

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Twenty-second meeting of the Plants Committee
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Interpretation and implementation of the Convention

Species trade and conservation

Periodic Review of species included in Appendices I and II
[Resolution Conf. 14.8 (Rev. CoP16)]

PERIODIC REVIEW OF *PACHYPODIUM BREVICAULE*

1. This document has been submitted by Madagascar.*

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PERIODIC REVIEW of *Pachypodium brevicaule* Baker (Apocynaceae)

I. Description

It is a dwarf plant, with a smooth, tuberous trunk, and grows in rock crevices, or in sandy soil. It can reach a size of 25 cm in height and 40 cm in diameter in mature specimens; very short branches, covered in soft spines with a maximum length of 1 to 4 cm. Alternate phyllotaxy, deciduous leaves, at base of branches, ovate or obovate, acuminate or obtuse at apex, and slightly rounded at base. Pedunculate or sessile inflorescence, producing one to seven yellow flowers (Figure 1); long, fuzzy peduncle measuring 0.5–7 cm; pedicels are shorter than bracteas, measuring 0–3 mm. Sepals acute, green, covering the base of the floral tube, 3–5.5 mm length. Hypocrateriform corolla, hairy outside, cylindrical, elongated vertex. Stamens inserted into tube, anthers approximately 5 mm long; extremely oval, rounded lobes. Bristly ovary, protruding slightly from disk scales. Straight, parallel seed pods, containing an abundance of seeds—sometimes, more than 50 seeds. Oblong, glabrous, pappus-bearing seeds (Patricka, 2006).

Common names : tsimondrimondry, kimondromondro



Figure 1: Adult specimen of *Pachypodium brevicaule* at the Ibity site in the central highlands of Madagascar

2. Population structure

Pachypodium brevicaule is a very slow growing species; the size, shape and form of the trunk vary little between two time intervals. The growth in diameter is approximately 0.5 cm to 1.5 cm per year. The growth rate of *P. brevicaule* is 1.03 per cent, which means that between two censuses, the population remains in much the same state.

The distribution trend of *P. brevicaule* is contagious or aggregate (Figure 2), meaning that specimens spread in multiple groups. This has been demonstrated by the value of variance, which is 73.88 for *P. brevicaule*. This value is significantly higher than average (Patricka, 2006).



Figure 2 : Multiple specimens of *P. brevicaule*

3. Distribution

Pachypodium brevicaule is only found on the high plateaus where altitudes exceed 1200 m, in the vicinity of Antananarivo, from Andramasina to Ambatofinandrahana. The specimens of this species are divided in 9 subpopulations. In September 2013, the Plant Scientific Authority estimated a area of occupancy of 32 km² and an extent of occurrence of 9489 km² (Figure 3).

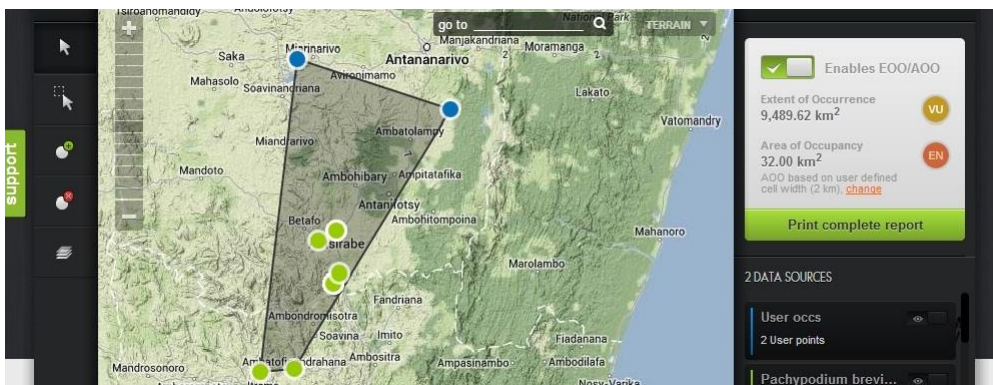


Figure 3: Extent of occurrence and Area of occupancy of *Pachypodium brevicaule* as shown by GEOCAT®.

Density and abundance:

P. brevicaule is abundant since its average density is estimated to be 4490 specimens/hectare. In total, the Ibity massif (Figure 4) contains more than 100,000 specimens of *P. brevicaule*, divided into three subpopulations.

The species has completely disappeared in areas close to large towns or agricultural areas, such as Ambatofotsy and Miarianarivo, where the species was still recorded thirty years ago.

Pachypodium brevicaule is often found with a similar species, *P. densiflorum*, particularly in the Ibity massif. A hybrid variety of these two species is also frequent at this site.



Figure 4 : Habitat of *Pachypodium brevicaule* in the Ibity massif

II. Summary of trade data

Exported specimens are living, wild plants larger than 15 cm. Nevertheless, a growing interest in the trade of seeds has been recorded in recent years.

The evolution of the export volume of *Pachypodium brevicaule* between 2003 and 2013 shows regular trade with an average of 900 specimens per year, reaching a maximum of 1814 specimens in 2004 (Table 1).

Table 1: Evolution of the number of specimens of *Pachypodium brevicaule* exported between 2003 and 2013 (Source: CITES Management Authority, Madagascar)

Years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Quantity exported (Number)	505	1 814	1 279	1 628	653	1499	850	850	619	967	1620

However, we have noted a resurgence in collection for the local market in recent years. This is due to the growth in the number of collectors, above all during the period between harvests (November to March), but also due to the increase in demand for transport authorization for personal belongings (number of specimens <5) among tourists.

III. Species conservation status

- *Pachypodium brevicaule* was transferred from Appendix I to Appendix II in 1994 at the ninth meeting of the Conference of the Parties in Fort Lauderdale.
- *Pachypodium brevicaule* is classified as vulnerable (VU, B1a, and B1b iii), according to IUCN criteria

Threats

The subpopulations of *P. brevicaule* are subject to different pressures. The burning of the savannah for zebu pastures, trampling and illegal harvests for trade are the main cause of their progressive disappearance.

The size of harvested specimens depends on their destinations and the needs of the resellers. For the national market, young specimens with a trunk measuring 2 to 10 cm in diameter are popular as they are easier to transport. On the other hand, for exporters, who will continue with propagation in greenhouses, mature specimens (trunk diameter varies between 10 and 20 cm) that are able to carry more fruits are the most sought after. As a result, only specimens classed as adult (trunk diameter greater than 20 cm) are the least affected by exploitation.

Conservation

There are currently three establishments actively engaged in ex situ propagation and conservation of *Pachypodium brevicaule*, ex situ propagation of *P. brevicaule* can be carried out easily by simple and common techniques through the taking of cuttings or from seeds.

With regard to conservation of its natural habitat, the new status of the Ibity massif, recently classified as a new protected area, should markedly improve the conservation status of this species.

IV. Consultations and recommendations

Thanks to its abundance and its fairly large extent of occurrence, the risk of extinction of *P. brevicaule* is weak, except in the case of overexploitation and continued destruction of its habitat (for example, extension of the area allocated to the Ibity cement works).

V. Bibliographic references

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