

ACTION PLAN No. 24

In accordance with section 21 of the *Nature Conservation Act 1980*, the **Tuggeranong Lignum (*Muehlenbeckia tuggeranong*)** was declared an **endangered** species on 7 August 1998 (Instrument No. 192 of 1998). Section 23 of the Act requires the Conservator of Flora and Fauna to prepare an Action Plan in response to each declaration. This is the Action Plan for:

Tuggeranong Lignum *Muehlenbeckia tuggeranong*

Preamble

The *Nature Conservation Act 1980* establishes the ACT Flora and Fauna Committee with responsibilities for assessing the conservation status of the ACT's flora and fauna and the ecological significance of potentially threatening processes. Where the Committee believes that a species or ecological community is threatened with extinction or a process is an ecological threat, it is required to advise the responsible Minister, and recommend that a declaration be made accordingly.

Flora and Fauna Committee assessments are made on nature conservation grounds only and are guided by specified criteria as set out in its publication "*Threatened Species and Communities in the ACT*, July 1995".

In making its assessment of the Tuggeranong Lignum, the Committee concluded that it satisfied the criteria indicated in the adjacent table.

An Action Plan is required in response to each declaration. It must include proposals for the identification, protection and survival of a threatened species or ecological community, or, in the case of a threatening process, proposals to minimise its effect.

This Action Plan was prepared by the Conservator of Flora and Fauna in accordance with the *Nature Conservation Act*, in consultation with the Flora and Fauna Committee and after the statutory period for public comment.

While the legal authority of this Action Plan is confined to the Australian Capital Territory, management considerations are addressed in a regional context.

Criteria Satisfied

- 1.2 The species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the medium-term future, as demonstrated by:
- 1.2.6 Extremely small population.

Species Description and Ecology

DESCRIPTION

The Tuggeranong Lignum *Muehlenbeckia tuggeranong* Mallinson (Figure 1) is a sprawling or procumbent shrub, eventually becoming a mounded loosely tangled mass to approximately 1 m high and 1-2 m across. Stems are wiry, brownish, and weakly and irregularly longitudinally striate. Leaves are alternate, persistent, green, not glaucous, simple, petiolate, solitary and well-spaced along the stems. Petioles are 0.5 to 3 mm long and leaf blades 5-13 mm long by 2-4 mm wide, showing considerable variation in form. Inflorescences are terminal (sometimes on short lateral branches) or very rarely axillary, simple or 2-branched; range from 12-20 mm from the subtending leaf to the apex; and bear 3-9 flowers in a lax spike. Flowers are unisexual or rarely hermaphrodite, and cream-green in colour. Plants are also mostly unisexual.

The species has only recently been formally described (Makinson and Mallinson 1997).

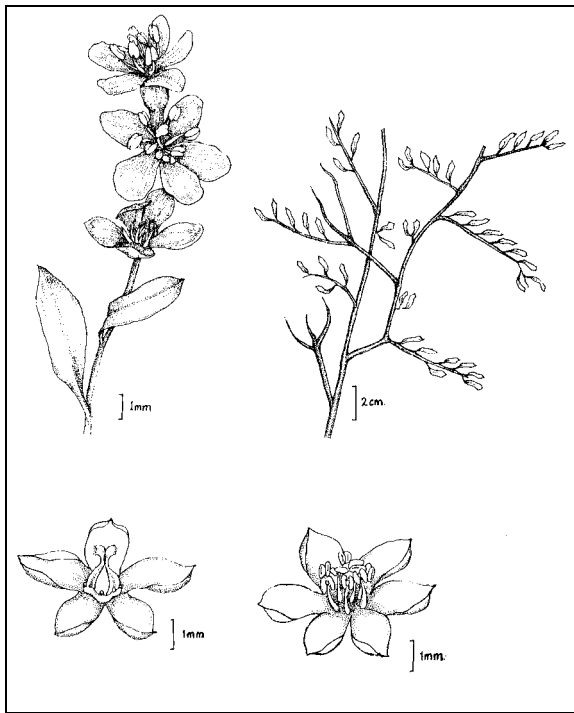


Figure 1: *Muehlenbeckia tuggeranong*. Top left - flowers and leaves; top right - stems and leaves; bottom left - detail of female flower; bottom right - detail of male flower.

DISTRIBUTION

M. tuggeranong was described from a single female plant and six male plants discovered in the Murrumbidgee River Corridor (MRC) near Tuggeranong in 1997. In May 1999, an additional male plant was discovered in the MRC a short distance from the other seven plants. Although extensive searches for other specimens are continuing, (R. Makinson pers. comm.), this population appears to be the only one in existence.

