

Action Statement

Flora and Fauna Guarantee Act 1988

No. 228

Strzelecki Gum *Eucalyptus strzeleckii*

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

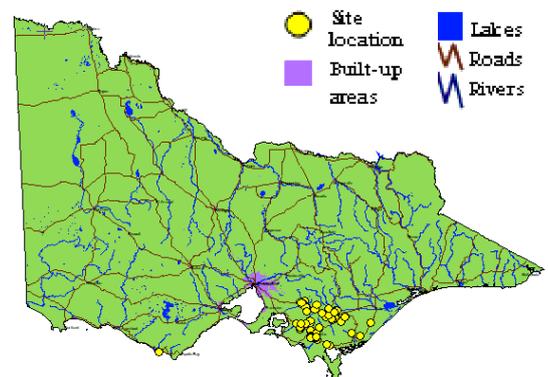
Strzelecki Gum is a forest swamp gum tree to 30 m (exceptionally 40 m). The bark is smooth and white, with red-brown mottling (Rule 1992; DNRE 2001). Rough, fissured bark may persist on the lower trunk, and immature trees have a stocking of grey-brown sub-fibrous bark (Rule 1992). Seedling leaves have short petioles, and are ovate to elliptical, decussate and slightly impressed (Rule 1992). Juvenile leaves are ovate, petiolate, to 14 x 8 cm, glossy green, darker on one side and alternate (Rule 1992; DNRE 2001). Adult leaves are lanceolate to ovate, asymmetric, to 15 cm x 25 mm, alternate and glossy green. The new growth is distinctively blue-green, and lightly or conspicuously waxy (Rule 1992; DNRE 2001). The buds are slightly ovoid, to 8 x 4 mm, on short pedicels, usually in clusters of seven on a broad peduncle. The opercula are domed and taper to a point (Rule 1992; DNRE 2001). The fruit are a short wineglass-shape (broader than long), to 7 x 6mm, on short pedicels, with 3-4 valves at rim level (DNRE 2001).

Distribution

Strzelecki Gum occurs across the western section of the Strzelecki Ranges in Victoria (Rule 1992). Rainfall in the area is often greater than 1000 mm per annum (Rule 1992). Historically, Strzelecki Gum is likely to have occurred across much of the Strzelecki Ranges: population sizes were probably much larger and its distribution more extensive prior to heavy timber harvesting in the late 1800s (Rule 1992). The northern extent of its former range was at least as far north as Neerim South (north of Warragul), and its range ran as far south as Foster and possibly Wilsons Promontory.



Strzelecki Gum (Photo: Carter)



Distribution in Victoria
(Flora Information System DSE 2007)

The species is now mostly restricted to very small stands on farm paddocks and roadside verges, with a few stands on public land. The vegetation community where Strzelecki Gums occur has also been severely depleted: the understorey of most stands now largely containing introduced herbaceous species. Although still relatively common and widespread in the South Gippsland region, recruitment of Strzelecki Gum has rarely been observed in recent years, and no substantial stands remain on either private or public land. A few sites with a floristically intact understorey remain on public land, notably along the Boolarra Rail Trail which runs between Mirboo North and Boolarra.

The most westerly current occurrence is near Westernport (isolated individual stands near the mouth of the Bass River), and the species occurs as

far east as Yarram (where individuals may take on a more stunted habit) (S. Taylor, DPI, pers. comm.).

Abundance

According to DSE's VROTPop database and based on information collected by Simon Cropper in 1998, there are between 3300 and 4500 individuals occurring in approximately 50 populations (although some of these populations may contain one or a few individuals).

It is certain that many other isolated individuals have not been recorded in DSE databases. The species' pre-European distribution is not expected to have extended far beyond the geographic range of extant sites. However, its abundance would have been much greater, and populations would have been continuous over larger areas. The total pre-European population size is estimated to be in excess of one million individuals.

Important populations

Important populations necessary to the long term survival and recovery of Strzelecki Gum occur in the following locations. These sites are considered important populations because they either contain a high number of individuals in a spatial arrangement that is not severely linear, have demonstrated considerable recruitment, or their condition and geographic position provide the best opportunities for restoration and conservation management.

