



SAVING OUR SPECIES

Jervis Bay Leek Orchid

2020-2021 annual report card

Overall status*

- Populations at all sites are known to be on track.
- Threat management is known to be on track at all sites, and population status is unknown at one or more sites.
- Threat management is known to be off track at one or more sites, and population status is unknown at one or more sites.
- **Populations at one or more sites are known to be off track.**

* For SoS priority management sites (may not include all locations where the species occurs in NSW)

Summary

Management sites	Kinghorne Point; Vincentia
Action implementation	11 (of 11) management actions were fully or partially implemented as planned for the financial year.
Total expenditure	\$30,377 (\$13,706 cash; \$16,671 in-kind)
Partners	Environment, Energy and Science; NSW Environmental Trust; Shoalhaven City Council; The Australian Botanic Garden Mount Annan; Woolworths Ltd.



Scientific name:
Prasophyllum affine

NSW status:
Endangered

Commonwealth status:
Endangered

Management stream:
Site-managed species

Photo: Alan Stephenson





Priority management site: Kinghorne Point

Local government area:
Shoalhaven

Partners:

Environment, Energy and Science; NSW Environmental Trust; Shoalhaven City Council; The Australian Botanic Garden Mount Annan

Population outcome

-  **On track**
-  **On track (inferred)**
-  **Not on track (inferred)**
-  **Not on track**

Monitoring

Species population monitoring by one or more methods indicates response to management over time and provides an outcome measure.

Monitoring metric	Species abundance
Annual target	At least 24 leaves (during leaf survey) and at least 1 flowering plant located in the monitoring plots (target for both flowers and leaves is no less than 1 standard deviation below the average for the previous 5 monitoring seasons).
Long term target	In at least 1 flowering season within any 20 year interval there is a minimum of 75 flowering plants in total across all 4 permanent monitoring plots.
Monitoring result	Four flowering plants (including 1 new plant) were observed across the 4 monitored plots during the annual monitoring survey (6 November 2020). Thirty-five leaves were observed (25 across the two burnt plots, 10 across the two unburnt plots) during the leaf survey (11 September 2020), with 31% being browsed (likely from invertebrates).
Scientific rigour of monitoring method	High
Conducted by	Environment, Energy and Science

Investment

Participant	Cash	In-kind
Environment, Energy and Science	\$0	\$6,011
NSW Environmental Trust	\$9,100	\$0
Shoalhaven City Council	\$0	\$5,000

Management actions

The following actions are those identified as being required in financial year 2020-2021 to secure the species in the wild.

Threat	Management action	Implemented as planned?
Detailed monitoring by Department of Planning, Industry and Environment has shown that a significant proportion of flowering and fruiting plants are browsed by native herbivores (probably wallabies) and this is likely to adversely impact on future recruitment potential.	Replace the wallaby-proof fence that encloses 2 of the permanent monitoring plots.	Yes
Loss and degradation of habitat and/or populations due to increased public use of the areas where the species occurs.	Follow-up weeding works to be undertaken as needed. Shoalhaven City Council to maintain access road to Kinghorne Point to ensure vehicles have no reason to deviate onto adjoining verges that support Jervis Bay leek orchid.	Yes
Some sites are on private land. Although the current owners are supportive of protecting this species, future owners of the properties may not be as sympathetic to the protection of the species.	Department of Planning, Industry and Environment (DPIE) to continue to work with landowner, seeking formal agreement to protect the site into the future.	Yes
The restricted distribution and small population sizes of this species make it inherently vulnerable to localised stochastic events such as drought, disease and heavy browsing.	Collect at least 1 seed capsule as per the Australian Botanic Garden Mount Annan's collection protocols, for storage and for use in the germination/propagation trials at the Australian Botanic Garden Mount Annan.	Yes
The restricted distribution and small population sizes of this species make it inherently vulnerable to localised stochastic events such as drought, disease and heavy browsing.	Australian Botanic Garden Mount Annan to collect seed (and potentially plant tissue and soil samples) for use in their germination/propagation trials.	Yes
Annual monitoring since 2001 has shown a significant decline in the number of flowering plants at both Vincentia and Kinghorne Point. The reasons for this are not clear but may be due, at least in part, to increasing competition from associated native vegetation in the absence of fire. A trial ecological burn is desirable to determine whether occasional burning may be beneficial to the survival of this species.	Investigate the impact of fire by surveying for orchids (as per the species monitoring action), and survey the vegetation. This is the fifth vegetation survey post-ecological burn.	Yes

Threat outcome

Assessment on the status of critical threats at this site.

