

Species Action Plan – *Psychotria silhouettae*

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Species description

As described in Hansen & Laboudallon (2013), *Psychotria silhouettae* is a small, smooth understory shrub or tree to 6 m high and 7 cm diameter. The leaves are opposite, thin, narrow, obovate and pointed to 12 cm long and have a long petiole to 3.5 cm. The branched, terminal clusters of flowers are 5 cm long and 10 cm wide with short stalked, tiny, white and tubular flowers to 3 mm across and on pedicles to 1.2 mm long. The corolla tube is to 2.5 mm long, with five spreading, deltoid lobes, each to 1.3 mm wide and with thickened tips. The calyx is to 0.8 mm long with five tiny lobes. The five stamens to 1.5 mm long exert slightly the throat and the pale yellow hairs. The style is to 2.5 mm long. The fruit is an ovate, green turning white drupe to 6 mm across, containing two small, flat and elliptic seeds, each to 3 mm long.

However, after observing in details and on fresh several typical *P. silhouettae* individuals from the type locality, we conclude that diagnostic characters proposed by Friedmann to distinguish this species from *P. pervillei* are not absolutely convincing.

Indeed, within individuals having typical *P. silhouettae* characters, we have observed some coriaceous leaves and some non-acuminate ones, as well as flowers with ca. 5 mm long corolla tubes (diagnosed characters in *P. pervillei*). In addition, *P. pervillei* has obviously a variable corolla tube length (based on many personal observations and photos on Silhouette and Mahé), and fruits can be whitish before turning bluish (as described by Friedmann himself: Friedmann 1994: 579).

In conclusion there is very little left from Friedmann's diagnostic characters to objectively distinguish the hypothesized two species. Although we share with Friedmann the intuition that *P. silhouettae* is possibly a 'good' species, diagnostic characters need to be better understood and studied. In general, the genus *Psychotria* remains poorly understood and deserves more study, e.g. regarding the identity of *P. dupontiae* and Praslin specimens with very lax inflorescences. Leaf venation and inflorescence structure might have been neglected characters in previous studies.

The flowering season is normally during the wet season, i.e. November to April.

The species is potentially dispersed by birds and reptiles. The species seems restricted to the montane ravines near Mont Plaisir and does not seem to spread in large areas.

Conservation status

The species has been assessed as Critically Endangered under the criterion D as the population size is estimated to number fewer than 50 mature individuals.

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

Distribution

This species was discovered in 1985 by F. Friedmann and described based on "3-4" known individuals, all found in a small area in the upper part of the "Pisonia forest" (Anse Mondon valley). Matyot (1995) mentions two individuals seen in the same valley but much lower down, at about 300 m above sea level.

In a recent survey, Senterre *et al.* (2018) recorded *Psychotria silhouettae* from three populations and allowed for a better description of its range within each site. It is found in its type locality in the upper Anse Mondon valley (also known as "Pisonia forest" or "Dans Mapou"), as well as in the opposite valley from Mont Pot à Eau to Jardin Marron (where another 'Pisonia forest' was discovered a few years ago), and in the valley between Mont Plaisir and Mont Dauban.

Overall, the species is restricted in an area less than 4 km². The total extent of occurrence of the species is 0.131 km².

Habitat

The habitat-type where *Psychotria silhouettae* is found appears to be restricted to the montane ravines near Mont Plaisir. It seems to prefer the forest edges and gaps, which are common in the upper part of the montane valleys, where the steep slope result in irregular canopy and many open areas.

