



Consultation Document on Listing Eligibility and Conservation Actions

***Veronica parnkalliana* (Port Lincoln speedwell)**

You are invited to provide your views and supporting reasons related to:

- 1) the eligibility of *Veronica parnkalliana* (Port Lincoln speedwell) for inclusion on the EPBC Act threatened species list in the Critically Endangered category; and
- 2) the necessary conservation actions for the above species.

Evidence provided by experts, stakeholders and the general public are welcome. Responses can be provided by any interested person.

Anyone may nominate a native species, ecological community or threatening process for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or for a transfer of an item already on the list to a new listing category. The Threatened Species Scientific Committee (the Committee) undertakes the assessment of species to determine eligibility for inclusion in the list of threatened species and provides its recommendation to the Australian Government Minister for the Environment.

Draft information for your consideration of the eligibility of this species for listing as Critically Endangered starts at page 3 and information associated with potential conservation actions for this species starts at page 7. To assist with the Committee's assessment, the Committee has identified a series of specific questions on which it seeks your guidance at page 8.

Responses are to be provided in writing either by email to:
species.consultation@environment.gov.au

or by mail to:

The Director
Terrestrial Species Conservation Section
Wildlife, Heritage and Marine Division
Department of the Environment
PO Box 787
Canberra ACT 2601

Responses are required to be submitted by 15 January 2016.

Contents of this information package	Page
General background information about listing threatened species	2
Information about this consultation process	2
Draft information about the Port Lincoln speedwell and its eligibility for listing	3
Conservation actions for the species	7
References cited	11
Collective list of questions – your views	8

General background information about listing threatened species

The Australian Government helps protect species at risk of extinction by listing them as threatened under Part 13 of the EPBC Act. Once listed under the EPBC Act, the species becomes a Matter of National Environmental Significance (MNES) and must be protected from significant impacts through the assessment and approval provisions of the EPBC Act. More information about threatened species is available on the department's website at:

<http://www.environment.gov.au/biodiversity/threatened/index.html>.

Public nominations to list threatened species under the EPBC Act are received annually by the department. In order to determine if a species is eligible for listing as threatened under the EPBC Act, the Threatened Species Scientific Committee (the Committee) undertakes a rigorous scientific assessment of its status to determine if the species is eligible for listing against a set of criteria. These criteria are available on the Department's website at:

<http://www.environment.gov.au/biodiversity/threatened/pubs/guidelines-species.pdf>.

As part of the assessment process, the Committee consults with the public and stakeholders to obtain specific details about the species, as well as advice on what conservation actions might be appropriate. Information provided through the consultation process is considered by the Committee in its assessment. The Committee provides its advice on the assessment (together with comments received) to the Minister regarding the eligibility of the species for listing under a particular category and what conservation actions might be appropriate. The Minister decides to add, or not to add, the species to the list of threatened species under the EPBC Act. More detailed information about the listing process is at:

<http://www.environment.gov.au/biodiversity/threatened/nominations.html>.

To promote the recovery of listed threatened species and ecological communities, conservation advices and where required, recovery plans are made or adopted in accordance with Part 13 of the EPBC Act. Conservation advices provide guidance at the time of listing on known threats and priority recovery actions that can be undertaken at a local and regional level. Recovery plans describe key threats and identify specific recovery actions that can be undertaken to enable recovery activities to occur within a planned and logical national framework. Information about recovery plans is available on the department's website at:

<http://www.environment.gov.au/biodiversity/threatened/recovery.html>.

Information about this consultation process

Responses to this consultation can be provided electronically or in hard copy to the contact addresses provided on Page 1. All responses received will be provided in full to the Committee and then to the Australian Government Minister for the Environment.

In providing comments, please provide references to published data where possible. Should the Committee use the information you provide in formulating its advice, the information will be attributed to you and referenced as a 'personal communication' unless you provide references or otherwise attribute this information (please specify if your organisation requires that this information is attributed to your organisation instead of yourself). The final advice by the Committee will be published on the department's website following the listing decision by the Minister.