M. tuggeranong is similar in many respects to *M. axillaris* which occurs at higher altitudes (680 - 1200 m a.s.l.) in the ACT, NSW Southern Highlands, Victoria, Tasmania and New Zealand (Makinson and Mallinson 1997). The nearest known occurrences of *M. axillaris* to the *M. tuggeranong* site are about 25 km ESE in the Googong Reservoir area (altitude c. 680 m), and 35 km away on the upper Cotter River system (altitude c. 1010 m) (Makinson and Mallinson 1997).

HABITAT

The species' known habitat is restricted to flood terraces, altitude c. 550 m, on the eastern bank of the Murrumbidgee River near Tuggeranong in the ACT, in areas of rocky outcrops with

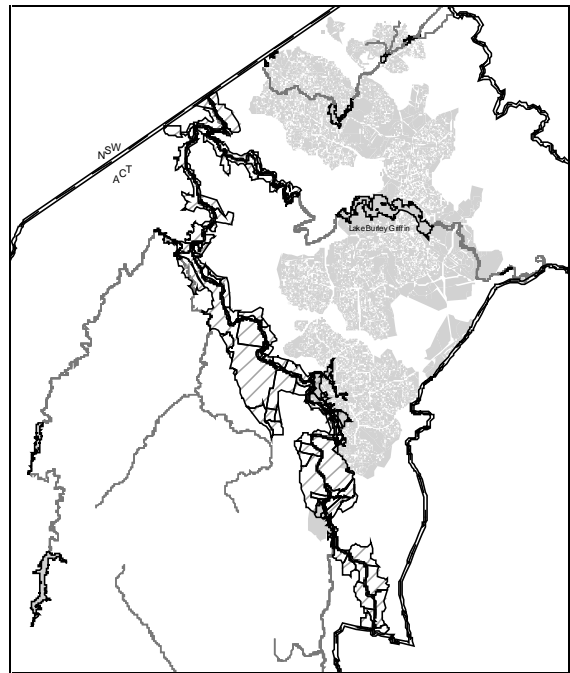


Figure 2: Map showing location (■) of *M. tuggeranong*. Hatched area represents the Murrumbidgee and Molonglo River corridors.

pockets of silty sandy soil (Makinson and Mallinson 1997).

M. tuggeranong is found in a highly disturbed riparian shrubby woodland association, heavily invaded by exotic weeds. The tree layer is largely remnant. The species is found on nearly bare rock, or tangled amongst other vegetation (D. Mallinson pers. comm.).

Associated native species include River Oak *Casuarina cunninghamiana*; Burgan *Kunzea ericoides*; Silver Wattle *Acacia dealbata*; *Grevillea juniperina*; Purple Loosestrife *Lythrum salicaria*; Narrow-leaved Cumbungi *Typha domingensis*; a sedge *Isolepis* sp.; Tussock Grass *Poa labillardieri* and Common Reed *Phragmites australis*. There are also a range of introduced species including White Willow *Salix alba*; Sweetbriar *Rosa rubiginosa*; Great Mullein *Verbascum thapsus*; *Oenothera* sp.; Viper's Bugloss *Echium vulgare*; Fennel *Foeniculum vulgare*; Lamb's Tongue *Plantago lanceolata*; Curled Dock *Rumex crispus*; St John's Wort *Hypericum perforatum*; Umbrella Sedge *Cyperus eragrostis*; Toowoomba Canary Grass *Phalaris aquatica*; African Lovegrass *Eragrostis curvula* and Yorkshire Fog *Holcus lanatus* (D. Mallinson pers. comm.).

Conservation Status

M. tuggeranong is recognised as a threatened species in the following sources:

National

Nominated in September 1998 as an endangered species for inclusion in the ANZECC List for Threatened Flora and eventual inclusion under the *Endangered Species Protection Act 1992*.

Australian Capital Territory

Endangered. - Section 21 of the *Nature Conservation Act 1980*, Determination No. 192 of 1998.

Special Protection Status Species. - Schedule 7 of the *Nature Conservation Act 1980*, Determination No. 197 of 1998.

Threats

The main threat to survival of this population and therefore the species is likely to be deliberate or unintended actions associated with visitor and/or land 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 such grazing may benefit the species by keeping competing grass tussocks and other plant growth short and open.

Major Conservation Objectives

The objectives of the Action Plan are to:

- preserve the existing ACT population as it is the *only known location* where the species survives; and
- manage the habitat so that natural ecological processes continue to operate.

Conservation Issues and Intended Management Actions

SURVEY/MONITORING/RESEARCH

It is unlikely that 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.

⇒ Environment ACT (Wildlife Research and Monitoring - WR&M) will monitor the existing population on an annual basis.

