

Australian Capital Territory

Nature Conservation (Threatened Ecological Communities and Species) Murrumbidgee Bossiaea Action Plan 2013 (No 1)*

Disallowable instrument DI2013–274

made under the

Nature Conservation Act 1980, s 42 (Preparation of action plan)

1 Name of instrument

This instrument is the *Nature Conservation (Threatened Ecological Communities and Species) Murrumbidgee Bossiaea Action Plan 2013 (No 1)*.

2 Commencement

This instrument commences on the day after notification.

3 Details of Instrument

The following Action Plan, as attached (Attachment A) has been prepared:

- Action Plan No. 34 Murrumbidgee Bossiaea (*Bossiaea grayi*)

Note: Copies of the above Action Plan are available from

http://www.environment.act.gov.au/cpr/conservation_and_ecological_communities/threatened_species_action_plans

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Conservator of Flora and Fauna
07 November 2013

*Name amended under Legislation Act, s 60

ACTION PLAN No. 34 (2013)

First Edition

Bossiaea grayi was declared an endangered species on 30 January 2012 (Determination DI2012-11) in accordance with section 38 of the *Nature Conservation Act 1980*. Section 40 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 the:

Murrumbidgee *Bossiaea* *Bossiaea grayi* K. L. McDougall

Preamble

The *Nature Conservation Act 1980* establishes the ACT Flora and Fauna Committee with responsibilities for assessing the conservation status of ACT 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 in a regional context. They are guided by criteria set out in its publication *Threatened Species and Communities in the ACT: criteria for assessment, July 2008*.

In making its assessment of Murrumbidgee *Bossiaea*, the Committee concluded that it satisfied the criteria indicated in Table 1. Accordingly, in 2012, the Committee recommended the Murrumbidgee *Bossiaea* be declared as Endangered.

The species was first described by McDougall, (2009) following a review of herbarium specimens and new collections in NSW and the ACT of *Bossiaea bracteosa*. Four new species were described during this review including Murrumbidgee *Bossiaea*. As such no previous listings occur for this species.

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

Table 1 Criteria satisfied

- 1.2 Species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the near future, as demonstrated by:
 - 1.2.4 Severely fragmented distribution for a species currently over a small range or having a small area of occupancy within its range

Conservation Status

Bossiaea grayi is recognised as a threatened species in the following sources:

Australian Capital Territory
Endangered. *Nature Conservation Act 1980*.
Special Protection Status Species. *Nature Conservation Act 1980*.

Links with other plans

Measures proposed in this Action Plan compliment those proposed in:

- Action Plan No. 29: Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy. (Note Murrumbidgee Bossiaea is referred to as *Bossiaea bracteosa* within this plan).
- Murrumbidgee River Corridor Management Plan.
- Molonglo River Rescue Action Plan 2010.

As Murrumbidgee Bossiaea occurs in similar environments as Tuggeranong Lignum (*Muehlenbeckia tuggeranong*) links can also be found with the earlier:

- Action Plan No. 24: Tuggeranong Lignum *Muehlenbeckia tuggeranong*. An endangered species

Species Description and Ecology

DESCRIPTION

Following a re-examination of herbarium collections and additional collection of new material of *Bossiaea bracteosa*, McDougall (2009) described four new species of Bossiaea. The originally described *B. bracteosa* is now regarded as a Victorian endemic, with *B. bombayensis*, *B. fragrans* and *B. milesiae* occurring in NSW and Murrumbidgee Bossiaea (*B. grayi*) being endemic to the Australian Capital Territory.

Bossiaea grayi K. L. McDougall (Figure 1) is an upright shrub to 1.5 m high. Its winged and predominantly glabrous stems are flattened into cladodes, with dark brown leaf scales between 1 and 2.2 mm long. Its yellow and red flowers are solitary occurring at the nodes with 1 to 2 mm long glabrous pedicels that are obscured by dark brown imbricate floral bracts. The floral bracts are mostly persistent and glabrous apart from marginal hairs, increasing in size from outer to inner and the largest (c. 2.5 mm) with a broadly acute apex. The calyx is mostly glabrous (5 to 6.5 mm long), green and sometimes tinged with red. The glabrous corolla consists of a standard (9.5 to 11 mm long). It includes a claw 3 to 3.5 mm long, and 11 to 12.5 mm wide, exceeding the other petals, with deep yellow with red markings near the base and faint red longitudinal striations radiating from the base to the edge of the lamina; wings are 9-10 mm long including a claw 3 to 3.5 mm long, yellow with red markings at the base; and dark red keel 9 to 10 mm long, including a 3 to 3.5 mm long claw. *Bossiaea grayi* flowers from September to

October and produces 20 to 29 mm long oblong pods with tan to dark brown seeds (2.8 to 3 mm long) that shed in December (McDougall 2009).



