



SAVING OUR SPECIES

Peach Myrtle

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	Mount Jerusalem National Park; Nightcap National Park
Action implementation	4 (of 4) management actions were fully or partially implemented as planned for the financial year.
Total expenditure	\$20,990 (\$12,800 cash; \$8,190 in-kind)
Partners	Environment, Energy and Science



Scientific name:
Uromyrtus australis

NSW status:
Endangered

Commonwealth status:
Endangered

Management stream:
Site-managed species





Photo: Justin Mallee

Priority management site: Mount Jerusalem National Park

Local government area:
Byron; Tweed

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	Ramet/Genet count
Annual target	Measure changes to abundance and demography.
Long term target	Maintain or improve species abundance / condition over time.
Monitoring result	Following the 2019—20 bushfires, assessments of 20 known genets at the Mt Jerusalem site were conducted. Ten (50%) were fire impacted. Detailed assessment of impacts to stems (ramets) was undertaken in a 20 x 30 m quadrat comparing historic baseline data from 2000 with data immediately post-fire (December 2019), six months post-fire (June 2020) and 12 months post-fire (January 2021). A comparison between baseline data and June 2020 for fire impacted ramets showed mortality in 39 of the 61 (64%) smaller stems (<2 m), 11 of the 27 (41%) medium stems (2—10 m) and 0% of large (>10 m) stems. Many (>40) root shoots were recorded in the June survey. All fire affected genets at the Mt Jerusalem site survived the 2019—20 bushfires. In 2021, many of the root shoots grew with small stems returning to 64% of pre-fire levels, medium stems remained stable and large stems declining to 75% of pre-fire levels. More than 60 root shoots were present in the 2021 survey. Genets unaffected by fire remained stable
Scientific rigour of monitoring method	Moderate
Conducted by	Environment, Energy and Science

Investment

Participant	Cash	In-kind
Environment, Energy and Science	\$3,610	\$1,260

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?
Fire.	Work with NPWS to update the Reserve Fire Management Strategy.	Yes

Threat outcome

Assessment on the status of critical threats at this site.

Threat	Annual target	Threat status
Road maintenance.	Assess extent and cause of accidental damage to plants	Threat status is unknown
Fire.	Fire response. Survey 20 x 30 m plots in burnt habitat to assess the species ecological response to fire, mortality, re-shooting, recruitment and changes in habitat condition.	On track
Low recruitment.	Maintain or reduce level of threat.	Threat status is unknown
Susceptible to Myrtle rust	Fire response. Survey key locations to assess susceptibility and impact of Myrtle Rust on post fire shoots. Other species have shown increased susceptibility to Myrtle Rust following fire events.	On track
Risk of local extinction because numbers are low.	Assess threat status.	On track

Site summary

Following the 2019—20 bushfires, assessments of 20 known genets at the Mt Jerusalem site were conducted. Ten (50%) percent of the genets were fire impacted. Detailed assessment of impacts to stems (ramets) was undertaken in a 20 x 30 m quadrat comparing historic baseline data from 2000 with data immediately post-fire (December 2019), six months post-fire (June 2020) and 12 months post-fire (January 2021). A comparison between baseline data and June 2020 for fire impacted ramets showed 39 of the 61 (64%) of smaller stems (<2 m) were killed by fire, 11 of the 27 (41%) of medium (2—10 m) were killed by fire and 0% of large (>10 m) stems were killed. Many (>40) root shoots were recorded in the June survey. All fire affected genets at the Mt Jerusalem site survived the 2019—20 fires. In 2021, many of the root shoots grew with small stems returning to 64% of pre-fire levels, medium stems remained stable and large stems declining to 75% of pre-fire levels. More than 60 root shoots were present in the 2021 survey. Genets unaffected by fire remained stable.