Roadsides (Shire)	<ul style="list-style-type: none"> ▪ Bena North - Bass Valley Road (VROTPop) (1145 individuals). ▪ Hawkey Road (VROTPop) (501-1000 individuals including >100 suckers or immature individuals). ▪ Koonwarra-Tarwin River Crossing (VROTPop) (115 individuals, including 42 suckers or immature individuals).
Private Land	<ul style="list-style-type: none"> ▪ Coal Creek Hillside (200-300 individuals estimated by Obe Carter 2002). This site is adjacent to the more intact Ritchie's Reserve (managed by Parks Victoria), and well-planned fencing and revegetation could provide adequate habitat corridors between the two sites. ▪ Horseshoe Gully (H. Parsons pers. comm) (~50 individuals). Some revegetation with Strzelecki Gum is planned in an area of this gully, to be carried out by Camp Hill Landcare Group.
Rail Reserves	<ul style="list-style-type: none"> ▪ Boolarra Rail Trail (John Davies, DPI, pers. comm) (Population size unknown).

Habitat

Many populations of Strzelecki Gum occur in the stream riparian zone, and its prevalence in that zone may therefore be critical to the species' long term persistence. Existing conservation measures have been undertaken by Greening Australia, such as Willow (*Salix* spp.) removal programs along riparian zones followed by revegetation with Strzelecki Gum. The Strzelecki Gum is by no means restricted to riparian zones, but in drier areas it tends to occur along drainage lines or on river flats where soils are seasonally waterlogged (Rule 1992; John Davies, DPI, pers. comm). This taxon has also been observed in herb-rich foothill

forest and Gippsland Plains Grassy Woodland (John Davies, DPI, pers. comm). It occasionally occurs on flatter terrain close to creeks at the edges of the Strzelecki Ranges (Rule 1992). Recovery actions include surveying for critical, common and potential habitat: this will lead to the identification of habitat critical to the species' survival.

Life history and ecology

Strzelecki Gum may be geographically restricted to moist areas such as riversides and seasonally waterlogged areas. Despite being seasonally 'wet', the soils and vegetation are still often very dry and flammable during summer, and so these areas are

not expected to have incurred less frequent fires than non-riverine areas. The physical effects of fire on Strzelecki Gum survival and recruitment are still undetermined.

Conservation status

National conservation status

Strzelecki Gum is listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Victorian conservation status

Strzelecki Gum has been listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

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

Potentially threatening processes

Deliberate damage

Tree removal during road works or for firewood is an ongoing threat, particularly in relation to roadside populations and isolated paddock trees.

Reservation status

Lack of reserved sites provides inadequate protection for this taxon.

Lack of recruitment

There is no recent recruitment in most populations. Conditions for seed germination may only occur rarely (e.g. > 40 years), such as during large flood events or following (probably infrequent) fires.

Weed invasion

Weeds include: Cleavers (*Galium aparine*), Cat's Ear (*Hypochoeris radicata*), White Clover (*Trifolium repens*), Toowoomba Canary-grass (*Phalaris aquatica*), Brome (*Bromus spp.*), Spear Thistle (*Cirsium vulgare*) and Common Sow-thistle (*Sonchus oleraceus*).

Long term objective

To ensure that the Strzelecki Gum 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

Action	Targets	Responsible
1. Acquire baseline population data. Conduct detailed field and desk top	<ul style="list-style-type: none"> Updated records on all state databases (Flora Information System, VrotPop and 	DSE

Grazing

Recruitment of new individuals in grazed paddocks is unlikely. New recruits are likely to be picked off or to desiccate in exposed sites.

Nutrient runoff / point pollution

Fertiliser addition to pastures and crops, and point pollution from washing of dairy sheds, pose a potential threat to streamside populations.

Inappropriate seed / plant collection for revegetation

Well-intentioned seed collection from only one parent plant and subsequent revegetation efforts may compromise the genetic diversity of this taxon.

Inappropriate fire regimes

It is still unclear how this taxon responds to fire.

Previous management action

- Protection – populations on private land have been fenced by South Gippsland Landcare Network and Greening Australia.
- Revegetation – seed has been collected and replanted on farms by South Gippsland Landcare Network and Greening Australia.
- Habitat improvement – riparian areas supporting *E. strzeleckii* have been fenced and Willows have been removed by the West Gippsland Catchment Management Authority.
- Habitat improvement – weeds have been controlled along Bass River Road and in river reserves at Poowong by the Department of Sustainability and Environment.
- Survey and monitoring – there have been extensive surveys and baseline VROTPop monitoring information has been collected as part of the Comprehensive Regional Assessment for Gippsland Regional Forest Agreement by the Department of Sustainability and Environment and Botanicus Australia Pty. Ltd.

