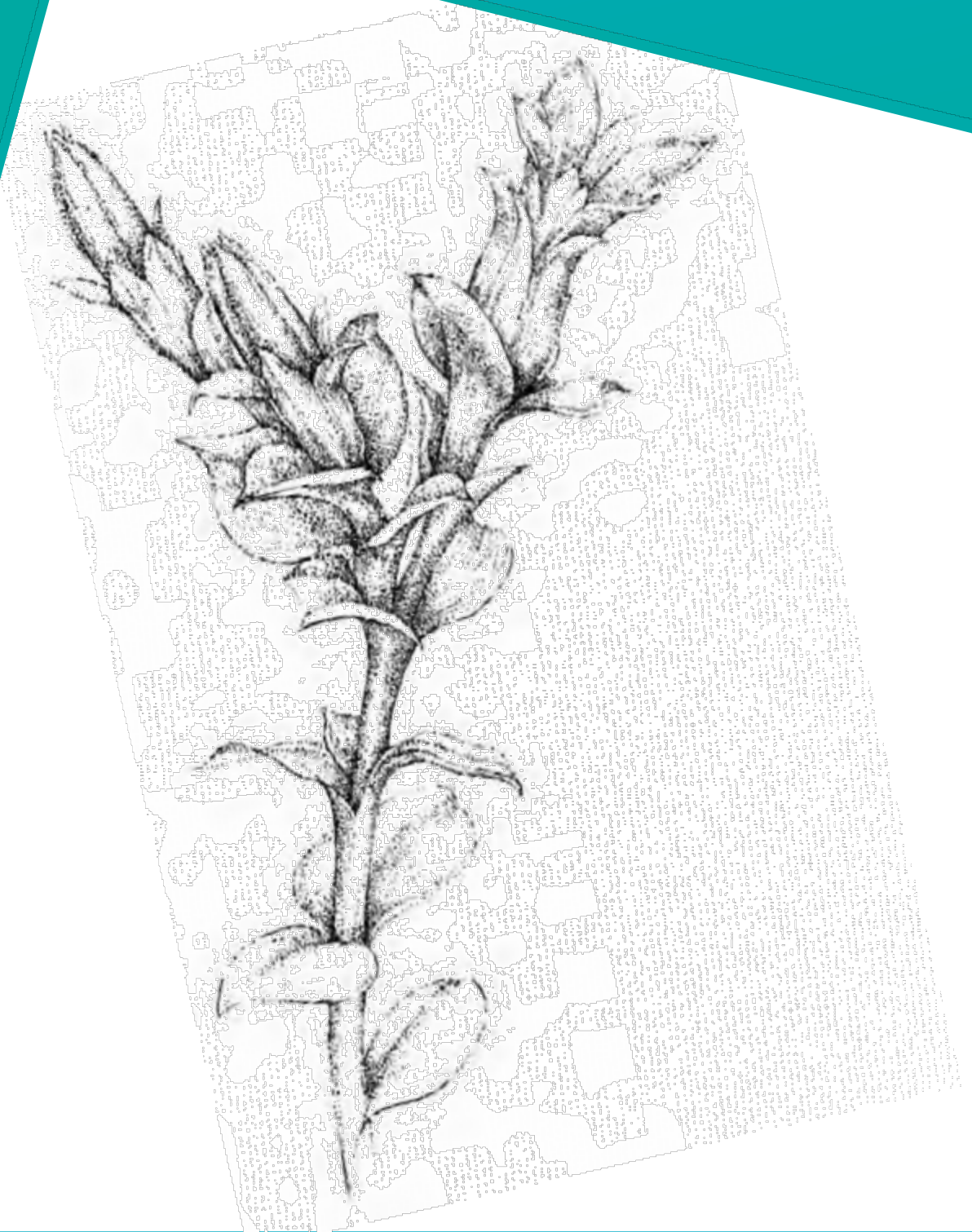


BAEUERLEN'S GENTIAN

GENTIANA BAEUERLENI

ACTION PLAN



PREAMBLE

In accordance with section 21 of the *Nature Conservation Act 1980*, the subalpine herb Baeuerlen's Gentian (*Gentiana baeuerlenii* L.G.Adams) was declared an endangered species on 15 April 1996 (formerly Instrument No. 89 of 1997). Under section 101 of the *Nature Conservation Act 2014*, the Conservator of Flora and Fauna is responsible for preparing a draft action plan for listed species. The first action plan for this species was prepared in 1997 (ACT Government 1997). This revised edition supersedes all earlier editions. This action plan includes the ACT Native Grassland Conservation Strategy set out in schedule 1 to the 'Nature Conservation (Native Grassland) Action Plans 2017', to the extent it is relevant.

Measures proposed in this action plan complement those proposed in the action plans for Natural Temperate Grassland, Yellow Box/Red Gum Grassy Woodland, and component threatened species.

CONSERVATION STATUS

Gentiana baeuerlenii is recognised as a threatened species in the following sources:

National

Endangered – *Environment Protection and Biodiversity Conservation Act 1999*.

Australian Capital Territory

Endangered – *Nature Conservation Act 2014*.

Special Protection Status Species – *Nature Conservation Act 2014*.

New South Wales

Endangered – *Threatened Species Conservation Act 1995*.

- Manage the species and its habitat to maintain the potential for evolutionary development in the wild.
- Enhance the long-term viability of populations through management of adjacent grassland to facilitate expansion of populations into suitable habitat, and by establishing new populations.

CONSERVATION OBJECTIVES

The overall objective of this action plan is to conserve the species in perpetuity in the wild across its natural geographic range in the ACT. This includes the need to maintain natural evolutionary processes.

Specific objectives of the action plan are to:

- Conserve all ACT populations because the species is not known to occur outside the ACT.

SPECIES DESCRIPTION AND ECOLOGY

DESCRIPTION

Gentiana baeuerlenii is a small annual herb, standing 2–4 cm high. The flowers are borne singly at the ends of branching stems. Each is bell shaped, greenish outside and blue-white inside with five petals.

