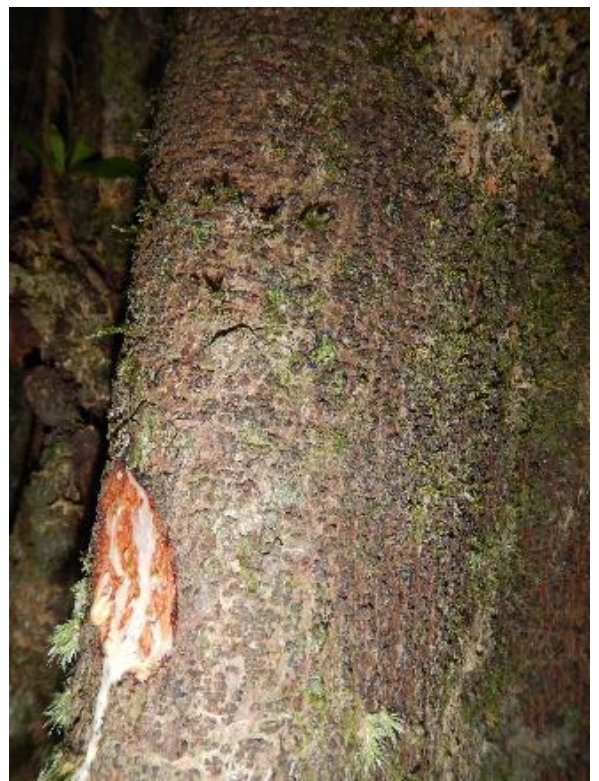


Species Action Plan – *Trilepisium gymnandrum*

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Species description

Based on the description provided by Friedmann (1994) and our own observations made on sterile trees *in situ*, *Trilepisium gymnantrum* is a deciduous tree to 25 m high, developing a typically fluted and twisted base and to 60 cm in diameter. The bark light brown with lenticels in irregular lines, and with a white sap rapidly changing colour to light brown (milk coffee). Dense-crowned and drooping branchlets. Leaves are simple, alternate, elliptic, glossy to 15 cm long with elongated, dripping tips. Old leaves are shorter and more rounded than young ones. Leaf blades dark green on the upper side, paler on the underside, with distinct midribs and petioles to 1.5 cm long. Inflorescences axillary, normally solitary, discoid, each to 1 cm wide, with many male flowers (reduced to 3 mm long stamens) and one central female flower. The fruit, even though never seen ripe in Seychelles, is an oblong drupe to 1.5 cm long, possibly dark-red when ripe and with the single seed immersed in a fleshy receptacle (Hansen & Laboudallon 2013; Gerlach 2000).

The flowering season is thought to be from September to October.

The species is potentially dispersed by birds, reptiles and fruit bats. However, the high abundance of seedlings directly in the vicinity to adult trees decreasing rapidly with the distance suggests that the species is not spread across long distances. The species specificity to submontane ravine forests also reduces its capacity to spread in large areas.

Conservation status

This species has been assessed as Critically Endangered under Criterion D as there are only five known mature individuals based on recent research by the authors of this study.

[Link to IUCN assessment when available online](#)

Distribution

This species is currently found only on Silhouette Island and is endemic to Seychelles. According to notes on the specimen *Horne 417* (at Royal Botanic Gardens, Kew herbarium), this species was found on “all Seychelles islands” in 1874 but was not common. This species was then recorded by Thomasset in the early 20th Century on Mahé, without a locality mentioned but we expect that the species could have existed in the area of Cascade and Mare aux Cochons (Robertson 1989). Recent explorations have not rediscovered the species on Mahé.

On Silhouette, Friedmann (1994) rediscovered a few trees of *Trilepisium* in two localities (SW of Grand Congoman at ±300m alt. and in between Mare aux Cochons and Mont Dauban at ±500m alt.) but without exact coordinates and the trees have never again been seen. Additionally, Friedmann (1990) saw another adult tree on the Grand Barbe trail, above Glacis Noel. In a KBA study (Senterre *et al.* 2013) only juvenile plants of less than 3 m tall were seen.

In this study, Dr. Bruno Senterre, in collaboration with the Island Conservation Society (ICS), rediscovered five adult trees on Silhouette Island with many juveniles. One adult *Trilepisium* was found in the Anse Mondon valley (“Dans Mapou”), two at Rivière machabée, and two at Rende d’Avance (a newly discovered population).

Overall, the species is restricted to an area less than 16 km². The total extent of occurrence of the species is 3.383 km².

Habitat

The habitat-type where *Trilepisium* is found appears to be “Submontane ravine forests” (Senterre & Wagner 2014). This habitat-type is rare, has been intensely deforested in the past, and is at the same

time under-explored due to its difficult accessibility. Additionally, most explorers have focussed primarily on the hottest spots of endemism, i.e. in the montane belt. *Trilepisium* has probably never been a very abundant species, considering its narrow ecological range.