(a)



(b)

Figure 1: *Bossiaea grayi* (Murrumbidgee Bossiaea): a) in flower at Australian National Botanical Gardens; and b) bearing young fruit (Paddys River). (Photographs: Luke Johnston)

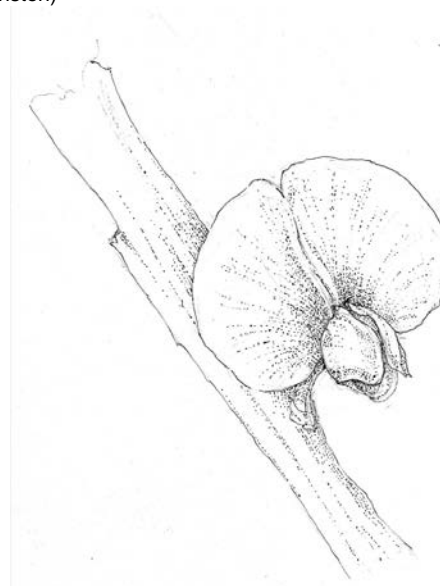


Figure 2: *Bossiaea grayi* (Murrumbidgee Bossiaea) flower.



Figure 3: *Bossiaea grayi* (Murrumbidgee Bossiaea).

DISTRIBUTION AND HABITAT

Bossiaea grayi occurs exclusively in the Australian Capital Territory in shallow sandy substrates amongst rock outcrops near or above the edge of the riparian zone (high flood level) along the Murrumbidgee River valley and its tributaries. Six known populations were verified in 2010 including: 10 plants at Casuarina Sands on the Murrumbidgee River; four locations along the Paddys River (two sites with >200 individuals and two sites represented by single plants); and a single location south of the Lower Molonglo Water Quality Control Centre. The environments it has been recorded are characteristically disturbed, either by natural ecological processes or in some cases forestry practices in the Paddy's River.

Confirmation is required of additional populations within the Murrumbidgee River Corridor at Angle Crossing, Red Rocks Gorge, Pine Island, the Cotter River Confluence, and at Casuarina Sands. Barrer (1992) also documented *B. bracteosa* at an additional four unconfirmed locations in the lower Molonglo valley. Many of these locations were affected

by a large fire in 2003 and the state of recovery of all populations needs to be verified.

Threats

A key threat to *Bossiaea grayi* is competition from weeds. Being typically located within areas subject to natural disturbance in riparian zones and other clearing in the river corridors have provided conditions highly conducive to weed establishment and spread.

Murrumbidgee *Bossiaea* was recorded at several locations following a major fire in 2003, but competition from vigorous weed regrowth could hinder recovery.

Mechanical disturbance associated with forest harvesting and plantation management has been identified as a potential threat along the Paddys River. Three of the known populations in this area occur within land designated as Plantation Forestry under the ACT Territory Plan. While the ACT Code of Forestry Practice has provision for riparian management zones along permanent and semi-permanent waterways greater than 1.5 m width, some individuals have been recorded above the edge of the riparian zone and are therefore potentially vulnerable to future mechanical operations.

Although known to occur within recreation areas this is not thought to pose a significant threat to the long term viability of the population.

Major Conservation Objectives

The objectives of this Action Plan are to:

- maintain viable, wild populations of Murrumbidgee *Bossiaea* in the ACT; and
- manage the habitat so that natural ecological processes continue to operate

These objectives are to be achieved through the following strategies:

Protection

- Ensuring existing populations that occur in protected areas are managed to enhance survival and natural recruitment of the species. Target appropriate weed management within and around known populations in river corridor reserves.

- Managing activities in the vicinity of populations that do not occur in protected areas. This includes ensuring an increased awareness of the presence and location of populations by land managers and field workers undertaking operations in the Paddys River area.
- Supporting appropriate seed banking and establishment of ex-situ reserves of the species.

Survey, Monitoring and Research

- Undertaking surveys to establish population distribution and abundance
- Regular monitoring to assess changes within, and/or threats to, the population
- Supporting collaborative research that aims to better understand the species and mitigate threats to it. Initially focussing on seed production, seed germination and weed management.