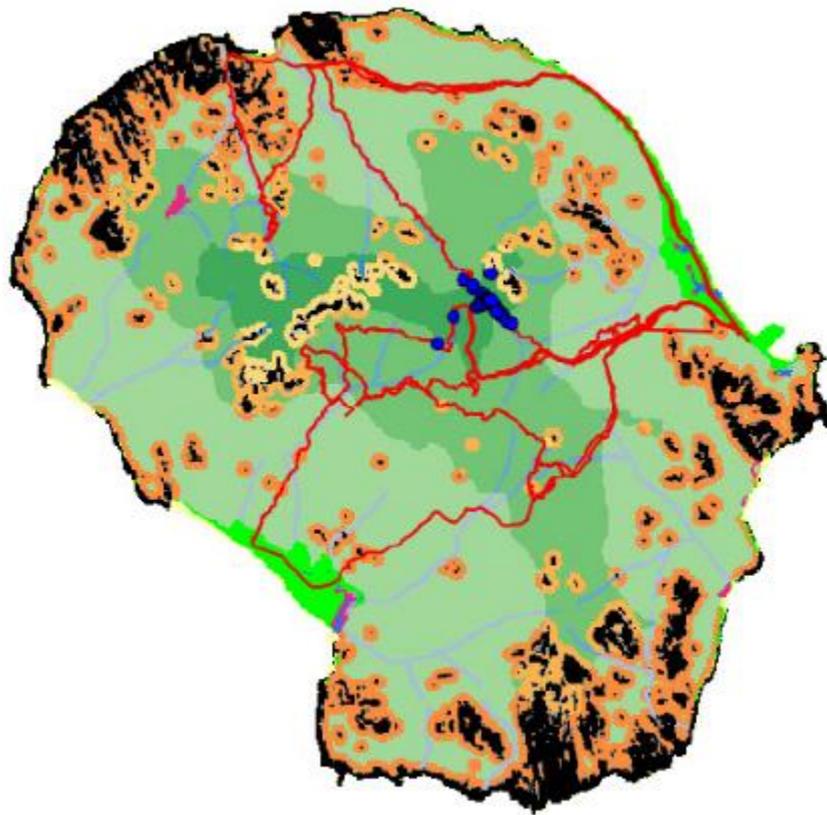


Figure 1 Distribution map of *Psychotria silhouettae*. The background map represents the different types of habitats (see Senterre & Wagner 2014).

Populations

The species is known from 57 individuals, including 38 adult trees, as opposed to only three to four when formerly discovered. All individuals are restricted to a single island in Seychelles, Silhouette. There are three possibly known populations, located in the upper Anse Mondon valley (also known as “Pisonia forest” or “Dans Mapou”), as well as in the opposite valley from Mont Pot à Eau to Jardin Marron (where another ‘Pisonia forest’ was discovered a few years ago), and in the valley between Mont Plaisir and Mont Dauban.

The table below, extracted from Senterre *et al.* (2018), summarizes the data on the three populations from Silhouette Island.

N°	Population	First seen	Last seen	Max. abundance	Current abundance	Adults -sterile	Adults-reproducing	Juveniles
1	Valée de l’Anse	Friedman (1985)	2018	27	27	9	7	11

	Mondon (=Dans Mapou)							
2	Mont Pot à Eau- Jardin Marron	Senterre (2018)	201 8	28	28	17	3	8
3	Mont Plaisir- Mont Dauban	Senterre (2018)	201 8	2	2	0	2	0

Table 1 Summary of the three populations of *Psychotria silhouettae*.

Threats

There seem to be no particular threat to this species. The preferred habitat for the species, forest edges and gaps, is common in the upper part of the montane valley.

Recovery actions

Past and Current Management Actions

93% of Silhouette Island, including all *Psychotria silhouettae* 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 one reported *ex situ* collection of *Psychotria silhouettae* (BGCI 2018).

Recovery aims

- Taxonomic review
- 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.

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
Taxonomic review	In kind	6 months	In collaboration with the Seychelles Herbarium and a European lab for molecular analysis.
Mature individuals should be monitored to describe better the phenology of the species and record population trend	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>Psychotria silhouettae</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 can be found 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 on Silhouette	1750 USD	Once	7 days. Consultancy fee: 250 USD/d

Reintroduction into the montane habitat on the island.	2 500 USD for 6 working days for 15 staffs. Additional boat fare: 1500 USD	Seedlings should be planted during NW monsoon from November to March. Ravine forests around and above Jardin Marron would be good restoration sites.	<ul style="list-style-type: none"> • The amount of days would depend on the amount of seedlings available and man power. • Ideally, seedlings should be planted once a month from November to March. A team of 15 persons carrying up to eight seedlings would be necessary. • Seedlings 30 cm high in 7x7 cm 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
Reinforcement	1750 USD	Once	7 days. Consultancy fee: 250 USD/d

Conclusion

Psychotria silhouettae has been assessed as Critically Endangered under the IUCN Criterion D as the population size estimated is fewer than 50 mature individuals. All individuals are restricted to a single island in Seychelles, Silhouette, and its distribution range is less than 4 km². Therefore, the specific activities highlighted above are essential for the preservation of the species. However, due to the lack of good diagnostic characters highlighted in Senterre *et al.* (2018), *Psychotria silhouettae* would require to be reviewed taxonomically before attempting any other activities.

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 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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