Information provided through consultation may be subject to freedom of information legislation and court processes. It is also important to note that under the EPBC Act, the deliberations and recommendations of the Committee are confidential until the Minister has made a final decision on the nomination, unless otherwise determined by the Minister.

Veronica parnkalliana

Port Lincoln speedwell

Taxonomy

Conventionally accepted as *Veronica parnkalliana* (Port Lincoln speedwell) J.M.Black (Scrophulariaceae)

Species/Sub-species Information

Description

The Port Lincoln speedwell is a short live perennial herb with erect to ascending branches to 20cm tall. Leaves are serrated and arranged opposite to each other. The flowers are large and white with purple stripes (Te et al., 2009). The fruit is comprised of flat heart-shaped capsules which turn from green to red and brown when it matures. Each capsule contains several seeds which are dark orange-brown in colour 1.5 mm long by 1 mm wide, with a wrinkled surface (SA Seedbank, 2015).

Distribution

The Port Lincoln speedwell is endemic to South Australia. This species is now regionally extinct on the Eyre Peninsula (the region of its type locality). It was first described from specimens collected in 1909 and 1911 from Warunda approximately 3.5 km north-northwest of Port Lincoln by SA White. It was considered extinct until it was collected by RJ Bates in 1984 and 1985 from Alligator Gorge and Telowie Gorge. In 2008, following a prescribed burn in Mt Remarkable National Park in the southern Flinders Ranges, the species was located in a small part of the burnt area by the Seed Conservation centre. This is the only known current extant of the species (Te et al., 2009). The species' area of occupancy is estimated to be 4 km² (DEWNR, 2015).

Relevant Biology/Ecology

Research by the SA Seed Conservation Centre showed that the plant's seeds germinate following fire events producing a profuse number of seeds that will survive, flower and seed set for three consecutive flowering seasons. Plants declined rapidly after the third flowering period and remain dormant in the soil seed bank until the next fire or disturbance event (SA Seedbank, 2015; Botanical Gardens and State Herbarium, 2011). The species flowers in spring and summer and has a lifespan of around two years (DEH, 2009)

The Mt Remarkable National Park population of the Port Lincoln speedwell is growing in *Eucalyptus goniocalyx* (Long-leaved Box) woodland on sandy loam flats amongst scattered strewn sandstone rocks with *Xanthorrhoea quadrangulata* (a grass tree), *Gonocarpus elatus* (Hill raspwort), *Calytrix tetragonal* (a shrub), *Pomaderris paniculosa* (Mallee Pomaderris) and *Hibbertia* sp (a shrub) (Te et al., 2009).

Threats

Known Threats

- Habitat clearance and disturbance – for example trampling from foot traffic and 4WD/ vehicle use in the park.
- Inappropriate fire regimes – this species is dependent on fire to complete its life cycle. However, not all fires have a beneficial effect: an absence of fire, less frequent and less intense fires, too frequent fires, or fires at inappropriate times of the year could all prevent recruitment of individuals to the population, leading over the longer term to declines and local extinctions.

Potential Threats

- Introduced weeds such as soursob (*Oxalis pes-caprae*), horehound (*Marrubium vulgare*), saffron thistle (*Carthamus lanatus*), capeweed (*Arctotheca calendula*), pimpernel (*Anagallis arvensis*) and salvation Jane (*Echium plantagineum*) occur in the species' habitat.
- illegal collection of specimens or flowers.
- phytophthora (*Phytophthora cinnamomi*) has not been identified within Mount Remarkable National Park, however there is the potential for its establishment within the reserve as environmental conditions including climate, slightly acid and infertile soils, and the presence of susceptible host species are present (DEH, 2006).
- Exploration and mining – there are historical mining leases in the park and on its boundary. Exploration and mining activity is currently prohibited over the areas of the reserve that were constituted by statute in 1972. However, extraction of shale and river stones for road maintenance still occurs in the park with the potential to impact on this species (DEH, 2006).