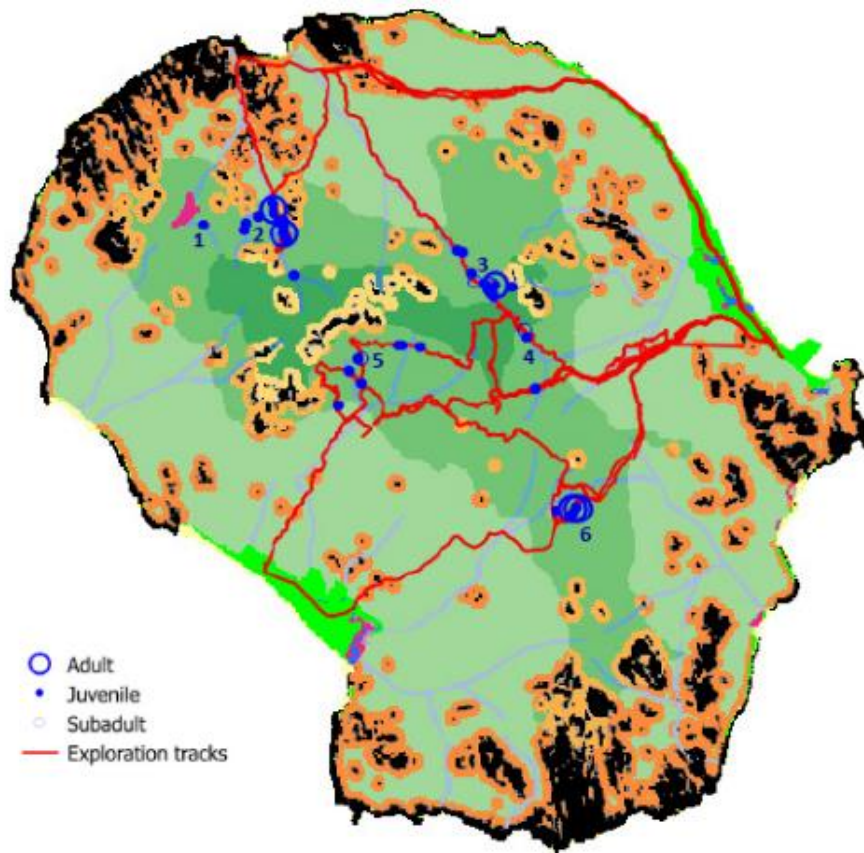


Figure 1 Distribution map of *Trilepisium gymnantrum*. The background map represents the different types of habitats (see Senterre & Wagner 2014).

Populations

The species is found in six known subpopulations on Silhouette Island. In total, only five mature individuals are known, with exact GPS coordinates, and spread in three subpopulations (namely Anse Mondon valley, Rivière Machabée and Rende d’Avance (discovered by the authors of this report in 2017-18). There are fewer than 200 known juvenile individuals across the six subpopulations.

The table below, extracted from Senterre *et al.* (2018), summarizes the data on the six subpopulations from Silhouette Island and the extinct one from Mahé.

N°	Population	First seen	Last seen	Max. abundance	Current abundance	Adults-sterile	Adults-repro.	Juveniles
1	Mare aux Cochons (S.. = Scott Vale)	Friedmann (1994)	2012	Unknown	Unknown	Unknown	Unknwon	Unknown
2	Rivière Machabée (S.)	Senterre (2012)	2018	77	77	0	2	75
3	Vallée de l’Anse Mondon	Carlstrom (1996)	2018	36	36	0	1	35

	(=Dans Mapou)							
4	Mont Pot à Eau-Jardin Marron	Senterre (2012)	2018	8	8	0	0	8
5	Mont Dauban	Senterre (2009)	2018	40	40	0	0	40
6	Rende d'Avance	This study	2018	6	6	0	2	4
7	Mahé (Cascade?)	Thomasset (1910?)	1910?	?	0			

Table 1 Summary of the seven populations for *Trilepisium gymnandrum*.

Threats

There are no currently identified threats. The habitat has declined in the past due to deforestation of the submontane habitat but this is not currently threatening the species.

Recovery actions

Past and Current Management Actions

93% of Silhouette Island, including all *Trilepisium* populations, has been declared National Park in 2010. The island is owned by the Seychelles Government that gave a lease to the Islands Development Company (IDC) to manage it since 1983. In 2008, the Silhouette Foundation, regrouping all main stakeholders from Silhouette Island (Ministry of Environment, Energy and Climate Change (MEECC), Seychelles National Parks Authority (SNPA), Islands Development Company (IDC) and Island Conservation Society (ICS), was created in order to conserve, rehabilitate & enhance Silhouette ecosystems in harmony with sustainable low impact human development and eco-tourism. The Silhouette National Park is managed under the Silhouette Foundation by the Island Conservation Society, a non-governmental organization, in collaboration with SNPA and MEECC. However, an official Regulation Order is lacking to define clear rules and regulations within the boundaries of the National Park.

