

Action Statement

Flora and Fauna Guarantee Act 1988

No. 221

Lima Stringybark

Eucalyptus alligatrix subsp. *limaensis*

This Action Statement is based on a draft Recovery Plan prepared for this species by DSE under contract to the Australian Government Department of the Environment, Water, Heritage and the Arts.

Description

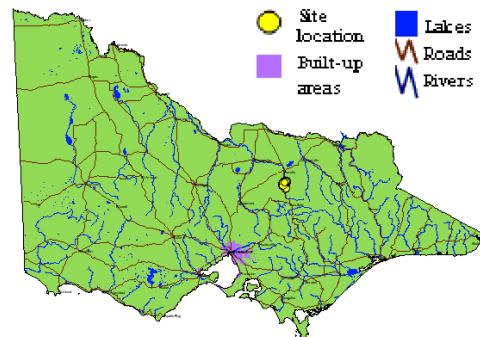
Lima Stringybark (*Eucalyptus alligatrix* subsp. *limaensis*) is a tree up to 30 m high, with rough bark persisting to small branches (Brooker, Slee *et al.* 1995; Walsh and Entwisle 1996). Only the mature plant develops adult leaves, which are lanceolate to falcate, shiny, and green to olive in colour; the petiole is 9-25 mm long. The juvenile foliage is glaucous and orbicular to ovate in shape (Walsh and Entwisle 1996). Epicormic growth is an intermediate green, with petioles 0.5-5 mm long, and broadly ovate leaf blades 30 mm wide and 50 mm long (Brooker, Slee *et al.* 1995). The buds are diamond-shaped, green and sessile. The inflorescences are 3-8 mm long with flattened peduncles; flowering occurs in April. The sessile, cone or bell-shaped fruit occur in threes, and are 4-5 mm wide and 3.5-5 mm long (Brooker, Slee *et al.* 1995).



Lima Stringybark
(Photo: DSE/Mentiplay-Smith)

Distribution

Lima Stringybark is endemic to Victoria and currently occupies a small area in a valley in the Lima and Swanpool region, east of the Strathbogie Ranges in north east Victoria. The taxon is generally found at ~220 m above sea level.



Distribution in Victoria
(Flora Information System DSE 2007)

Abundance

It is estimated that 1500 Lima Stringybark individuals exist. These plants occur in 138 known populations. The extent of range and abundance of Lima Stringybark prior to European settlement is unknown, but likely to have numbered in the thousands.

Habitat

Habitat generally occurs on unconsolidated sediments of the valleys of foothills with dark grey or brown gritty loam soil and includes one or more

of the following species: *E. macrorrhyncha*, *E. radiata*, *E. polyanthemos*, *E. melliodora*, *E. gonicalyx*, *Acacia melanoxylon*, *A. mearnsii*, *A. dealbata* and *A. pravissima*.

Life history and ecology

Almost all populations are subject to severe habitat degradation which is primarily indicated by the loss of understorey species and subsequent weed invasion and lack of natural regeneration of the taxon. The regenerative potential for the Lima Stringybark is more likely to increase if threats are controlled. However, most sites are so degraded that the complete restoration of the vegetation community will be difficult. Management of exotic grasses, particularly *Phalaris*, at many sites will be the biggest challenge.

Important populations

Numerous individual trees occur along roadsides within the Lima and Swanpool districts. Due to the high level of fragmentation, individual populations are not listed in this report. Target populations will be identified during the implementation of this Action Statement. Known populations of Lima Stringybark occur in the following locations:

Tenure/Reservation	Site
Roadsides (VicRoads)	Midland Highway, Lima
Roadsides (Benalla Rural City)	Pearce Road, Lima Lima East Road, Lima Tully Road, Lima Jensens Lane, Lima William Road South, Lima Swanpool - Lima Road, Lima Swanpool Road, Swanpool Warnock Road, Swanpool
Private Land	Lima: four populations Swanpool: one population

Conservation status

National conservation status

Lima Stringybark is listed as 'vulnerable' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Victorian conservation status

Lima Stringybark has been listed as 'threatened' under the Victorian *Flora and Fauna Guarantee Act 1988*.

It is considered 'endangered' in Victoria according to DSE's *Advisory List of Rare or Threatened Plants in Victoria - 2005* (DSE 2005).