DISTRIBUTION

The species is currently known only from one location, which was identified during a remarkable chance rediscovery in the Orroral Valley, Namadgi National Park by Mr Laurie Adams of the Australian National Herbarium. It was believed to be extinct, having previously been described from the Quidong area near Bombala NSW from specimens found there in 1887. No plants have been observed at the Namadgi site between 1998 and 2014.

The most up to date distribution data for this species is publicly available on the ACT Government's mapping portal ([Visit the ACTmapi website](#)).

HABITAT AND ECOLOGY

The species occurs in the inter-tussock space of moist tussock grassland and sedgeland (*Poa labillardieri* and *Carex gaudichaudii*) associated with ground water, possibly a spring-fed area. The area is probably secondary grassland or a relict grassland opening, once surrounded by open woodland. The site is on the lower slopes of a broad valley, above a river and lower valley floor.

The Flora of NSW (Harden 2000) notes that flowers have been observed in October, however the only collection in New South Wales was made in March.

The Namadgi National Park population has been recorded as flowering between autumn and early winter (March–June).

The orchid *Spiranthes sinensis*, the herb *Ranunculus pimpinellifolius* and the grass *Hemarthria uncinata* were found in association with the herb and this group of more widespread species may be indicators for other potential sites.

PREVIOUS AND CURRENT MANAGEMENT

Due to the nature of this species and the small size of the site, management actions have been directed towards maintaining existing conditions and ensuring activities located nearby do not adversely affect the site.

Since 2002 the site has been assessed for the presence of the species on an annual basis during May or June. In 2002 extensive pig rooting damage was observed surrounding the site. To mitigate future risks from pig activity while still allowing for kangaroo grazing, a stock proof fence was erected around the population that same year. There is also an annual pig control program conducted across Namadgi National Park by Parks and Conservation.