There is no known *ex situ* collection of *Trilepisium gymnandrum* and no conservation activities focusing on *Trilepisium gymnandrum* have ever been done in the past.

Recovery aims

- Increasing the number of mature individuals contributing to a viable population, allowing the status of the species to be downgraded.
- A genetic representative *ex situ* collection base.
- A viable population of this species on Mahé Island.

Suggested conservation actions

The conservation actions in the table have been ranked by priority.

Activity	Budget needed to achieve this (per year)	Timeframe	More details
Mature individuals should be monitored to identify fruiting periods.	4000 USD	Monthly, on a long-term basis	3 days for 2 staff on a monthly basis: $3 \times 2 \times 12 = 72$ days per year. Salary based on one Conservation Officer plus one Ranger wages. All adult trees to be monitored
Representative <i>ex situ</i> collections of <i>Trilepisium gymnantrum</i> should be made, encompassing the remaining genetic diversity of the species.	700 USD for collection of ripe fruit and seedling. Nursery construction: 25 000 USD (once) Nursery maintenance: 1000 USD	Twice a year during fruiting season.	6 days for 2 staff per year: $6 \times 2 = 12$ days per year. Seed collection from all known adult trees. Limited number of seedlings to be harvested due to Critical status. Guidelines available on: http://globaltrees.org/wp-content/uploads/2013/11/tree_species_low.pdf
Propagation protocols should be developed to allow this species to be propagated in various locations.	1750 USD	Once	7 days. Consultancy fee: 250\$/d
As the species is now considered extinct on Mahé but was previously known to occur there (possibly at Cascade), this species should	2 500 USD for 6 working days for 15 staffs.	Seedling should be planted during NW monsoon from November to March. Ravine forests around Jardin Marron would good restoration sites.	<ul style="list-style-type: none"> • The amount of working days would depend on the amount of seedlings available and man power. • Ideally, 100 seedlings should be planted once a month from November to March. A team of 15 persons carrying up to 8 seeding would be necessary.

<p>be considered a candidate for reintroduction into the submontane habitat on Silhouette Island and Mahé.</p>	<p>Additional boat fare: 1500 USD</p> <p>50 000 USD for reintroduction on Mahé</p>	<p>For reintroduction on Mahé, seedlings can be produced on Silhouette Island and shipped to Mahé for restoration. Ravine forests at Cascade and Mare aux Cochons would be good restoration sites</p>	<ul style="list-style-type: none"> • Seedlings 30cm high in 7x7cm potting pots. Sites should also be carefully selected and relatively easy to access. • If labourers from Mahé are to be employed, additional costs are needed for boat transfers. • The budget assumes that a nursery is already available • For reintroduction on Mahé the budget needs to include production costs on Silhouette, biosecurity costs, transport costs from Silhouette to Mahé, transport costs on Mahé and restoration costs on Mahé.
<p>Reinforcement</p>	<p>N/A</p>	<p>N/A</p>	<p>At current sites is not necessary as the plant is regenerating well.</p>

Conclusion

Trilepisium gymnandrum has been assessed as Critically Endangered under the IUCN Criterion D as there are only five known mature individuals. All individuals are restricted to a single island in Seychelles, Silhouette, and its distribution range is less than 16 km². Therefore, the specific activities highlighted above are essential for the preservation of the species. Additionally, we recommend that more surveys should be done in the Silhouette National Park in order to reassess the status of the population at Mare aux Cochons and find additional mature trees on the island. Due to the fact that recognizing adult *Trilepisium* trees is very challenging, its trunk being roughly similar to any other of the most common tree species in its habitat, it is more than likely that more trees will be found if more exploration is being done.

Due to the critical status of the species, we recommend that any conservation activities suggested above are undertaken in collaboration with the Ministry of Environment, Energy and Climate change (MEECC) in Seychelles, the Seychelles National Parks Authority (SNPA), the Island Conservation Society (ICS) and international organizations such as Botanic Gardens Conservation International for their expertise. We also recommend that local experts and organization as the Seychelles National Herbarium and the Terrestrial Restoration Action Society of Seychelles (TRASS) are involved in the project.

Propagating the species on Silhouette Island and Mahé will require the close collaboration with private stakeholders working on Silhouette Island. For such project to be successful, additional awareness will be needed in order to get the logistical and financial support of all organization. The Silhouette Foundation having a limited budget allowing only basic conservation work on Silhouette, additional funding will need to be sourced. International botanical garden could be approached in order to develop long-term support and collaboration.

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