Conservation Issues and Intended Management Actions

SURVEY/MONITORING/RESEARCH

Some uncertainty exists as to the presence and abundance of recorded populations of this species. Surveys targeted at confirming the presence and abundance of these populations are required. Surveys in suitable habitat beyond the known locations may be justified, particularly in areas surrounding known populations. Regular monitoring, as well as research into the species biology and ecology will allow for better informed management of the species.

Survey Action 1

Objective

Confirm presence and determine abundance of known discrete populations.

Action

Undertake targeted surveys at all previously documented locations.

Indicator

Targeted survey for *Bossiaea grayi* at all previously documented locations is undertaken. Survey report will include confirmation of specific taxonomic identification and number of individuals and spatial

distribution of each population, as well as a description of habitat condition (including threatening processes).

Survey Action 2

Objective

Determine if the species exists at previously unknown sites in likely habitat locations.

Action

Include survey of likely habitat in close proximity to previously recorded locations.

Indicator

Survey for *Bossiaea grayi* in suitable habitat near previously recorded populations undertaken.

Monitoring Action 1

Objective

Record threatening processes or impacts on known populations.

Action

Undertake initial annual surveys of Murrumbidgee *Bossiaea* to establish baseline population information. Design and undertake subsequent further regular long term monitoring surveys of known populations based on outcomes of initial surveys.

Indicator

Baseline population established. Further monitoring surveys undertaken and reporting of condition and threatening processes presented to ACT Flora and Fauna Committee. Any threatening processes are identified and mitigation measures addressed.

Research Action 1

Objective

Increase knowledge of the biology and ecological requirements of *Bossiaea grayi* to better inform management of the species.

Action

Encourage collaborative research into the species ecology and biology focussing on life history traits.

Indicator

Interest in undertaking research on the species generated and potential projects identified.

PROTECTION: IDENTIFYING AND PROTECTING CRITICAL HABITAT

Protection

Clearly identifying and documenting the distribution and extent of Murrumbidgee Bossiaea will determine which parts of the population are adequately protected from threats, and those which require additional management action to ensure existing or new threats do not cause a decline.

All known population clusters along the Murrumbidgee River occur in land zoned as River Corridor (Nature Reserve and/or Special Purpose Reserve) under the Territory Plan, however these are not free from the threats posed by competition from vigorous weeds and potential for hydraulic disturbance during large flood events.

Along the lower Molonglo River Valley the number of clusters or individuals is unclear but all records occur within River Corridor (Nature Reserve, Clearance Zone and/or the Lower Molonglo Water Quality Control Centre Clearance Zone). Future surveys will provide better records of the extent of the species in this area.

The clusters of the population along the Paddys River are the most at risk from land management practises as they occur within a Plantation Forestry Precinct. It is therefore anticipated that the greatest effort in protecting habitat may be required in this area.

Conservation objectives and actions for the habitat of Murrumbidgee Bossiaea are set out in Action Plan No. 29: Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy. This action plan provides the main vehicle for identification and protection of habitat for the species.

The *Nature Conservation Act 1980* provides for protection of declared plants, and native vegetation and land in reserved areas. The Nature Conservation Strategy 1997 outlines mechanisms to manage the degradation of aquatic ecosystems (including riparian zone vegetation). Other statutory protection mechanisms are outlined below:

1. **Reservation:** The strongest statutory mechanism for protecting sites of conservation significance. The riverine habitats of the Murrumbidgee River Corridor and the Lower Molonglo River Corridor are already protected in this way.
2. **Memorandum of Understanding (MOU):** MOUs between the ACT Government and

landholders, including the Commonwealth Government, provide a means by which sites of conservation significance can be managed to protect their values, while enabling other compatible land uses to occur.

3. **Land Management Agreements (LMA) for leased rural land:** LMAs establish an agreed framework for sustainable management of the land. Management standards may be agreed in recognition of particular conservation issues.
4. **Off-reserve conservation on Public or Unleased Land within the urban area:** Not all public land is reserved for nature conservation, but conservation values may be present notwithstanding. The *Nature Conservation Act 1980* also has provisions for the Conservator to give directions for the protection of native plants and animals. A formal management agreement may also be put in place to control specified activities.

