Kew

PLANTS PEOPLE
POSSIBILITIES

Madagascar is one of the world's great palm diversity hotspots. Around 164 species occur, and nearly all of these are restricted to the island. Many of these palms are utilized by rural communities for a wide range of uses. **Field guide to the Palms of Madagascar** is the first guide to help identify plant groups of Madagascar; enabling field workers, conservationists, students and horticulturalists to reliably identify palms to species level. This detailed and richly illustrated book is also an invaluable resource for everyone interested in the extraordinary biodiversity of this fantastic country.

- Describes and illustrates all the important palms of Madagascar
- Provides keys and visual aids to help identification
- Extensively illustrated with photos, line drawings and maps
- An invaluable reference for field workers, conservationists, students and horticulturalists

John Dransfield is a leading specialist in the systematics and uses of palms and has wide field experience. From 1975 to 2005 he was head of palm research at the Royal Botanic Gardens, Kew, and he is author of many publications on palms.

Henk Beentje is a botanist with substantial field experience in Africa. He is co-author, with John Dransfield, of the monograph *The Palms of Madagascar* (1995) and has been on many field trips in Madagascar.

Adam Britt is a biologist with considerable field experience in Madagascar, mostly studying the Black and White Ruffed Lemur. Between 2000 and 2004 he worked with the Royal Botanic Gardens, Kew on the Threatened Plants Appeal project.

Tianjanahary Ranarivelo is a botanist employed by the Royal Botanic Gardens, Kew in their office in Antananarivo. She has worked on Kew's Threatened Plants Appeal project.

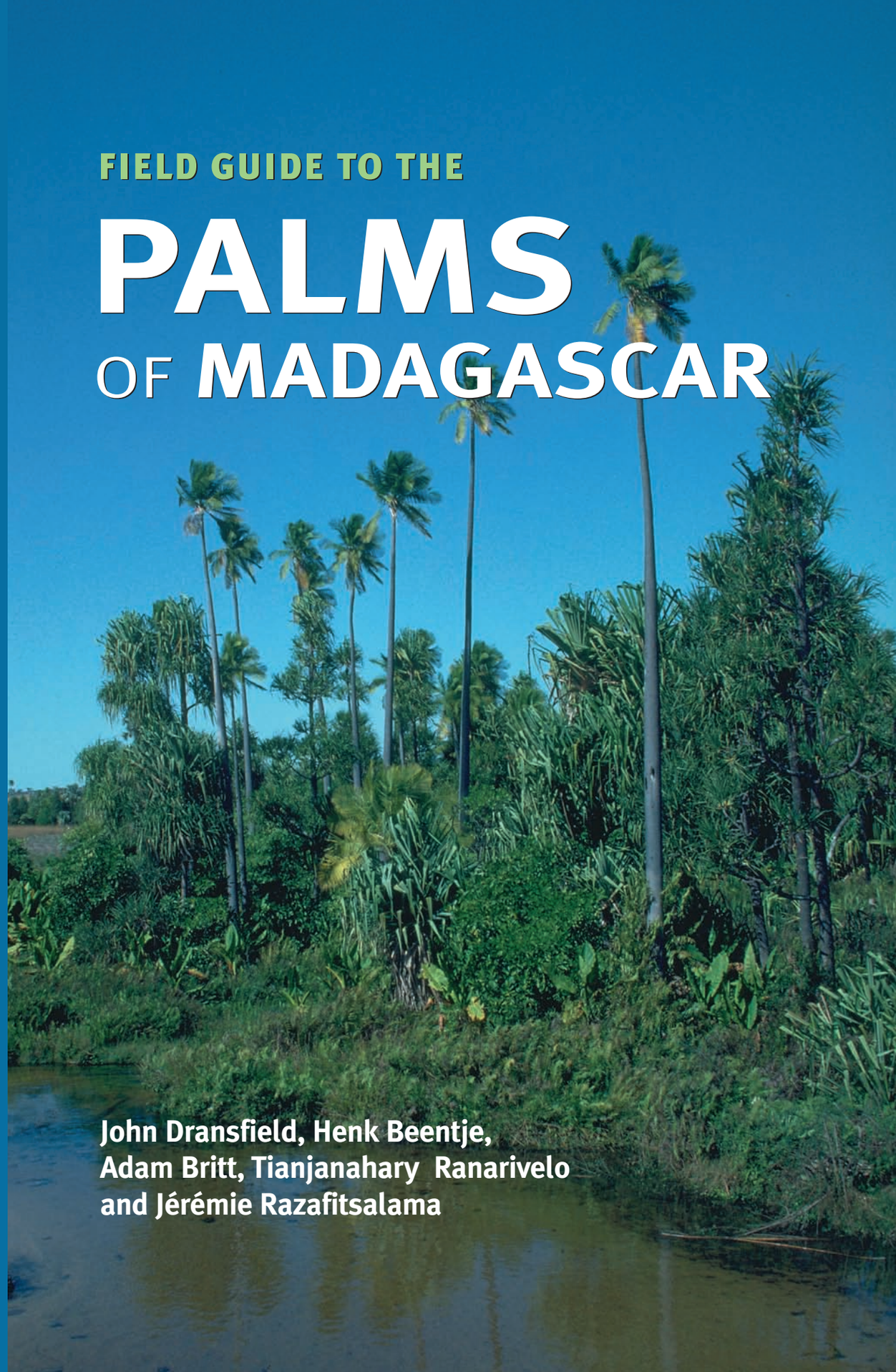
Jérémie Razafitsalama is a botanist employed by Missouri Botanic Garden's office in Madagascar. He has a particular interest in palms and has collaborated with Kew botanists in Madagascar.