Threat	Annual target	Threat status
Loss and degradation of habitat and/or populations due to increased public use of the areas where the species occurs.	No evidence of direct disturbance to the species.	On track
Some sites are on private land. Although the current owners are supportive of protecting this species, future owners of the properties may not be as sympathetic to the protection of the species.	No unsympathetic land use practices adversely impacting the species.	On track
Loss and degradation of habitat and/or populations by clearing of habitat for residential and commercial developments.	No clearing of habitat or other adverse impacts associated with residential or commercial development.	On track
Detailed monitoring by Department of Planning, Industry and Environment has shown that a significant proportion of flowering and fruiting plants are browsed by native herbivores (probably wallabies) and this is likely to adversely impact on future recruitment potential.	Less than 20% of flowering plants have been browsed.	On track
The restricted distribution and small population sizes of this species make it inherently vulnerable to localised stochastic events such as drought, disease and heavy browsing.	Collect/maintain sufficient seed numbers at The Australian Botanic Garden Mount Annan seed bank for storage and inclusion in the germination/propagation trial.	On track
Annual monitoring since 2001 has shown a significant decline in the number of flowering plants at both Vincentia and Kinghorne Point. The reasons for this are not clear but may be due, at least in part, to increasing competition from associated native vegetation in the absence of fire. A trial ecological burn is desirable to determine whether occasional burning may be beneficial to the survival of this species.	Flowering plant levels similar to or higher than those in unburnt plots.	On track

Site summary

Four flowering plants were recorded across the 4 permanent plots during annual monitoring (6 November 2020). This number is the minimum set as this year's annual target and the population target has thus been assessed as on track. However, considering seasonal conditions during 2020–21 appeared favourable for the species, it is extremely concerning that the number of flowering plants has not increased more with the improved climatic conditions. Thirty-five leaves were observed (25 across the two burnt plots, 10 across the 2 unburnt plots) in mid-September 2020, but only 4 grew on to produce flowering stems. In 2001, 71 flowering plants had been recorded across the 4 permanent monitoring plots and the reasons for the species' steady decline over the past 20 years are not readily apparent, but appear to be related to a long-term reduction and change in rainfall patterns.

A survey for another threatened orchid, *Calochilus pulchellus*, in an area near Callala provided an opportunity to re-survey for the Jervis Bay leek orchid where 69 flowering had been found in 2001. Only 2 flowering Jervis Bay leek orchid plants were found, further reflecting the decline of this species across its range.

Seed was successfully collected from Kinghorn Point plants (4,050 seeds). Seed was also collected from 1 individual in Jervis Bay National Park (on the southern side of Currarong Road opposite Kinghorn Point) for storage in the Mount Annan Botanic Gardens seedbank facility (2,000 seeds). An associated soil sample was also collected for use in the soil bait germination trials. In regard to the Mount Annan Botanic Gardens symbiotic germination trials using fungi isolated from *in situ* seed burial, there's been no development beyond trichomes at this stage. In another symbiotic germination trial using *Prasophyllum petilum* cultures, the seeds have enlarged for 1 of the tested cultures. Providing there is ongoing funding, this trial will continue and more soil seed bait trials are also planned.

The exclusion fence (excluding wallabies from 2 of the monitored plots) was replaced in early February 2021 and the fence has remained effective in preventing herbivore browsing of the orchids on those 2 plots.

A fifth annual vegetation survey was undertaken to compare species and cover abundance between burnt and unburnt Jervis Bay leek orchid habitat. The data show there was an increase in mid-story cover, particularly of *Acacia longifolia* subsp. *sophorae*, *Hakea teretifolia* and *Allocasuarina paludosa*. An increase in groundcover was recorded for the burnt area, but the groundcover has stabilised in unburnt areas. Minor changes and fluctuations are expected to continue in response to weather and seasons. The ecological burn has had no obvious impact (positive or negative) on the number of flowering orchids or leaves observed within burnt or unburnt plots.

Follow-up weeding works were undertaken in mid-October 2020 (manual weeding), early February and early June 2021 (manual weeding and spraying) along the verge of the Kinghorn Point road that runs through a major part of this *Saving our Species* site. Shoalhaven City Council maintained this dirt road and the fence has remained intact.

The Kinghorn Point area is within the broader Lake Wollumboola Biobanking Agreement, which was finalised in 2019-20. This Kinghorn Point portion of the broader Agreement area is proposed for future transfer to National Parks and Wildlife Service estate and the timeframe for transfer remains linked to development offsetting requirements.

Priority management site: Vincentia

Local government area:
Shoalhaven

Partners:

Environment, Energy and Science; NSW Environmental Trust; The Australian Botanic Garden Mount Annan; Woolworths Ltd.

Population outcome

-  On track
-  On track (inferred)
-  Not on track (inferred)
-  **Not on track**

Monitoring

Species population monitoring by one or more methods indicates response to management over time and provides an outcome measure.