The results indicate the impacts of the fire on the ecosystem that *Uromyrtus* occurs within include changes to the forest structure (reduced canopy trees leading to increased light, removal of mid and understorey individuals, and loss of the seedling bank) and floristics (removal of fire intolerant rainforest species and germination of weeds and species not representative of the ecosystem). Other post-fire research has indicated that the species diversity has returned to pre fire levels at most sites (via suckering and germination). It is possible that the recovery of the ecosystems to pre-fire floristics and health will take many decades.

Fourteen of the 20 known genets at Mt Jerusalem were assessed for myrtle rust in 2019—20, of which 12 (85%) showed evidence of the pathogen. Of the myrtle rust affected genets, 17% had low impacts (1—5% of leaves affected), 83% were moderately affected (6—25% of leaves affected) and 0% had high impacts (26—100% of leaves impacted). The same genets were assessed in 2020—21 with 33% in the low category, 50% with moderate impacts and 17% had high impacts. A refined methodology was developed in 2020—21 to consolidate the monitoring of *Uromyrtus australis* relative to the ongoing impacts of myrtle rust. Forty locations representing the distribution of the species were identified, marked with relocatable tagged pegs, and at each site, information and data describing the environment, species demographic structure, threats, and pathogen activity was collected. Ten of these sites were located in the Mt Jerusalem population.





The health and reproductive fitness of the species continues to decline in response to the combination of fire effects and Myrtle Rust. To date, Myrtle Rust infection has resulted in widespread die-back of canopy branchlets (canopy thinning) and small ramet stems, with occasional loss of larger stems. The impact of these factors in combination has seen continuing decline in flower and fruit production, and a decline in the health of the species across its distribution. If the current trends continue, *ex situ* conservation actions similar to other myrtle rust impact species may need to be implemented.

Priority management site: Nightcap National Park

Local government area:
Byron; Lismore; Tweed

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	Ramet/Genet count
Annual target	Measure changes to abundance, demography over time.
Long term target	Maintain or improve species abundance / condition over time.
Monitoring result	Following the 2019—20 bushfires, assessments of 118 genets at the Nightcap National Park site were conducted. Thirty four (29%) were fire impacted. Detailed assessment of impacts to stems (ramets) were undertaken in two 20 x 30 m quadrats comparing historic baseline data from 2000 with data immediately post-fire (December 2019), six months post-fire (June 2020) and 12 months post-fire (January 2021). A comparison between baseline data and June 2020 showed 100% of smaller stems (<2 m), 80% of medium (2—10 m) and 52% of large (>10 m) stems were killed by the fire. Many (>80) root shoots were recorded in the 2020 survey. Five known genets at the site were killed. In 2021 an additional 3 plots and 1 transect (20 x 2 m) were surveyed, totalling 5 plots and 1 transect. The results showed root shoots grew with small stems returning to 30% of pre-fire levels, medium stems remained stable and large stems declined to 6% of pre-fire levels. More than 70 root shoots were present in the 2021 survey.
Scientific rigour of monitoring method	Moderate
Conducted by	Environment, Energy and Science

Investment

Participant	Cash	In-kind
Environment, Energy and Science	\$9,190	\$6,930

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?
Fire.	Ensure that contractors annually upload species records associated with flora monitoring into Bionet for use in fire planning.	Yes
Fire.	Physical and chemical control of weeds and invading native species in areas impacted by the 2019—20 bushfires. Hand clearing in sensitive areas plus spot-spraying where appropriate.	Yes
Road maintenance.	Install yellow marker posts and work with NPWS area staff to manage roadside management activities.	Yes

Threat outcome

Assessment on the status of critical threats at this site.

