

# THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

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The Minister's delegate approved this Conservation Advice on 16/12/2016.

## Conservation Advice

### *Prostanthera galbraithiae*

Wellington mint-bush

#### Conservation Status

*Prostanthera galbraithiae* (Wellington mint-bush) is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) effective from the 16 July 2000. The species was eligible for listing under the EPBC Act as on 16 July 2000 it was listed as Vulnerable under Schedule 1 of the preceding Act, the *Endangered Species Protection Act 1992* (Cwlth).

Species can also be listed as threatened under state and territory legislation. For information on the current listing status of this species under relevant state or territory legislation, see <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.

The main factors that are the cause of the species being eligible for listing in the Vulnerable category are its limited area of occupancy and extent of occurrence and limited number of locations and habitat that is continuing to decline.

#### Description

The Wellington mint-bush is an erect to spreading small shrub that grows from 0.3 – 2 m high. Some branches have a square-shaped cross-section and are densely hairy between two faint lateral-running ridges and on nodes while the rest of the branch is hairless. Ridges are mainly found on young branchlets. Leaves are mid-green, typically hairless, to 15 mm x 2 mm, grow stalkless from nodes on branches in opposite pairs, and appear linear as the entire margins are strongly folded back but are actually narrowly ovate or oblong. They have a slight aroma when crushed. Eight to 24 deep mauve to purple flowers with darker spots on the petals are arranged in a leafy, branched panicle-like but partly racemose inflorescence. Petals are 7 – 10 mm long, the two upper petals form a hood and the three lower petals are spread fan-shape, the middle petal the broadest and longest. Stamens have anthers that lack a basal appendage. The surrounding calyx is divided into two lips, the upper lip curved backwards and 6 mm in length.

#### Distribution

The species is endemic to the central Gippsland region of Victoria. The known populations occur in Holey Plains state park and an adjacent property 'Dusty Downs' which is managed as a waste disposal and treatment plant (Cater 2006). In 2005 it was estimated that there were 11 populations containing 1000 plants (Cater 2006). Major threats to populations include weed invasion and altered fire regimes. (DSE 2008)

#### Relevant Biology/Ecology

The Wellington mint-bush occurs in open heath forest, heathland and heath woodland, usually on gravelly sand (Walsh & Entwisle 1999 cited in Cater 2006). Commonly associated species include *Acacia oxycedrus* (spike wattle), *Acacia suaveolens* (sweet wattle), *Banksia marginate* (silver banksia), *Boronia anemonifolia* (sticky boronia), *Caustis pentandra* (thick twist rush), *Dillwynia sericea* (showy parrot-pea), *Kunzea ericoides* (Burgan), *Lepidosperma concavum* (sandhill sword-sedge), *Leptospermum continentale* (prickly tea-tree) and *Leptospermum myrsinoides* (Heath tea-tree) (Cater 2006).

The Wellington mint-bush flowers appear in September and October (description from Walsh & Entwisle 1999). The Wellington mint-bush is distinguished from other species of *Prostanthera* in

having stalkless linear leaves and the lower middle petal broader and longer than each of the two upper petals (Conn 1998). The Wellington mint-bush appears to be strongly fire-dependent for germination, with plants appearing to decline in vigour and begin to senesce about 10 years post fire (Cater 2006), however recruitment is possible from stored soil seedbank (Kohout 2011).

## Threats

The Wellington mint-bush is threatened by habitat loss and fragmentation, invasive species and too frequent fire. These threats and their effects on the species are described in the table below. The threats outlined below have corresponding conservation management priorities.

Table 1 – Threats impacting the Wellington mint-bush in approximate order of severity of risk, based on available evidence.

Threat factor	Threat type and status	Evidence base
Fire		
Too frequent burning or too infrequent burning	known current	The Wellington mint-bush is an obligate seeder with a soil seedbank (Cater 2006, Kohout 2011, DSE 2008). Cater (2006) suggest the fire interval for the species to be 15 years with plants begin to senesce at 10 years post fire. Intervals that are less than 10 years kill plants that have not reached maturity (Cater 2006). Fires that occur too frequently that deplete the soil seedbank will have a detrimental effect on the Wellington mint-bush's ability for recruitment to exceed the rate of mortality.
Invasive species		
Invasive weeds	known current	Competitive exclusion by Bracken Fern ( <i>Pteridium esculentum</i> ) is a known threat to the Wellington mint-bush (Cater 2006).
Browsing by invasive and native herbivores	known current	Kohout (2011) found a significant difference in the number of primary stems, mean stem length and mean shoot length between browsed and un-browsed populations. The impact of browsing may threaten the ability of the plant to flower produce fruit that then replenish the soil seedbank. The combination of no new or few seeds entering the soil seedbank through browsing and fire regimes that burn too frequently may further deplete the soil seedbank beyond a point at which the recruitment replaces mortality (Kohout 2011).
Habitat loss and degradation		
Fire break slashing	known current	Slashing for the control of fire breaks causes damage to plants. Slashing does not promote recruitment (Cater 2006) and does not benefit the species. Repeated slashing over time will adversely affect the species.
Herbicide drift	known current	Cater (2006) observed drift from aerial herbicides applied to a pine plantation in close proximity appeared to be damaging plants in some populations.
Fragmentation due to land clearing	known past	The Wellington mint-bush has been fragmented by land clearing for settlement and agriculture (Cater 2006).