ROYAL BOTANIC GARDENS KEW

FIELD GUIDE TO THE **PALMS OF MADAGASCAR** John Dransfield, Henk Beentje, Adam Britt, Tianjanahary Ranarivelo and Jérémie Razafitsalama Kew

FIELD GUIDE TO THE

PALMS OF MADAGASCAR



John Dransfield, Henk Beentje, Adam Britt, Tianjanahary Ranarivelo and Jérémie Razafitsalama

Field guide to the Palms of Madagascar

John Dransfield, Henk Beentje, Adam Britt,
Tianjanahary Ranarivelo and Jérémie Razafitsalama

Kew Publishing
Royal Botanic Gardens, Kew

PLANTS PEOPLE
POSSIBILITIES

This publication has been made possible with funding from the
World Bank/Netherlands Partnership Program.

First published in 2006 by
Royal Botanic Gardens, Kew
Richmond, Surrey, TW9 3AB, UK
www.kew.org

ISBN-13: 978 1 84246 157 0
ISBN-10: 1 84246 157 5

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Production Editor: Michelle Payne
Typesetting and page layout: Margaret Newman
Design by Media Resources, Information Services Department,
Royal Botanic Gardens, Kew

Printed and bound in Italy by Printer Trento

For information or to purchase all Kew titles please visit
www.kewbooks.com or email publishing@kew.org

All proceeds go to support Kew's work in saving the world's plants for life

Cover photo: *Ravanea rivularis*

Contents

Acknowledgements

We would like to thank Kew's partners in Madagascar, ANGAP, Parc Botanique et Zoologique de Tsimbazaza and Université d'Antananarivo for their continued support of and collaboration in our palm programme. We would also like to thank all those guides and fieldworkers who have helped us in the field. Although not directly supported financially by Kew's Friends and Foundation we acknowledge the role that the Threatened Plants Appeal project played in bringing together the authors of this field guide. At the World Bank we would like to thank Dr. Tony Whitten and Dr. Kathy MacKinnon.

At Kew, Bill Baker took overall management of the database of Madagascar palms, to which Mijoro Rakotoarinivo and Kehan Harman made significant additions. Justin Moat generated the distribution maps from this database. We would like to thank Juliet Williamson for the line drawings. Thanks are due to Jeff Searle, Mijoro Rakotoarinivo, Ross Bayton and Neil Hockley for permission to reproduce some photographs.

We would like to thank the World Bank for funding the publication of this field guide through the Bank Netherlands Partnership Program.