⇒ Environment ACT (WR&M) will liaise with the NSW National Parks and Wildlife Service to encourage surveys of potential habitat outside the ACT.

REQUIRED MANAGEMENT ACTIONS

Due to the nature and small size of the site containing the species, management actions will be directed towards maintaining existing conditions and ensuring that activities located nearby do not adversely affect the site. Management actions are to include the following:

- Ongoing monitoring of plants.
- Encouraging research into the species.
- Avoiding incompatible activities near the sites such as development of facilities and recreational usage.
- Maintaining a low profile for sites where the species is located, with no signs or fencing to be put in place.
- Indicating appropriate statements of intended management actions in relevant plans and strategies.
- Seeking expert advice on best practices with regard to management of the species, including need and potential for *ex situ* conservation measures to be taken.

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

Protection

The area in which the initially discovered seven plants occur lies within the Pine Island Recreation Area of the Murrumbidgee River Corridor, which is classified under the Territory Plan as Public Land - Special Purpose Reserve. The recently discovered eighth plant occurs within the Bullen Range Nature Reserve of the MRC. Management responsibility rests with Environment ACT (ACT Parks and Conservation Service, Murrumbidgee River Corridor District).

Conservation efforts will be focussed on protecting the existing specimens in accordance with the specific management

objective of protecting the habitats of rare, and endangered plant and animal species, as set down in the Murrumbidgee River Corridor Final Draft Management Plan (ACT Government 1998).

The small number of plants known to exist do not support seed production. Only one female plant has been found, and this has not developed mature ovaries (D. Mallinson pers. comm.). Propagation work undertaken at the Australian National Botanic Gardens has shown that the species strikes extremely well from cuttings, with a success rate around 80%. This would form the basis for *ex-situ* conservation of the species.

⇒ Environment ACT will assess with relevant experts the potential role of *ex-situ* measures to contribute to the conservation of the species.

Socio- economic Issues

There are no foreseen activities or land uses which are likely to conflict with achievement of the conservation objective. Visitor access to the location will be discouraged.

The conservation and management of *M. tuggeranong* is the responsibility of Environment ACT.

Legislative Provisions

The following legislation is relevant to conservation of flora and fauna in the ACT:

Nature Conservation Act 1980

The Nature Conservation Act provides a mechanism to encourage the protection of native plants and animals (including fish and invertebrates), the identification of threatened species and communities, and the management of Public Land reserved for nature conservation purposes. Specified activities are managed via a licensing system.

Native plants and animals may be declared in recognition of a particular conservation concern and increased controls and penalties apply. Species declared as endangered must also be declared as having special protection status (SPS), the highest level of statutory protection that can be conferred.

Muehlenbeckia tuggeranong is listed as a SPS species and any activity affecting such a species is subject to special scrutiny. Conservation requirements are a paramount consideration and only activities related to conservation of the species or serving a special purpose are permissible.

The Conservator of Flora and Fauna may only grant a licence for activities affecting a species with SPS where satisfied that the act specified in the licence meets a range of stringent conditions. Further information on licensing can be obtained from the Licensing Officer, Nature Conservation Regulation, Environment ACT, telephone 6207 6376.

Other Relevant Provisions

The Nature Conservation Act provides authority for the Conservator of Flora and Fauna to manage Public Land reserved for conservation of the natural environment. Activities that are inconsistent with management objectives for nature conservation objectives are controlled. Special measures for conservation of a species or community of concern can be introduced in a reserved area, including restriction of access to important habitat.

Land (Planning and Environment) Act 1991

The Land (Planning and Environment) Act is the primary authority for land planning and administration. It establishes the Territory Plan, which identifies nature reserves, national parks and wilderness areas within the Public Land estate.

The Land (Planning and Environment) Act establishes the Heritage Places Register. Places of natural heritage significance may be identified and conservation requirements specified.

Environmental Assessments and Inquiries may be initiated in relation to land use and development proposals.

Consultation and Community Participation

Although the area supporting this species is within a high usage zone of the Murrumbidgee River Corridor, no specific community involvement is planned, apart from advice issued to individuals on a "need to know" basis only.

Implementation, Evaluation and Review

RESPONSIBILITY FOR IMPLEMENTATION

Environment ACT (Wildlife Research and Monitoring) will have responsibility for coordinating implementation of this Action Plan subject to government priorities and resources. In the Murrumbidgee River Corridor the conservation and management of the species is also the responsibility of Environment ACT (ACT Parks and Conservation Service).

