



SAVING OUR SPECIES

Illawarra Socketwood

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 | Calderwood–Avondale; Dunmore Hills; Foxground–Toolijooa; Kiama; Minamurra Stockyard |
| Action implementation | 7 (of 7) management actions were fully or partially implemented as planned for the financial year. |
| Total expenditure | \$45,309 (\$33,505 cash; \$11,804 in-kind) |
| Partners | Environment, Energy and Science; participating landholders |



Scientific name:
Daphnandra johnsonii

NSW status:
Endangered

Commonwealth status:
Endangered

Management stream:
Site-managed species





Photo: Jemma Lemmon

Priority management site: Calderwood–Avondale

Local government area:
Shellharbour; Wollongong

Partners:
Environment, Energy and
Science; participating
landholders

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 | To maintain at least 80% of baseline stem count for stems over 2 m (91 +/- 20%). |
| Long term target | To maintain the baseline stem count of stems over 2 m tall (2017 baseline = 91 stems) (allowing no greater than 20% loss). |
| Monitoring result | There were 72 stems over 2 m tall. The population remains relatively stable within target. |
| Scientific rigour of monitoring method | High |
| Conducted by | Environment, Energy and Science |

Investment

| Participant | Cash | In-kind |
|---------------------------------|---------|---------|
| Environment, Energy and Science | \$4,000 | \$1,796 |
| participating landholders | \$0 | \$2,100 |

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? |
|---|--------------------------------|-------------------------|
| Deer and other pest species browsing the species. | Install deer exclusion fences. | Yes |
| Weed incursions, including <i>Lantana</i> and cape ivy. | Continue bush restoration. | Yes |

Threat outcome

Assessment on the status of critical threats at this site.

| Threat | Annual target | Threat status |
|---|---|---------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Less than 5% mean weed cover. | On track |
| Deer and other pest species browsing the species. | Less than 5% of stems damaged by pest animal trampling or browsing. | On track |

Site summary

Socketwood is a long-lived plant. The number of stems has remained somewhat stable between 2017 and 2021, with a small reduction in stems to 72 stems over 2 m tall (from a baseline count of 91 stems in 2017). However, this margin of difference may be partly attributed to the challenges of relocating all the previously counted stems, as these plants occur across a span of several hundred metres in rocky escarpment terrain.

All fruit observed here have been galled: affected by the recently described socketwood gall midge. There has been no evidence of non-galled fruit.

Weed control efforts continued, and mean weed cover has reduced from 30% in 2016–17 to 5% in 2021. This has been mutually beneficial to improving the condition of the Illawarra subtropical rainforest occurring on site.





Deer damage was observed on 2 socketwood stems (2% of total stem count). In this case, both plants were still living, but more substantial bark damage has been observed to result in stem die-off.

Priority management site: Dunmore Hills

Local government area:
Shellharbour

Partners:
Environment, Energy and
Science

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 | To maintain 80% or more of baseline stem counts over 2 m tall (177 +/- 20%) |
| Long term target | To maintain an occupied habitat area of at least 5000 m ² . |
| Monitoring result | There were 219 stems over 2 m in height based on a projection of sample densities across the occupied habitat area. The occupied habitat remains stable. |
| Scientific rigour of monitoring method | High |
| Conducted by | Environment, Energy and Science |

Investment

| Participant | Cash | In-kind |
|---------------------------------|---------|---------|
| Environment, Energy and Science | \$4,001 | \$974 |

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? |
|---|----------------------------|-------------------------|
| Weed incursions, including <i>Lantana</i> and cape ivy. | Continue bush restoration. | Yes |

Threat outcome

Assessment on the status of critical threats at this site.

| Threat | Annual target | Threat status |
|---|--|---------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Mean weed cover 5% or less. | On track |
| Quarrying the area. | No significant impact from direct disturbance. | On track |

Site summary

The socketwood population at this site is stable. This site also represents one of our more genetically diverse populations.

The population at this site is continuous over several hundred metres and includes hundreds of mature and immature stems. Broader samples across the site have been undertaken in 2016 and 2021 to estimate the population size at the site. The occupied habitat area has remained consistent with our baseline survey of 0.6 ha. A baseline survey in 2017 counted 72 stems over 2 m tall and 320 stems under 2 m. Repeat surveys in 2021 resulted in a slight increase with 89 stems over 2 m and 333 stems under 2 m. This is also a sub-sample of the total population at the site, which is estimated to include 1037 stems in total, based on these samples.

All fruit observed this season was affected by the recently described socketwood gall midge. No non-galled fruit was detected.

Weed control work continued this year with efforts toward the control of mostly herbaceous weeds. Over the course of the project, mean weed cover has reduced from 35% in 2016 to 5% in 2021.

Excellent regeneration of the threatened ecological community Illawarra subtropical rainforest is observed within areas where primary weed control has been carried out. Species such as *Guoia semiglauca*, *Hibiscus heterophyllus* and *Acacia maidenii* are all regenerating well.





A 600 m² deer exclusion fence was erected at this site this year as part of a research collaboration with the University of Wollongong to assess the impacts of deer on Illawarra subtropical rainforest and Illawarra lowlands grassy woodland.