Introduction

This book has been written to help people identify palms occurring in Madagascar. We believe the palms of this island are of enormous interest and importance, not only because they play an important role in village life, being used for food, medicine, house-building, crafts, and as ornamentals, but also because most of them grow only in Madagascar, and nowhere else in the world. They form a beautiful part of this great country's natural heritage, but many of them are becoming increasingly rare. We would like to show you why we think these palms are both beautiful and important, and the best way to do that is to share our knowledge.

How to use this book

The book deals with nearly all the wild palms. More attention is paid to the most common palms; the uncommon ones are grouped under the common palms they most resemble.

A key (page 13) will help you find the genus your palm belongs to. This key starts with two choices, and each choice leads you to the next part of the key, where you are given a further choice; and so on, until you find the name of your genus. Small illustrations help you make some of these choices; and if some of the terms seem technical there is a glossary (a list of explanations), near the start of the book (page 7). Once you know the genus, another key will lead you to the species. Of course, if you already know the ***local name*** of your palm, you can look this up in the index at the end of the book (page 169). We would like to give a word of warning on such local names: some local names stand for more than one palm! A general name such as 'Laafa' for instance is used for three different *Dypsis* palms and for a *Ravenea* as well! Similarly, Tsingovatra or Tsingovatrovatra are used for four *Dypsis* palms. In both examples the use of the palms has determined their local name: Laafa is used for palms producing string, and Tsingovatra for those whose stems are hollowed out to make blow-pipes.

After the keys, each of the main palms occupies a page of it own. The scientific name is given, as is the Malagasy name (where we know it). The 'look for' box lists some of the species most recognisable features; a photo also illustrates these features. The map shows where these palms occur, the diagram indicates the altitudes at which they grow and the small black and white drawings give visual details of the leaves and the arrangement of the flowers and fruit. Notes on local uses follow, and then statements on how rare these palms are, and in what kind of vegetation they grow. A brief description is then given. Finally, the 'similar species' box provides short notes on similar but less common species or other plants the palm may be confused with.

Plants mistaken for palms: Palms in general are unmistakable, everybody knows what they look like! There are a few other plants that are sometimes mistaken for palms, however. Ravenala, or the Traveller's Palm, is one. Ravenala is very common on forest edges and in places where forest used to occur – but it is not a true palm. The leaves and their stems are more like a banana than like a palm and the flowers are very different from palm flowers, as are the bright blue seeds. Not many other plants resemble palms: *Dracaena* (dragon tree) may look slightly like a palm from a distance but their simple, narrow leaves separate them easily from true palms.

Please remember that our guide is to native species. Many exotic palms are cultivated in towns throughout Madagascar and these are not treated in this book.

Habitat and distribution: palms are not distributed evenly over all of Madagascar. Many more species grow on the east coast than elsewhere; the 'diversity' of palms is highest in moist forests. Palms occur most frequently in the least disturbed areas of lowland forests. However, good numbers of really interesting palms can also be found in mountain forests. On the Central Plateau there are fewer species, partly because so little forest is left – but even here there are some spectacular palms, such as *Dypsis decipiens* or *Beccariophoenix*. In the West there are few palms, but the ones that do grow there can occur in great numbers, such as Satrana (*Bismarckia*).

Palms such as Satrana, that grow in large numbers and over a great part of the island, and that can withstand the ravages of fire, are not something we have to worry about. But another palm that looks like Satrana was discovered and described less than fifteen years ago: *Satranala*, a beautiful palm that grows in forest. We know of fewer than two hundred trees in the whole world – and they are all concentrated in two places on the east coast of Madagascar. Of course, with numbers as low as this, and in so few places, this is a palm to worry about! Sadly, the same is true for many big forest palms – their natural environment, the forest, is diminishing; they are cut down for palm heart, and many of these palms are only known from very few places. *Dypsis trapezoidea* is only known from Vatovavy Hill; *Voanioala gerardii* is only known from a small part of the Masoala; and *Ravenea musicalis* only grows in a single river in southern Madagascar.