EVALUATION

Implementation of this Action Plan will be the responsibility of Environment ACT, through management of the Murrumbidgee River Corridor by the ACT Parks and Conservation Service. The Action Plan will be reviewed after three years. The review will comprise an assessment of progress using the following performance indicators:

- completion of commitments that can reasonably be expected to be finalised within the review timeframe (e.g. introduction of a statutory protection measure for a species; development of a management plan);
- completion of a stage in a process with a time line that exceeds the review period (e.g. design or commencement of a research program);
- commencement of a particular commitment that is of a continuing nature (e.g. design or commencement of a monitoring program for population abundance); and
- expert assessment of achievement of conservation objectives of the Action Plan.

The review will be reported to the ACT Flora and Fauna Committee. This will provide Environment ACT and the Flora and Fauna Committee an opportunity to assess progress, take account of developments in nature conservation knowledge, policy and administration and review directions and priorities for future conservation action.

The following conservation actions will be given priority attention:

- ⇒ assessment of *ex-situ* conservation measures; and
- ⇒ putting protection measures in place.

Acknowledgments

Mr Bob Makinson, Curator of the Australian National Herbarium, who provided advice on the discovery of the eighth plant in the Murrumbidgee River Corridor.

Mr David Mallinson, of the Australian National Botanic Gardens, who provided advice to the Flora and Fauna Committee in assisting its determination of the species' status.

The illustration of the species (Figure 1) was prepared for Environment ACT by John Pratt. A substantial component of this was adapted from the illustration used in Makinson and Mallinson (1997), which was prepared by Mr Frank Stadler, a postgraduate research student at the School of Biology, Macquarie University, Sydney.

References

- ACT Government, 1998. *Murrumbidgee River Corridor*. Management Plan. Department of Urban Services, Canberra.
- Makinson, R.O. & Mallinson, D.J., 1997. *Muehlenbeckia tuggeranong* (Polygonaceae): A new species from the Canberra district. *Telopea* 7(3): 215-219.

List of Action Plans - October 1999

In accordance with Section 23 of the *Nature Conservation Act 1980*, the following Action Plans have been prepared by the Conservator of Flora and Fauna:

- No. 1: Natural Temperate Grassland - an endangered ecological community.
- No. 2: Striped Legless Lizard (*Delma impar*) - a vulnerable species.
- No. 3: Eastern Lined Earless Dragon (*Tympanocryptis lineata pinguicolla*) - an endangered species.
- No. 4: A leek orchid (*Prasophyllum petilum*) - an endangered species.
- No. 5: A subalpine herb (*Gentiana baeuerlenii*) - an endangered species.
- No. 6: Corroboree Frog (*Pseudophryne corroboree*) - a vulnerable species.
- No. 7: Golden Sun Moth (*Synemon plana*) - an endangered species.
- No. 8: Button Wrinklewort (*Rutidosia leptorrhynchoides*) - an endangered species.
- No. 9: Small Purple Pea (*Swainsona recta*) - an endangered species.
- No. 10: Yellow Box - Red Gum Grassy Woodland - an endangered ecological community.
- No. 11: Two-spined Blackfish (*Gadopsis bispinosus*) - a vulnerable species.
- No. 12: Trout Cod (*Maccullochella macquariensis*) - an endangered species.
- No. 13: Macquarie Perch (*Macquaria australasica*) - an endangered species.
- No. 14: Murray River Crayfish (*Euastacus armatus*) - a vulnerable species.
- No. 15: Hooded Robin (*Melanodryas cucullata*) - a vulnerable species.
- No. 16: Swift Parrot (*Lathamus discolor*) - a vulnerable species.
- No. 17: Superb Parrot (*Polytelis swainsonii*) - a vulnerable species.
- No. 18: Brown Treecreeper (*Climacteris picumnus*) - a vulnerable species.
- No. 19: Painted Honeyeater (*Grantiella picta*) - a vulnerable species.
- No. 20: Regent Honeyeater (*Xanthomyza phrygia*) - an endangered species.
- No. 21: Perunga Grasshopper (*Perunga ochracea*) - a vulnerable species.

- No. 22: Brush-tailed Rock-wallaby (*Petrogale penicillata*) - an endangered species.
- No. 23: Smoky Mouse (*Pseudomys fumeus*) - an endangered species.
- No. 24: Tuggeranong Lignum (*Muehlenbeckia tuggeranong*) - an endangered species.

FURTHER INFORMATION

Further information on this Action Plan or other threatened species and ecological communities can be obtained from:

Environment ACT
(Wildlife Research and Monitoring)
Phone: (02) 6207 2126
Fax: (02) 6207 2122

Environment ACT Homepage:
<http://www.act.gov.au/environ>

This document should be cited as:

ACT Government, 1999. *Tuggeranong Lignum* (Muehlenbeckia tuggeranong): *An endangered species*. Action Plan No.24. Environment ACT, Canberra.