## Conservation Actions

### Conservation and Management priorities

#### Fire

- Fires must be managed to ensure that prevailing fire regimes do not disrupt the life cycle of the Wellington mint-bush and that they support rather than degrade the habitat necessary to the Wellington mint-bush, that they do not promote invasion of exotic species, and that they do not increase impacts of grazing/predation.
- Ensure that fires do not occur within populations before an accumulation of a seedbank large enough to replace the number of fire-killed standing plants. Note replacement should incorporate expected post-fire rates of seedling survival.
- Ensure that fires do not occur in winter or spring, avoiding the exposure of sub-mature seedling recruits to desiccating conditions over summer.
- Ensure that intervals between successive fires take into account the longevity of the standing plant population
- Physical damage to the habitat and individuals of the Wellington mint-bush must be avoided during and after fire operations.
- Fire management authorities and land management agencies should use suitable maps and install field markers to avoid damage to the Wellington mint-bush.

#### Invasive species (including threats from grazing, trampling, predation)

- Manage sites by building enclosures to control and reduce the effects of browsing by invasive and native species on the Wellington mint-bush to allow replenishment of the soil seedbank.
- Identify and undertake weed control in the local area that could become a threat to the Wellington mint-bush, using appropriate methods that do not cause damage to the Wellington mint-bush. Consider the possible disturbance/overspray threats associated with the control method.

#### Habitat loss disturbance and modifications

- Ensure land managers are aware of the species' occurrence and provide protection measures against key and potential threats.
- Implement appropriate clearing controls for known populations.
- Liaise with private landholders to emphasise the conservation significance of populations occurring on or adjacent to their properties, and the activities they can undertake or avoid in order to conserve the species.
- Ensure that the species' conservation advice is considered by councils during preparation of environmental planning instruments, as relevant.
- Maintain a permanent record, in an appropriate data retrieval system, of the exact location of populations of the species.
- Negotiate alternative herbicide-spraying practices with plantation managers, to minimise drift to Holey Plains populations (Cater 2006).

## Seed collection, propagation and other ex-situ recovery action

- Establish plants in cultivation in appropriate institutions such as the Royal Botanic Gardens Victoria.
- To manage the risk of losing genetic diversity, undertake appropriate seed and storage in appropriate institutions, such as the Victorian Conservation Seedbank, Royal Botanic Gardens Victoria, and determine viability of stored seed. Best practice seed storage guidelines and procedures should be implemented to maximise seed viability. Seeds from all natural populations to be collected and stored.
- Assess the need for, and feasibility of, implementing an *ex situ* conservation strategy or programme for the species.

## Stakeholder Engagement

- Determine objectives for any public engagement to improve management on private land to ensure recent scientific knowledge is incorporated into public land management. Separate engagement processes will likely be required where there are different objectives.

## Survey and Monitoring priorities

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs to monitor the use of enclosures to limit browsing.
- Undertake survey work in suitable habitat and potential habitat to locate any additional occurrences to more precisely assess population size and distribution.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Monitor the size and structure and reproductive status of populations at different stages in the fire cycle, taking opportunities to monitor after planned and unplanned fires (where they occur) and improve understanding of the fire response of the species.
- Precise fire history records must be kept for the habitat and extant populations (confirmed and suspected) of the Wellington mint-bush.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Implement an annual census to monitor emergence and resprouting success in all populations.

## Information and research priorities

- Investigate options for linking, enhancing or establishing additional populations between reserve and privately owned land.
- Improve understanding of the mechanisms of response to different fire regimes and identify appropriate fire regimes for conservation of the Wellington mint-bush by undertaking appropriately designed experiments in the field and/or laboratory.
- Where appropriate, use understanding and research on fire responses among related (e.g. congeneric) or functionally similar species to develop fire management strategies for conservation.
- Undertake research to determine the longevity of the soil seedbank.

### **References cited in the advice**

Carter, O. 2006. National Recovery Plan for the Wellington mint-bush *Prostanthera galbraithiae*.  
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Kohout, M. (2011). Wellington mint-bush – the Impact of Fire on Population Dynamics at Holey  
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### **Other sources cited in the advice**

DSE (2008) Action statement, Flora and Fauna Guarantee Act 1998, No.231, Wellington mint-  
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Viewed 2 September 2016. Available on the internet

at:[http://www.depi.vic.gov.au/\\_data/assets/pdf\\_file/0007/250549/Wellington\\_mint-bush\\_Prostanthera\\_galbraithiae.pdf](http://www.depi.vic.gov.au/_data/assets/pdf_file/0007/250549/Wellington_mint-bush_Prostanthera_galbraithiae.pdf)