The results of surveys and subsequent monitoring will be used to identify habitat parameters for Murrumbidgee Bossiaea. In turn this will lead to recommendations for best management practice of the habitat to ensure the conservation of the species.

Objective

Adequate protection and management of habitat at sites supporting Murrumbidgee Bossiaea to ensure maintenance and enhancement of a viable population of the species.

Actions

1. Survey and formally document all known locations of Murrumbidgee Bossiaea in the ACT and determine parameters that constitute its critical habitat.
2. Where locations are inadequately reserved, apply formal measures (such as memoranda of understanding or land management agreements) to protect and manage habitat of Murrumbidgee Bossiaea that complement recommendations in Action Plan 29.
3. Provide specific recommendations for management actions for sites where the species occurs and ensure responsible land managers are engaged to undertake and adhere to advice. Increase awareness of the species among field workers and the scientific and field naturalist community and encourage reporting of new locations.

Indicators

1. All known locations of Murrumbidgee Bossiaea and the key aspects that define its critical habitat are formally documented.
2. Sufficient conservation measures are in place where parts of the population are inadequately protected
3. Specifications and advice on conserving Murrumbidgee Bossiaea are provided to land managers responsible for habitat areas.
4. Agreement with relevant land managers to ensure appropriate conservation actions at sites where Murrumbidgee Bossiaea occurs.
5. Awareness among field workers, scientific and field naturalist community increased and any new locations reported.

COMMUNITY ENGAGEMENT

Community engagement can assist the achievement of conservation goals by fostering an appreciation of both the issues involved (particularly the ecological, economic and social effects of land planning and land management) and of the actions required to conserve biodiversity. Community engagement is also important for accessing community knowledge and resources (for example, natural resource expertise or capacity to undertake volunteer activities). With respect to the conservation of Murrumbidgee Bossiaea scope initially exists for conservation based community groups and individuals to assist with surveys and habitat management.

Objectives

1. The community is informed of the conservation issues regarding Murrumbidgee Bossiaea.
2. Community based conservation activities focused on the Murrumbidgee Bossiaea are established.

Actions

1. Provide opportunities for the community to become informed about the conservation requirements of Murrumbidgee Bossiaea.
2. Encourage and support the development of community based conservation activities related to Murrumbidgee Bossiaea, particularly with regard to conservation and management of habitat.

Indicator

There is active, well-informed and ongoing involvement of the community in the conservation of Murrumbidgee Bossiaea.

Socio-economic Issues

Given that the species is thought to mainly occur within nature reserves in the ACT, there are likely to be little foreseeable socio-economic issues associated with the species and its habitat. Where it occurs in designated the Plantation Forestry Precinct it may occur within a riparian buffer area where forestry practices are managed to have reduced impacts. Therefore there should also be little to no socio-economic impact as a result of listing of this species.

Legislative Provisions

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

ACT Legislation

Nature Conservation Act 1980

The *Nature Conservation Act 1980* protects native plants and animals and the nests of native animals. It establishes the Conservator of Flora and Fauna and specified activities are controlled via a licensing system. The Conservator may give the occupier of land directions for the protection or conservation of native plants and animals on the land. The Act also provides authority for the management of public land that is reserved for conservation of the natural environment. Special measures for conservation of a species or community of concern can be introduced.

Planning and Development Act 2007

The object of this Act is to provide a planning and land system that contributes to the orderly and sustainable development of the ACT. The Act establishes the Territory Plan; provides for the identification, reservation and management of Public Land; and outlines requirements for environmental impact assessment.

Heritage Act 2004

This Act establishes a system for the recognition, registration and conservation of natural and cultural heritage places and objects. A list of these places is maintained on the ACT Heritage Register.

Implementation and Review

The ACT Government has responsibility for coordinating implementation of this Action Plan. Some actions will involve collaboration between government agencies, research organisations and the community.

The Flora and Fauna Committee will review implementation of this Action Plan after three years. The review will comprise an assessment of achievement of the objectives of the Action Plan, recognising that the timeframe for achieving some objectives are necessarily longer than the duration of this Action Plan. Assessment of progress will be based on achieving the relevant indicator for each Action.

The review will provide an opportunity for both the Flora and Fauna Committee and relevant section(s) of the ACT Government to assess progress; take account of new knowledge of the species and threats; consider new developments in policy and administration; and review directions and priorities for future conservation actions.