Monitoring metric	Species abundance
Annual target	Locate at least 9 leaves (during leaf survey) and at least 4 flowering plants in the monitoring plots (target for both leaves and flowering plants is no less than 1 standard deviation below the average for the previous five monitoring seasons).
Long term target	In at least 1 flowering season within any 20 year interval there is a minimum of 90 flowering plants in total across all three permanent 20 x 20 m monitoring plots.
Monitoring result	One flowering plant (new individual) was observed across the 3 monitored plots during the annual monitoring survey (4 November 2020). Fifty-nine leaves were observed (across the 3 monitored plots) during the leaf survey (10 September 2020), with 24% being browsed (likely from invertebrates). The flowering plant was caged to prevent browsing and maximise the opportunity for seed production and collection.
Scientific rigour of monitoring method	High
Conducted by	Environment, Energy and Science

Investment

Participant	Cash	In-kind
Environment, Energy and Science	\$0	\$4,860
NSW Environmental Trust	\$4,607	\$0
Woolworths Ltd.	\$0	\$800

Management actions

The following actions are those identified as being required in financial year 2020-2021 to secure the species in the wild.

Threat	Management action	Implemented as planned?
Loss and degradation of habitat and/or populations by clearing of habitat for residential and commercial developments.	DPIE (primarily the South East Conservation Planning team) continues to liaise with the developer to ensure species requirements have been incorporated into their management plans.	Yes
Loss and degradation of habitat and/or populations due to increased public use of the areas where the species occurs.	Maintain the fence (installed four years ago) to protect the environmental protection zone from human disturbance (i.e. trampling effects).	Yes
One of the sites near Vincentia is threatened due to potential infestation of the habitat from nearby occurrences of the invasive weeds, African Love Grass and Buffalo Grass.	DPIE (primarily the South East Conservation Planning team) continues to liaise with the developer to monitor that the required ongoing weed control, including the rehabilitation of the former road site, is being implemented, as per the development consent conditions.	Yes
Some sites are on private land. Although the current owners are supportive of protecting this species, future owners of the properties may not be as sympathetic to the protection of the species.	DPIE to continue its liaisons/negotiations relating to the long-term protection of the Vincentia site.	Yes
The restricted distribution and small population sizes of this species make it inherently vulnerable to localised stochastic events such as drought, disease and heavy browsing.	Collect at least one seed capsule as per The Australian Botanic Garden Mount Annan's collection protocols, for storage and for use in the germination/propagation trials at The Australian Botanic Garden Mount Annan.	Yes

Threat outcome

Assessment on the status of critical threats at this site.

Threat	Annual target	Threat status
Loss and degradation of habitat and/or populations by clearing of habitat for residential and commercial developments.	No evidence of direct disturbance to the species due to residential or commercial development.	On track
One of the sites near Vincentia is threatened due to potential infestation of the habitat from nearby occurrences of the invasive weeds, African Love Grass and Buffalo Grass.	Weed cover within Jervis Bay leek orchid habitat remains at less than 1 percent.	On track
The restricted distribution and small population sizes of this species make it inherently vulnerable to localised stochastic events such as drought, disease and heavy browsing.	Collect sufficient seed for storage at The Australian Botanic Garden Mount Annan seed bank and for inclusion in their germination/propagation trial.	On track
Some sites are on private land. Although the current owners are supportive of protecting this species, future owners of the properties may not be as sympathetic to the protection of the species.	Woolworths remains committed to the formal transfer of the site to National Parks estate.	On track
Loss and degradation of habitat and/or populations due to increased public use of the areas where the species occurs.	No damage to the Jervis Bay leek orchid habitat due to recreational activities such as trail bike riding or trampling.	On track

Site summary

Only 1 flowering plant (a new individual) was recorded across the 3 monitored plots during the annual monitoring survey (4 November 2020). Thus, the decline in numbers of flowering plants recorded over the past 20 years has continued. Seasonal conditions during 2020–21 appeared favourable and it is extremely concerning that the number of flowering plants has not increased despite improved climatic conditions. The population trend for this *Saving our Species* site has thus been assessed as being not on track. The reasons for the species decline are not readily apparent, but appear to be related to a long-term reduction and change in rainfall patterns. Although 59 leaves were recorded in mid-September 2020 none of these progressed to producing a flowering stem. Twenty-four percent of the leaves were browsed, almost certainly by invertebrates. The 1 flowering plant was caged to prevent browsing by wallabies and to maximise the opportunity for seed production. Four thousand seeds were collected in early December 2020 from this plant for use in propagation trials by Mount Annan Botanic Gardens. In regard to the Mount Annan Botanic Gardens symbiotic germination trials using fungi isolated from *in situ* seed burial, there's been no development beyond trichomes at this stage. In another symbiotic germination trial using *Prasophyllum petilum* cultures, the seeds have enlarged for 1 of the tested cultures. Providing there is ongoing funding, this trial will continue and more soil seed bait trials are also planned.

There was no evidence of direct disturbance to the site. Low levels of weeds were observed during site visits. Department of Planning, Industry and Environment South East Branch has continued to liaise with Woolworths (developer) regarding weed control and other species requirements/consent conditions. Once all development consent conditions have been fulfilled, the area can be offered for formal conservation. The plain wire strand fence erected 4 years ago to prevent pedestrian access to part of the site was repaired in 1 section (minimal works were required).

Saving our Species 2020-2021 annual report card for Jervis Bay Leek Orchid (*Prasophyllum affine*). For more information refer to the specific strategy in the Saving our Species program.