The site was burnt in the 2003 bushfires; this may have resulted in the death of some seed due to the severity of the fires. Despite



kangaroos grazing within the fenced area, the biomass has built up to an extent that could hinder germination. Options such as grass trimming and burning have been investigated. Some physical removal of weeds and grass thatch is carried out during the annual site assessments.

Visitor access is not encouraged, there is no signage to the location and the entry to the area is obscure to access. There has been no walking or vehicle track development near the site.

THREATS

It is very likely the species was once widespread but has become restricted through activities associated with land clearing and grazing, particularly in times of drought, as the wet grassy areas in which it is found would have remained palatable well into the driest seasons.

Although the species is likely to be unpalatable to stock because it contains certain chemicals known to render plants distasteful, it could have been grazed inadvertently, along with other herbage species. Its habitat may have been trampled, especially when adjoining areas dried out.

When the species was last observed in 1998 there were less than ten plants counted at the

site. At the time of discovery in 1991, 20 plants were observed.

The main threat to the survival of this population, and therefore the species, is likely to be deliberate or unintended actions associated with park management activities in the local area. It is not clear whether grazing animals such as kangaroos may also pose a threat to survival of remaining plants, or whether some level of grazing may benefit the species by keeping competing grass tussocks and other plant growth short and open.

CONSERVATION ISSUES AND INTENDED MANAGEMENT ACTIONS

PROTECTION

The small number of plants known to exist would not support adequate seed production. When the number of available plants is greater, propagation must be undertaken. This is the only way to ensure biodiversity conservation as the habitat is fragile, is being grazed by macropods and could accidentally be burnt. Nothing is known of the species' fire ecology, but it appears to be an annual and dependent

on seed regeneration. Further research on this aspect is required.

There will be no track development near the site; thus, visitor access to the area where the species is located is not encouraged.

ENVIRONMENTAL OFFSET REQUIREMENTS

Environmental offset requirements for species and ecological communities in the ACT are outlined in the ACT Environmental Offsets Policy and associated documents such as the ACT Environmental Offsets Assessment Methodology and the Significant Species Database.

In the Assessment Methodology and Database, some of the threatened species have special offset requirements to ensure appropriate protection. *Gentiana baeuerlenii* only occurs in a single site in Namadgi National Park. Given this species' extremely limited distribution, offsets for this species are not appropriate and impacts are to be avoided

SURVEY, MONITORING AND RESEARCH



It is very unlikely the species exists anywhere else in the ACT. Given this degree of rarity, surveys aimed at finding specimens beyond the immediate area are not economically justified. Survey opportunities will be found in other work by making field workers aware of the species and alerting interested naturalists and conservation groups. Contact will be maintained with the NSW National Parks & Wildlife Service on this matter. Research opportunities will be pursued should the population be observed to have germinated in sufficient numbers to allow for such actions to be carried out.

ACT Government (currently through the Conservation Research unit) will monitor the existing population on an annual basis in collaboration with Namadji National Park rangers.

Priority research areas include:

- Improved knowledge of life history and ecology, such as plant longevity, seed longevity, conditions associated with germination and recruitment, and effects of surrounding vegetation biomass.
- Methods for establishing additional populations, such as translocation of plants, in association with the Australian National Botanic Gardens, Greening Australia and other parties.
- Investigations of chemistry, composition and structure of soil at the known sites to assist with identification of similar sites for establishment of other populations.

, similar habitat to where Baeuerlen's Gentian occurs.

MANAGEMENT

Due to the nature and small size of the site containing the species, management actions will be directed towards maintaining existing conditions and ensuring activities located nearby do not adversely affect the site. To aid management and monitoring of the species the site has been unobtrusively marked.