	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.	Herbarium). <ul style="list-style-type: none"> ▪ Distribution, extent and size of targeted populations accurately mapped. 	
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. ▪ Core habitat mapped. 	DSE
3.	Conduct survey to locate suitable habitat. Identify and survey potential / historical habitat using ecological, historical and anecdotal information that may indicate habitat preference.	<ul style="list-style-type: none"> ▪ Sites supporting potential habitat identified and surveyed. 	DSE
4.	Identify disturbance regimes required to maintain habitat or promote regeneration and recruitment.	<ul style="list-style-type: none"> ▪ Management prescriptions using soil disturbance techniques to promote germination prepared for Hawkey Road, Koonwarra-Tarwin River Crossing, Coal Creek Hillside and Bass River. 	DSE
5.	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"> ▪ Seed bank / regenerative potential quantified for three important populations. ▪ Stimuli for recruitment/regeneration identified. ▪ Management strategies identified to maintain, enhance or restore regenerative processes fundamental to reproduction and survival. 	DSE, Royal Botanic Gardens
6.	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 collected. ▪ 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>
7. Establish Management Areas or Special Protection Zones.	<ul style="list-style-type: none"> ▪ A Special Protection Zone established in Wonwron State Forest (if the previously recorded population at this location is rediscovered). 	DSE
8. Develop or amend planning scheme overlays and schedules.	<ul style="list-style-type: none"> ▪ Important populations identified and protected via Environmental Significance Overlays in local planning schemes. 	DSE, Baw Baw Shire, South Gippsland Shire, City of Latrobe
9. Negotiate a cooperative management agreement with a private landholder. Negotiate voluntary agreements, such	<ul style="list-style-type: none"> ▪ Key private land populations identified and all relevant private landholders approached 	DSE

	as conservation covenants or land management co-operative agreements.		
10.	Liaise with private landholders. Ensure that information and advice about the recovery of Strzelecki Gum has been provided to private land managers and landholders.	<ul style="list-style-type: none"> All relevant private land managers are aware of the species and its management needs. 	DSE
11.	Liaise with government agencies. Ensure that information and advice about the recovery of Strzelecki Gum has been provided to 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

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 and animals using targeted application of herbicide and/or hand removal of weeds.	<ul style="list-style-type: none"> Measurable seedling recruitment / vegetative regeneration at ten sites including Bena North - Bass Valley Road, Hawkey Road, Koonwarra-Tarwin River Crossing, and Coal Creek Hillside. A measurable reduction in plant mortality at ten sites including Bena North - Bass Valley Road, Hawkey Rd, Koonwarra-Tarwin River Crossing, and Coal Creek Hillside and six other sites with significant populations (i.e. >50 individuals). 	DSE, Parks Victoria
13. Erect/maintain fence to exclude domestic stock. Control threats from grazing with livestock exclusion fencing.	<ul style="list-style-type: none"> Measurable seedling recruitment / vegetative regeneration at ten sites including Bena North - Bass Valley Road, Hawkey Rd, Koonwarra-Tarwin River Crossing, and Coal Creek Hillside. A measurable reduction in plant mortality at ten sites including Bena North - Bass Valley Road, Hawkey Rd, Koonwarra-Tarwin River Crossing, and Coal Creek Hillside and six other sites with significant populations (i.e. >50 individuals). 	DSE, Parks Victoria

Objective IV To increase the number of populations or individuals

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
14. Store reproductive material. Collect genetically representative seed for long-term storage and plant propagation as required.	<ul style="list-style-type: none"> Seed from important and edge-of-range populations secured in sufficient quantities (minimum 2000 seeds per accession) for seed-banking. 	DSE, 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

- DNRE (2001) DNRE Flora Information System 2001, Department of Natural Resources and Environment.
- DSE (2004) *Advisory List of Rare or Threatened Vascular Plants in Victoria - 2004*. Department of Sustainability and Environment, East Melbourne, Victoria.
- Rule, K. (1992) Two new species of Eucalyptus (Myrtaceae) in south-eastern Australia, *Muelleria* 7(4): 497-505.

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