing)
- Fence sheep and other herbivores out of key sites (ongoing)

### **Information and extension support**

- Update MCG Threatened Species Listing Statement (by 2014)
- Assist property scale planning (by 2016)
- Engage Aboriginal community to incorporate their perspectives into Action Plan (ongoing)
- Engage landholders in key sites (ongoing)

### Recovery action coordination

- Identify a Coordinator (Immediate)
- Coordinator seeks grant funding (by 2015)
- Ongoing communications/governance role with Working Group (ongoing)
- Liaison with government (ongoing)
- Coordinate monitoring effort (completed by 2018)
- Review action plan/reporting (completed by 2018)

## Resources, references, contacts

### Measuring success

Measuring success of the Action Plan will occur in three ways:

1. Implementation – annual review – is the Plan being used by stakeholders? E.g. How many strategies are being used/not used? Why? What should change?
2. Effectiveness – review as required – are the strategies creating change? E.g. are we seeing less browsing impact? Have we collected seed?
3. Status – Review every 5 years – are current stands of MCG maintaining or increasing in health? E.g. changes in stand demography, crown health – moving from Fair to Good

### Contacts

Implementation of this plan is being coordinated through a partnership between NRM South and Tasmanian Land Conservancy. Please contact us if you are interested in being involved:

NRM South: Magali Wright [mwright@nrmsouth.org.au](mailto:mwright@nrmsouth.org.au)

TLC: Matt Taylor [mtaylor@tasland.org.au](mailto:mtaylor@tasland.org.au)

### Key references

Calder, J.A. & Kirkpatrick, J.B. (2008). Climate change and other factors influencing the decline of the Tasmanian cider gum (*Eucalyptus gunnii*). *Australian Journal of Botany* 56: 684–692.

Environment Australia (2008) *Eucalyptus gunnii* subsp. *divaricata* Approved Conservation Advice.

Gibson, N. & Kirkpatrick, J.B. (1989). Effects of the Cessation of Grazing in the Grasslands and Grassy Woodlands of the Central Plateau, Tasmania. *Australian Journal of Botany* 37: 55–63.

Potts, B.M., Potts, W.C. & Kantvilas, G. (2001). The Miena Cider gum, *Eucalyptus gunnii* subsp. *divaricata* (Myrtaceae): A Taxon in Rapid Decline. *Papers and Proceedings of the Royal Society of Tasmania* 135: 57–61.

Schahinger, R. & Smith, A. (2009). Miena Cider Gum Recovery Actions 2005–2008. *Threatened Species Section, Biodiversity Conservation Branch* (Department of Primary Industries and Water) Hobart, Tasmania.

Taylor, M. (2012). Climate Change Adaptation Strategies for the Miena cider gum (*Eucalyptus gunnii* subsp. *divaricata*). *National Climate Change Adaptation Research Facility (NCCARF)*. Fact Sheet.

Threatened Species Section (2010). Listing Statement for *Eucalyptus gunnii* subsp. *divaricata* (Miena Cider Gum). Department of Primary Industries, Parks, Water and Environment, Tasmania.

Wapstra, M. (2010). Extension Surveys and Population Census: *Eucalyptus gunnii* subsp. *divaricata* (Miena Cider Gum). *A report to the Threatened Species Section* (Department of Primary Industries, Parks, Water and Environment) by Environmental Consulting Options Tasmania (ECOtas).