Priority management actions:

- Carry out vegetation biomass management when necessary by artificially trimming the tussock grass during the non-flowering season. This will be done by careful use of a 'whipper-snipper' and removing cut grass by raking to avoid continuous build up of decaying matter which smothers soil and

small plants. Any spread of tea-tree will be monitored and appropriately controlled.

- Carry out physical weed control if weeds pose a threat to the population or the site. Herbicides will not be used anywhere in the vicinity of the site where there is any possibility of it adversely affecting the species.
- Avoid incompatible activities such as development of facilities, recreational use or access tracks in or near the sites, especially where these may alter drainage.
- Introduced weeds will not be allowed near the site.
- Maintain feral pig control in the area.
- Consider burning habitat and adjacent areas of similar habitat, subject to assessment.
- Maintain a low profile for the sites where the species is located.
- Incorporate appropriate statements of management actions in relevant plans and strategies.
- Should germination occur, seek expert advice on the need and potential for ex-situ conservation measures to be taken for this species. Both vegetative and seed collection will be considered; and if the species re-emerges, the recovery actions, outlined by Young (2001), will be evaluated and appropriate actions undertaken.

IMPLEMENTATION

Implementation of this action plan and the ACT Native Grassland Conservation Strategy will require:

- Land planning and land management areas of the ACT Government to take into account the conservation of threatened species.
- Allocation of adequate resources to undertake the actions specified in the strategy and action plans.
- Liaison with other jurisdictions (particularly NSW) and other land holders (Commonwealth Government and Canberra Airport) with responsibility for the conservation of a threatened species or community.

- Collaboration with universities, CSIRO, Australian National Botanic Gardens and other research institutions to facilitate and undertake required research.
- Collaboration with non-government organisations such as Greening Australia to undertake on-ground actions.
- Engagement with the community, where relevant, to assist with monitoring and other on-ground actions, and to help raise community awareness of conservation issues.

OBJECTIVES, ACTIONS AND INDICATORS

Table 1. Key Objectives, Actions and Indicators

Objective	Action	Indicator
1. Conserve all ACT populations because the species is not known to occur outside the ACT.	Maintain formal measures to protect all populations.	All populations protected by appropriate formal measures.
	Ensure protection measures include requirement to conserve the species in the long-term.	Protection measures include requirement for conservation management.
	Maintain alertness to the possible presence of the species while conducting vegetation surveys in suitable habitat.	Vegetation surveys in suitable habitat also aim to detect the species.
	If germination occurs at suitable numbers, develop a seed bank as an insurance against loss of the extant population.	Seed bank in the National Seed Collection is maintained and seed collected at regular intervals (determined by seed longevity).
1. Manage the species and its habitat to maintain the potential for evolutionary development in the wild.	Monitor the population and effects of management actions.	Trends in abundance are known. Management actions are recorded.
	Manage habitat to maintain its suitability for the species.	Suitable habitat conditions are maintained by site management. Potential threats (e.g. weeds) are avoided or managed. Populations are stable or increasing.
2. Enhance the long-term viability of populations through management of adjacent grassland to facilitate expansion of populations into suitable habitat. Establish new populations.	Undertake or facilitate research and trials into increasing the size of populations or establishing new populations.	Research and trials have been undertaken to increase size of populations or establish new populations. Population size increased or new population(s) established.

Objective	Action	Indicator
3. Improved understanding of the species' ecology, habitat and threats (subject to finding plants or new populations).	Undertake or facilitate research on appropriate methods for managing the species and its habitat (slashing/grazing/burning etc.), vegetation biomass, lifecycle, germination, recruitment, and genetics.	Research undertaken and reported and where appropriate applied to the conservation management of the species.
4. Promote a greater awareness of, and strengthen stakeholder and community engagement in the conservation of the species.	Undertake or facilitate stakeholder and community engagement and awareness activities.	Engagement and awareness activities undertaken and reported.

ACKNOWLEDGMENTS

The illustration of the species was prepared for the ACT Government by John Pratt.

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