Potentially threatening processes

All populations fall on either private land or roadsides within the Benalla Rural City municipality. As such, threatening processes tend to be associated with agricultural activities, roadside maintenance or fragmentation, and population shape and size.

Current threats for private land sites include ring barking of trunks by stock, excessive accumulation of nutrients in the soil and soil compaction resulting in tree decline, and therefore the potential loss of individuals and lack of natural regeneration. Ringbarking by stock is the most serious of these threats.

Threats occurring on both roadside and private land sites include weed invasion, soil degradation, excessive exposure to the elements, and the loss of understorey species. As a result, many trees exhibit dieback and a general lack of recruitment.

Ring-barking of trunks by stock

Ring barking will kill trees if severe. Private land sites are commonly subjected to this threatening process.

Soil degradation

Soil degradation such as compaction and nutrient accumulation is also likely to lead to loss of habitat species (Prober, Thiele *et al.* 2002). These threats may also compromise recruitment (Spooner, Lunt *et al.* 2002). Soil degradation occurs mostly on private land, however it has also been found on public roadside sites.

Weed invasion

Weed invasion will significantly compromise the recruitment of Lima Stringybark and other habitat species. Weed invasion is a threat on both public and private land.

Isolation / fragmentation

Increased isolation and fragmentation is likely to reduce plant health for the taxon and associated species in the long term.

Loss of associated species

Loss of native habitat species is likely to lead to increased competition by weeds. It is also likely to lead to alterations in microclimatic factors as well as soil quality. These changes will impact upon the health of Lima Stringybark. Loss of native associated vegetation occurs on both public and private land.

Slashing and removal of fallen timber

This activity directly prevents seedling establishment. Slashing occurs mostly on roadside sites. Removal of timber occurs at most sites and is a threat to the habitat value in general. Appropriate management needs to be developed to

achieve conservation aims whilst addressing fire risk in the district.

Grazing

Grazing will directly lead to reduced seedling recruitment and is found mostly on roadside sites.

Loss of genetic variability

Loss of genetic variability may lead to greater impacts to the species from stochastic events. Loss of genetic variability is often found to result from reduced population size and / or increased isolation of populations.

Clearing

Loss of populations due to clearing will continue to be a risk as few sites are currently reserved for nature conservation.

Previous management action

The Swanpool and District Land Protection Group has worked to raise the profile of the Lima Stringybark within the local community for a number of years. A change in community values regarding the conservation of the Lima Stringybark will assist in changing existing land use practices. The Swanpool and District Land Protection Group has also been involved in the restoration Lima Stringybark habitat. The group has expressed considerable interest in implementing some aspects of this Action Statement, in particular actions relating to threat mitigation. Given their

Long term objective

To ensure that the Lima Stringybark can survive, flourish and retain its potential for evolutionary development in the wild.

Specific objectives, actions and targets

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.

Objective I To increase knowledge of biology, ecology and management requirements

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
1. Acquire baseline population data by conducting detailed field and desk top surveys including identification of the area and extent of the population; estimates of the number, size and structure of the population; and inference or estimation of population change.	<ul style="list-style-type: none"> ▪ Updated records on all State databases (FIS, VROTPop and Herbarium). ▪ Target populations accurately mapped. 	DSE
2. Assess habitat characteristics and/or condition. Accurately survey known habitat, and collect and analyse floristic and environmental information relevant to community ecology and condition.	<ul style="list-style-type: none"> ▪ Ecological requirements identified for the completion of essential life history stages, recruitment and dispersal. ▪ Pollinator identified, if possible. ▪ Core habitat mapped. 	DSE

long association with the taxon, their involvement would be highly favourable.

The following actions have been carried out by the Swanpool and District Land Protection Group, supported by DSE through expert advice, assistance with Envirofund grants and project planning:

- Surveys of locations.
- Mapping of populations around Lima.
- Fencing to provide protection to some trees.
- Propagation and planting into fenced areas.

Botanic Guardians funding provided to Swanpool and District Land Protection Group by DSE enabled the:

- Preparation of a brochure, and display board in local hall to promote the value and uniqueness of the species and how to identify it.

A Threatened Species Network grant (DSE support in writing funding bid, determining priorities and assistance with monitoring) allowed:

- Monitoring (VROTPop)

DSE and the Shire of Benalla, with assistance of nearby business owner has

- Protected an iconic individual of the species in the road reserve of main Swanpool shopping area.