Acknowledgements

This Action Plan was prepared by Luke Johnston and Dr Margaret Kitchin (Conservation Research Unit, ESDD). Significantly input was provided by Keith McDougall and Greg Baines. The illustration of the species (Figure 1) was prepared by John H. Pratt.

References

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

ACT Government 2001. *Lower Molonglo River Corridor management Plan*. (Environment ACT, Canberra).

ACT Government 2007. *Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy*. Action Plan 29 (Department of Territory and Municipal Services, Canberra).

Barrer, PM 1992. *A Study of the Flora and Fauna in the Lower Reaches of the Lower Molonglo River Corridor ACT*. Final report to the ACT Heritage Council (Holt, ACT)

Johnston, L, Skinner, S, Ishiyama, L and Sharp, S 2009. *Survey of Vegetation and Habitat in key riparian zones: Murrumbidgee River, ACT*. Technical Report 22. (Department of Territory and Municipal Services, Canberra).

McDougall, KL 2009. *Four new species related to Bossiaea bracteosa F. Muell. ex Benth. In south-eastern Australia*. *Telopea* 12(3) 347-360. (Royal Botanic Gardens and Domain Trust).

Molonglo Catchment Group 2010. *Molonglo River Rescue Action Plan 2010*. (Molonglo Catchment Group).

List of Action Plans

In accordance with Section 23 of the *Nature Conservation Act 1980*, Action Plans are prepared by the Conservator of Flora and Fauna. The following are current:

- No. 5: A subalpine herb (*Gentiana baeuerlenii*)—an endangered species.
- No. 6: Corroboree Frog (*Pseudophryne corroboree*)—a vulnerable species.
- No. 22: Brush-tailed Rock-wallaby (*Petrogale penicillata*)—an endangered species.
- No. 23: Smoky Mouse (*Pseudomys fumeus*)—an endangered species.
- No. 27: Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy.
Incorporating Action Plans for the following threatened species and communities:
- Yellow Box – Red Gum Grassy Woodland
 - A Leek Orchid (*Prasophyllum petilum*)
 - Small Purple Pea (*Swainsona recta*)
 - Hooded Robin (*Melanodryas cucullata*)
 - Swift Parrot (*Lathamus discolor*)
 - Superb Parrot (*Polytelis swainsonii*)
 - Brown Tree creeper (*Climacteris picumnus*)
 - Painted Honeyeater (*Grantiella picta*)
 - Regent Honeyeater (*Xanthomyza phrygia*)
 - Varied Sitella (*Daphoenositta chrysoptera*)
 - White-winged Triller (*Lalage sueurii*)
- No. 28: A Vision Splendid of the Grassy Plains Extended: ACT Lowland Native Grassland Conservation Strategy.
Incorporating Action Plans for the following threatened species and communities:
- Natural Temperate Grassland
 - Striped Legless Lizard (*Delma impar*)
 - Grassland Earless Dragon (*Tympanocryptis pinguicolla*)
 - Golden Sun Moth (*Synemon plana*)
 - Perunga Grasshopper (*Perunga ochracea*)
 - Button Wrinklewort (*Rutidosia leptorrhynchoides*)
 - Ginninderra Peppergrass (*Lepidium ginninderrense*)
- No. 29: Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy.
Incorporating Action Plans for the following threatened species and communities:

- Two-spined Blackfish (*Gadopsis bispinosus*)
- Trout Cod (*Maccullochella macquariensis*)
- Macquarie Perch (*Macquaria australasica*)
- Murray River Crayfish (*Euastacus armatus*)
- Silver Perch (*Bidyanus bidyanus*)
- Tuggeranong Lignum (*Muehlenbeckia tuggeranong*)
- Pink-tailed Worm Lizard (*Aprasia parapulchella*)

- No. 30: Spotted-tailed Quoll (*Dasyurus maculatus*) - a vulnerable species.
- No. 31: Canberra Spider Orchid (*Caladenia actensis*)
- No. 32: Brindabella Midge Orchid (*Corunastylis ectopa*)
- No. 33: Glossy Black Cockatoo (*Calyptorhynchus lathamii*)
- No. 34: Murrumbidgee Bossiaea (*Bossiaea grayi*) K. L. McDougall

FURTHER INFORMATION

Further information on this Action Plan or other threatened species and ecological communities can be obtained from: Environment and Sustainable Development Directorate (Conservation Planning and Research section)

Phone: (02) 132281
Environment and Sustainable Development Directorate Website:
<http://www.esdd.act.gov.au/>

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