Assessment of available information in relation to the EPBC Act Criteria and Regulations

Criterion 1. Population size reduction (reduction in total numbers)			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered Very severe reduction	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>			
<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p> <p>based on any of the following</p>			

Evidence:

This species was once known from Warunda north-west of Port Lincoln in 1909 and 1911. It was also known from Alligator Gorge and Telowie Gorge in 1984 and 1985. It is now known to be locally extinct at these locations and is only known to occur at one location in Mt Remarkable National Park in the southern Flinders Ranges of South Australia. The current estimate for population numbers at this site is 300–400 plants (Te et al., 2009). Therefore, as we know that at least three populations have gone extinct in the past 100 years it can be inferred that there has been at least a substantial reduction in population size. However, we are unable to quantify the specific numbers of this decline or the appropriate timeframe in which it has occurred to meet this criterion.

The data presented above appear to be insufficient to demonstrate if the species is eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore

be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions indicating distribution is precarious for survival:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

The species' has a very restricted geographic distribution as the area of occupancy is estimated to be 4 km² (DEWNR, 2015) and occurs at only one location in Mt Remarkable National Park in the southern Flinders Ranges of South Australia. It can be inferred that there will be a continued decline in the area of occupancy; area, extent and/or quality of habitat; and number of mature individuals as a result of the threats acting on the species and the fact that this is the only extant population. For further information on the threats acting on this species refer to the 'threats' section above.

The data presented above appear to demonstrate that the species is **eligible for listing as Critically Endangered** under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 3. Population size and decline			
	Critically Endangered Very low	Endangered Low	Vulnerable Limited
Estimated number of mature individuals	< 250	< 2,500	< 10,000
AND either (C1) or (C2) is true			
C1 An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future)	Very high rate 25% in 3 years or 1 generation (whichever is longer)	High rate 20% in 5 years or 2 generation (whichever is longer)	Substantial rate 10% in 10 years or 3 generations (whichever is longer)
C2 An observed, estimated, projected or inferred continuing decline AND its geographic distribution is precarious for its survival based on at least 1 of the following 3 conditions:			
(a) (i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
(a) (ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

The current estimate of mature individuals for this species is 300–400 plants which is low (Te et al., 2009). This species was once known from Warunda north-west of Port Lincoln in 1909 and 1911. It was also known from Alligator Gorge and Telowie Gorge in 1984 and 1985. It is now known to be locally extinct at these locations and is only known to occur at one location in the Mt Remarkable National Park in the southern Flinders Ranges of South Australia. As we know that at least three populations have gone extinct in the past 100 years it can be inferred that there will be a continued decline in the species' population numbers and the species' geographic distribution is precarious for its survival as the number of mature individuals in the extant population is less than 1000 mature individuals.

The data presented above appear to demonstrate that the species is **eligible for listing as Vulnerable** under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 4. Number of mature individuals			
	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
Number of mature individuals	< 50	< 250	< 1,000

Evidence:

The current estimate of mature individuals for this species is 300–400 plants which is low (Te et al., 2009). The data presented above appear to demonstrate that the species is **eligible for listing as Vulnerable** under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 5. Quantitative Analysis			
	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)	≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)	≥ 10% in 100 years

Evidence:

Population viability analysis appears not to have been undertaken. Therefore there are insufficient data to demonstrate if the species is eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the species' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Conservation Actions

Recovery Plan

A decision about whether there should be a recovery plan for this species has not yet been determined. The purpose of this consultation document is to elicit additional information to help inform this decision.