3. Conduct survey to locate suitable habitat. Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference	<ul style="list-style-type: none"> ▪ Predictive model for potential habitat developed and tested. 	DSE
4. Undertake research to identify key biological functions. Evaluate current reproductive / regenerative status, seed bank status and longevity, fecundity, and recruitment levels. Determine seed germination requirements by conducting laboratory and field trials aimed to identify key stimuli, and determine stimuli for vegetative regeneration	<ul style="list-style-type: none"> ▪ Canopy seed store quantified for target populations. ▪ Stimuli for recruitment/regeneration identified. ▪ Management strategies identified to maintain, enhance or restore regenerative processes fundamental to reproduction and survival. 	DSE
5. Analyse population trends. Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data Collate, analyse and report on census data and compare with management histories	<ul style="list-style-type: none"> ▪ Techniques for monitoring developed and implemented. ▪ Census data for target populations. ▪ Population growth rates determined. ▪ Population Viability Analysis completed for targeted populations. 	DSE

Objective II To secure populations or habitat from potentially incompatible land use or catastrophic loss.

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
6. Develop or amend planning scheme overlays and schedules. Protect populations by amending and applying the local planning scheme to protect important Lima Stringybark populations.	<ul style="list-style-type: none"> ▪ Environmental Significance Overlays for all populations developed and incorporated into local planning provisions, for the Rural City of Benalla. ▪ Local Planning Policy, to protect unknown locations of Lima Stringybark, developed and incorporated into Local Planning provisions for the Rural City of Benalla. ▪ Damage or loss to populations prevented. 	DSE, Rural City of Benalla, Vicroads
7. Liaise with government agencies. Ensure that information and advice about the location and recovery of Lima Stringybark has been provided to all public land managers, local government authorities and Catchment Management Authorities.	<ul style="list-style-type: none"> ▪ All relevant authorities and public land managers are aware of the species and its management needs. 	DSE, Rural City of Benalla, Vicroads
8. Liaise with private landholders. Ensure that information and advice about the location and recovery of Lima Stringybark has been provided to private land managers and landholders. Ensure that private landholders are aware of requirements under the local planning scheme and the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> . Encourage all landholders with Lima Stringybark populations to utilise existing municipal and departmental vegetation protection incentives.	<ul style="list-style-type: none"> ▪ All relevant private land managers are aware of the species and its management needs. ▪ No key private land populations lost. 	DSE, Rural City of Benalla

9. Negotiate cooperative management agreements with private landholders. Negotiate voluntary agreements such as conservation covenants or land management co-operative agreements.	<ul style="list-style-type: none"> All key populations on private land protected under formal voluntary agreements. No key populations lost. 	DSE, Rural City of Benalla
10. Erect/maintain structures to restrict or control access. Control threats from physical damage by preventing access and fencing sites. Preference will be given to providing resources to protect and manage the highest priority populations.	<ul style="list-style-type: none"> Measurable increase in seedling recruitment at private land and roadside populations. A measurable reduction in plant mortality at private land and roadside populations. Key private land sites fenced, or protected and managed to achieve improved health and natural regeneration. 	DSE, Rural City of Benalla, Vicroads
11. Erect/maintain signs to restrict or discourage access.	<ul style="list-style-type: none"> Damage or loss to populations prevented. All roadside populations marked with "Significant Roadside Area" signage. 	Rural City of Benalla, Vicroads

Objective III To improve the condition of habitat

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
12. Manage environmental weeds. Control threats from pest plants by using integrated pest plant and animal control. Preference will be given to providing resources to protect and manage the highest priority populations.	<ul style="list-style-type: none"> Measurable seedling recruitment at 90 percent of private land populations and 60 percent of roadside populations. A measurable reduction in plant mortality at 90 percent of private land populations and 60 percent of roadside populations. 	DSE, Rural City of Benalla

Objective IV To increase the number of populations or individuals

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
13. Store reproductive material. Establish a seed bank.	<ul style="list-style-type: none"> Long-term storage facility identified. Seed from target populations in storage. 	DSE, Royal Botanic Gardens
14. Determine seed viability.	<ul style="list-style-type: none"> Seed viability determined 	Royal Botanic Gardens

Objective V To increase community awareness and support

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
15. Involve community groups and volunteers in recovery activities.	<ul style="list-style-type: none"> Opportunities for involvement identified, promoted and supported. 	DSE

References

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