Threat	Annual target	Threat status
Road maintenance.	Install yellow marker posts and work with NPWS area staff to manage roadside management activities.	On track
Fire.	Fire response. Survey 20 x 30 m plots in burnt habitat to assess the species ecological response to fire, mortality, re-shooting, recruitment and changes in habitat condition.	On track
Susceptible to Myrtle rust	Fire response. Survey key locations to assess susceptibility and impact of Myrtle Rust on post fire shoots. Other species have shown increased susceptibility to Myrtle Rust following fire events.	On track
Low recruitment.	Maintain or reduce level of threat.	Threat status is unknown
Risk of local extinction because numbers are low.	Maintain or reduce level of threat.	On track

Site summary

Following the 2019—20 bushfires, assessments of 118 genets at the Nightcap National Park site were conducted. Thirty four (29%) were fire impacted. Detailed assessment of impacts to stems (ramets) were undertaken in two 20 x 30 m quadrats comparing historic baseline data from 2000 with data immediately post-fire (December 2019), 6 months post-fire (June 2020) and 12 months post-fire (January 2021). A comparison between baseline data and June 2020 showed 100% of smaller stems (<2 m), 80% of medium (2—10m) and 52% of large (>10 m) stems were killed by the fire. Many (>80) root shoots were recorded in the 2020 survey. Five known genets at the site were killed. In 2021, an additional 3 plots and 1 transect (20 x 2 m) were surveyed, totalling 5 plots and 1 transect. The summarised results showed root shoots grew with small stems returning to 30% of pre-fire levels, medium stems remained stable and large stems declined to 6% of pre-fire levels. More than 70 root shoots were present in the 2021 survey.

The results suggest the impacts of the fire on the ecosystem that *Uromyrtus australis* occurs within include changes to the forest structure (reduced canopy trees leading to increased light, removal of mid and understorey individuals, and loss of the seedling bank) and floristics (removal of fire intolerant rainforest species and germination of weeds and species not representative of the ecosystem). While the species diversity has returned to pre fire levels at most sites (via suckering and germination) the recovery of the ecosystems to pre-fire floristics, structure and health could take many decades.

In 2019—20, 118 genets at the Nightcap National Park site were assessed for myrtle rust. Fifty three of the 118 (45%) had evidence of myrtle rust. Of the myrtle rust affected genets, 4% had high impacts (>25% of leaves effected), 26% had moderate impacts (6—25% of leaves effected) and 70% had low impacts (1—5% of leaves effected). The same genets were assessed in 2020—21 with 100% showing evidence of myrtle rust. 15% were in the low category, 42% had moderate impacts and 42% had high impacts. A refined methodology was developed in 2020—21 to consolidate the monitoring of *Uromyrtus australis* relative to the ongoing impacts of Myrtle Rust. Forty locations representing the distribution of the species were identified, marked with relocatable tagged pegs, and at each site, information and data describing the environment, species demographic structure, threats, and pathogen activity was collected. Thirty of these sites were located in the Nightcap population.

The health and reproductive fitness of the species continues to decline in response to the combination of fire affects and myrtle rust. To date, myrtle rust infection has resulted in widespread die-back of canopy branchlets (canopy thinning) and small ramet stems, with occasional loss of larger stems. The impact of these factors in combination has seen continuing decline in flower and fruit production, and a decline in the health of the species across its distribution. If the current trends continue, *ex situ* conservation actions similar to other myrtle rust impact species may need to be implemented.

In 2019 - 20 surveys were undertaken along all vehicle trails in eastern Nightcap National Park. One hundred and sixteen individual point locations with threatened species were recorded. In 2020—21 maps detailing threatened species zones were developed with NPWS area staff. Yellow posts were installed for each zone throughout eastern Nightcap National Park, including locations where *Uromyrtus australis* occurs. A management guide to outline permissible activities within each threatened species zone was developed with local area and branch staff. All staff and contractors working within designated zones will be inducted and provided with the map of the zones with the pre-identified permissible activities.

Following the 2019—20 bushfires there was mass germination of sclerophyllous vegetation, rainforest pioneers and various environmental weeds. These plants were directly competing with *Uromyrtus australis* recovery by competition and shading. They were also considered likely to increase the flammability of the site. In 2021, a Review of Environmental Factors was prepared, assessed and approved. This allowed the control of competitive species in four 60 x 70 m trial sites. Baseline monitoring of each trial site that was established in 2021 and will be monitored annually.

Saving our Species 2020-2021 annual report card for Peach Myrtle (*Uromyrtus australis*). For more information refer to the specific strategy in the Saving our Species program.