Conservation and Management Actions

Habitat loss disturbance and modifications

- Protect the species by relocating walking trails or fencing off the species' habitat.
- Ensure land managers are aware of the species' occurrence and provide protection measures against key and potential threats.
- Liaise with operators engaged in mineral exploration or extraction activities in or near the park to prevent undue disturbance and to ensure that this species is not negatively impacted by these activities.
- Ensure the extraction of shale and river stones for road maintenance does not have a detrimental effect on this species.
- Undertake appropriate seed collection and storage with the assistance of the SA Seedbank, to ensure the persistence of the species if there is further habitat loss or disturbance. Use this seed collection to establish new wild populations, where appropriate.

Invasive species

- Using appropriate methods, identify and remove weeds such as soursob, horehound, saffron thistle, capeweed, pimpernel and salvation Jane in the local area that could become a threat to the Port Lincoln speedwell.
- Restore degraded habitat using bush regeneration techniques.

Disease

- implement suitable hygiene protocols to protect known populations from outbreaks of *Phytophthora cinnamomi* to control the spread of pathogens, especially *Phytophthora cinnamomi* by controlling the movement of vehicles, horses/ camels and human traffic into the species' habitat,

Fire

- Implement an appropriate fire management regime including prescribed burns if appropriate, based on sound scientific evidence for protecting the species' habitat in Mount Remarkable National Park.
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps.
- Critically, any use of prescribed or experimental fires must have a carefully planned weed management strategy and demonstrated funding to ensure post-fire monitoring and control actions occur (e.g. weed control based on sound scientific evidence).

Stakeholder Management

- provide signage in national parks to encourage the public to keep to established paths and to avoid collecting wildflowers or damaging plants in any way;
- prepare and display leaflets for the Parks SA, Councils, landholders and the community to raise awareness of the need to conserve this threatened species.
- Consult with local Indigenous groups regarding their knowledge of this species.

Survey and Monitoring priorities

Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary:

- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes by conducting annual surveys for the species preferably during the peak flowering period in September and October.
- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.

Information and research priorities

- Investigate options for establishing additional populations.
- Fire trials should only be undertaken as a last resort when all other means of regeneration of the species has been investigated and, in addition, all weed management and fire impacts including the timing of fire impacts are fully understood. If fire trials are conducted include sites where the species is now extinct to better understand the causes of the extinction at these sites and to ascertain an optimal fire regime for the species' regeneration.
- Identify optimal fire regimes for regeneration (vegetative regrowth and/or seed germination), and response to other prevailing fire regimes. This could include investigating how the seed bank responds to fire events.
- Undertake survey work in suitable habitat and potential habitat to locate any additional occurrences to more precisely assess population size and distribution.
- Assess the species' ecological requirements relevant to the persistence of the species?
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment. This could include investigating seed fertility and longevity.
- Use glasshouse trials to investigate whether the species is susceptible to *Phytophthora cinnamomi*.

Collective list of questions – your views

Biological information

1. Can you provide any additional or alternative references, information or estimates on longevity, average life span and generation length?

Population size

2. Do you accept the estimate provided for the total population size of mature individuals of the species? If not, please provide justification for your response. If you disagree with the estimate provided please provide an alternative estimate for the species (national extent)? Please provide supporting justification or other information.

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of possible species numbers, and also choose the level of confidence you have in this estimate:

Number of mature individuals is estimated to be in the range of:				
<input type="checkbox"/> 1–50	<input type="checkbox"/> 51–250	<input type="checkbox"/> 251–1000	<input type="checkbox"/> >1000	<input type="checkbox"/> >10 000
Level of your confidence in this estimate:				
<input type="checkbox"/> 0–30% - low level of certainty/ a bit of a guess/ not much information to go on				
<input type="checkbox"/> 31–50% - more than a guess, some level of supporting evidence				

- ☐ 51–95% - reasonably certain, information suggests this range
- ☐ 95–100% -high level of certainty, information indicates quantity within this range
- ☐ 99–100% - very high level of certainty, data are accurate within this range

Evidence of total population size change

3. Are you able to provide an estimate of the total population size of the species approximately 10 years or three generations ago, whichever is the longer? Please provide justification for your response.

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of possible species numbers, and also choose the level of confidence you have in this estimate.