Priority management site: Foxground–Toolijooa

Local government area:
Kiama

Partners:
Environment, Energy and
Science

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 | To maintain at least 80% of baseline stem count for stems over 2 m tall (25 +/- 20%) within monitoring plots. |
| Long term target | To maintain a minimum of 80% of baseline stem count of stems over 2 m tall across the site (baseline is 104 stems). |
| Monitoring result | There were 43 stems over 2 m were counted within fixed monitoring plots. This is a subset of the total population at the site. |
| Scientific rigour of monitoring method | High |
| Conducted by | Environment, Energy and Science |

Investment

| Participant | Cash | In-kind |
|---------------------------------|---------|---------|
| Environment, Energy and Science | \$4,005 | \$1,424 |

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? |
|---|----------------------------|-------------------------|
| Weed incursions, including <i>Lantana</i> and cape ivy. | Continue bush restoration. | Yes |

Threat outcome

Assessment on the status of critical threats at this site.

| Threat | Annual target | Threat status |
|---|---|---------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Less than 5% mean weed cover. | Not on track |
| Grazing and trampling by livestock preventing seedling establishment. | Less than 5% of stems damaged from trampling or browsing. | On track |

Site summary

The socketwood population at this site is very stable with some increase on stems over 2 m observed this year. In 2021, we counted 42 stems over 2 m, an increase from our baseline count in 2016 of 25 stems. This increase is largely due to younger stems now reaching the 2 m height threshold to be included in the count.

No viable fruit was observed at the site in 2021. All fruit was observed to be affected by the recently described socketwood gall midge.

Fencing of this habitat and Illawarra subtropical rainforest remnant was completed in prior years, so cattle no longer have access to this remnant. Our work here has had the dual benefit of enhancing and protecting the Illawarra subtropical rainforest threatened ecological community.

Weed control has continued across both the northern and southern patches of socketwood at this site. Our weed cover has reduced from 32% in 2016 to 7% in 2021.





We are observing very good species recruitment from the Illawarra subtropical rainforest community, where weed cover has been reduced, with seedlings of *Toona ciliata*, *Brachychiton acerifolius*, *Diploglottis australis*, *Doryphora sassafras* and *Ehretia acuminata* regenerating.

Priority management site: Kiama

Local government area:
Kiama

Partners:
Environment, Energy and
Science

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 | To maintain at least 80% of baseline stem count of 39 stems over 2 m tall in fixed plots. |
| Long term target | To maintain at least a minimum of 80% of baseline stem count of stems over 2 m tall (baseline is 38 stems). |
| Monitoring result | There were 42 stems over 2 m counted in fixed plots. |
| Scientific rigour of monitoring method | High |
| Conducted by | Environment, Energy and Science |

Investment

| Participant | Cash | In-kind |
|---------------------------------|---------|---------|
| Environment, Energy and Science | \$9,000 | \$1,405 |

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? |
|---|---|-------------------------|
| Weed incursions, including <i>Lantana</i> and cape ivy. | Continue weed control. | Yes |
| Low levels of seed production. | Not required this year. Completed in prior year. | Yes |

Threat outcome

Assessment on the status of critical threats at this site.

| Threat | Annual target | Threat status |
|---|--------------------------------|---------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Less than 20% mean weed cover. | On track |
| Low levels of seed production. | Not required this year. | Not assessed |

Site summary

Illawarra socketwood appears to be stable at the site. Stems numbers have remained consistent with baseline counts for the site, with 42 stems over 2 m tall counted this year within fixed plots.

Excellent regeneration of native rainforest trees has been noted within areas where primary weed control has been carried out in the past. Species such as *Solanum aviculare*, *Guoia semiglauca*, *Streblus brunonianus*, *Acacia maidenii*, *Dendrocnide excelsa* and a number of others are all regenerating well.





As a result of our presence on the site, a new record of *Gossia acmenioides* (endangered population) was located on-site. This is the first time it has been recorded in Kiama and is on par with the southern limit of this species.

Priority management site: Minamurra Stockyard

Local government area:
Kiama

Partners:
Environment, Energy and Science; participating landholders

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 | To maintain a minimum 80% of baseline stem count over 2 m tall (132 +/- 20%). |
| Long term target | Maintain at least 80% of occupied habitat as determined by baseline surveys. |
| Monitoring result | There are 152 stems over 2 m at the Curramore subsite. Minnamurra was not monitored this year. |
| Scientific rigour of monitoring method | High |
| Conducted by | Environment, Energy and Science |

Investment

| Participant | Cash | In-kind |
|---------------------------------|----------|---------|
| Environment, Energy and Science | \$10,500 | \$2,105 |
| participating landholders | \$2,000 | \$2,000 |

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? |
|---|--|-------------------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Continued bush restoration efforts at Minnamurra Rainforest and the Curramore private land site. | Yes |

Threat outcome

Assessment on the status of critical threats at this site.

| Threat | Annual target | Threat status |
|---|---|---------------|
| Weed incursions, including <i>Lantana</i> and Cape Ivy. | Mean weed cover of 5% or less in managed areas. | On track |
| Grazing and trampling by livestock preventing seedling establishment. | Less than 5% damage from stock. | On track |

Site summary

This site comprises two subsites, a private property in Curramore and Minnamurra rainforest. Monitoring was only undertaken at the Curramore site this year.

During the course of our work on the ground, we located additional socketwood plants resulting in a substantial further expansion of the occupied socketwood habitat at the Curramore subsite, in easterly, westerly and southerly directions. Baseline stem counts for this site were 132 stems over 2 m tall. This has increased to 152 stems with the addition of new plants located this year.

Fruiting plants at both subsites are observed to be affected by the socketwood gall midge. No non-galled fruit has been observed.

Bush restoration has continued at the Minnamurra and Curramore subsites. This has had the mutual benefit of enhancing the condition of the Illawarra subtropical rainforest and Illawarra Irene habitat. Mean weed cover has reduced to 5% foliage cover and has been followed by very positive recruitment of species from the Illawarra subtropical rainforest threatened ecological community.

This work has also been supported by in-kind and cash contributions from a participating landholder.

Saving our Species 2020-2021 annual report card for Illawarra Socketwood (*Daphnandra johnsonii*). For more information refer to the specific strategy in the Saving our Species program.