Number of mature individuals is estimated to be in the range of:

- ☐ 1–50 ☐ 51–250 ☐ 251–1000 ☐ >1000 ☐ >10 000

Level of your confidence in this estimate:

- ☐ 0–30% - low level of certainty/ a bit of a guess/ not much information to go on
- ☐ 31–50% - more than a guess, some level of supporting evidence
- ☐ 51–95% - reasonably certain, information suggests this range
- ☐ 95–100% -high level of certainty, information indicates quantity within this range
- ☐ 99–100% - very high level of certainty, data are accurate within this range

Current Distribution/range/extent of occurrence, area of occupancy

4. Do you accept the information provided for the current area of occupancy? Please provide justification for your response.

Can you provide estimates (or if you disagree with the estimates provided, alternative estimates) of the extent of occurrence and/or area of occupancy.

If, because of uncertainty, you are unable to provide an estimate of extent of occurrence, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of extent of occurrence, and also choose the level of confidence you have in this estimated range.

Extent of occurrence is estimated to be in the range of:

- ☐ <100 km² ☐ 100 – 5 000 km² ☐ 5 001 – 20 000 km² ☐ >20 000 km²

Level of your confidence in this estimated extent of occurrence

- ☐ 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- ☐ 31–50% - more than a guess, some level of supporting evidence

- ☐ 51–95% - reasonably certain, data suggests this range of decline
- ☐ 95–100% -high level of certainty, data indicates a decline within this range
- ☐ 99–100% - very high level of certainty, data is accurate within this range

If, because of uncertainty, you are unable to provide an estimate of area of occupancy, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of area of occupancy, and also choose the level of confidence you have in this estimated range.

Area of occupancy is estimated to be in the range of:

- ☐ <10 km² ☐ 11 – 500 km² ☐ 501 – 2000 km² ☐ >2000 km²

Level of your confidence in this estimated extent of occurrence:

- ☐ 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- ☐ 31–50% - more than a guess, some level of supporting evidence
- ☐ 51–95% - reasonably certain, data suggests this range of decline
- ☐ 95–100% -high level of certainty, data indicates a decline within this range
- ☐ 99–100% - very high level of certainty, data is accurate within this range

General

5. Can you provide additional data or information relevant to this assessment?

Threats

6. Do you agree that the threats listed are correct and that their effect on the species is significant?
7. To what degree are the identified threats likely to impact on the species in the future?

Management

8. What planning, management and recovery actions are currently in place supporting protection and recovery of the species? To what extent have they been effective?
9. Can you recommend any additional or alternative specific threat abatement or conservation actions that would aid the protection and recovery of the species?
10. What individuals or organisations are currently, or potentially could be, involved in the management and recovery of the species?

References cited in the advice

Botanical Gardens and State Herbarium (2011). Annual Report 2010-2011. Board of the Botanical Gardens and State Herbarium. Adelaide.

DEH Department of Environment and Heritage (2006). Mount Remarkable National Park Management Plan. DEH. Adelaide.

DEH Department of Environment and Heritage (2009). Fire Management Plan Reserves of the Southern Flinders Ranges 2009–2019. DEH. Adelaide.

Te T, Duval D, Thorpe M and Ainsley P (2009). Ex Situ Conservation of Threatened South Australian Plants. Botanic Gardens of Adelaide.

Other sources cited in the advice

DEWNR Department of Environment, Water and Natural Resources (2015). Regional Species Conservation Assessment Project, Northern and Yorke Region. Available on the Internet at:

http://www.environment.sa.gov.au/managing-natural-resources/plants-and-animals/Threatened_species_ecological_communities/Regional_significant_projects/Regional_Species_Conservation_Assessment_Project

SA Seedbank (2015). Seeds of South Australia - *Veronica parnkalliana* (Scrophulariaceae) Port Lincoln speedwell. Available on the Internet at:

http://saseedbank.com.au/species_information.php?rid=66