We hope that with increased knowledge of these beautiful plants will come an increased awareness of their plight. In the following pages we hope to share our enthusiasm for these marvels of Madagascar, and we hope that they may be as much a part of the country's future as they have been of its past.

Notes on the main text

Most palms from Madagascar have leaves that are spirally inserted, and the leaves of most are pinnate and regular (see Glossary, page 10). This is considered the 'default', and is not indicated in the descriptions. When leaves are inserted in a different manner (in ranks of three, or in one plane), or the leaflets are grouped or entire, this is indicated. Measurements of leaflets are given for leaflets from the middle of the leaf: this has been done because leaflets near the base can sometimes be much longer, or much shorter than those higher up; similarly, leaflets from near the tip of the leaf can often differ in size.

PALM SOLITARY

PALM CLUSTERED

LEAF FAN-SHAPED

LEAF WITH FEW LEAFLETS

LEAVES IN 3 RANKS

LEAF WITH GROUPED LEAFLETS

LEAF WITH REGULAR LEAFLETS

LEAF ENTIRE

INFLORESCENCE BRANCHING

UNBRANCHED

1 ORDER

2 ORDERS

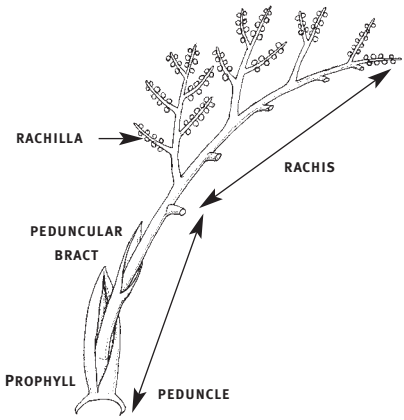
3 ORDERS

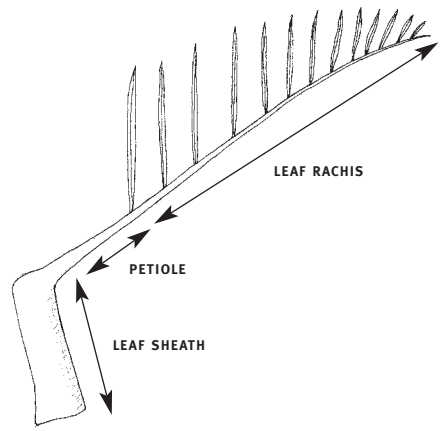
4 ORDERS

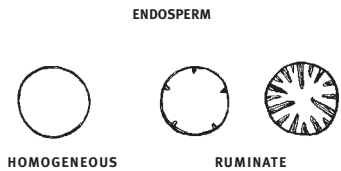
ENDOSPERM HOMOGENOUS

ENDOSPERM RUMINATE

Glossary

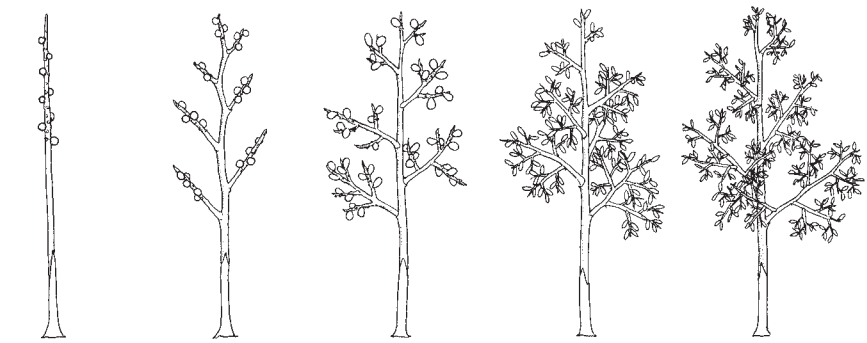






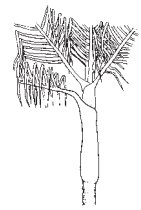
acuminate – of a leaf, tapering to a long tip
aerial roots – roots coming from the plant above the ground surface
apex (plural apices) – tip, top end
bifid – divided at the tip into two equal parts
branched to ... orders – the inflorescence is unbranched or branched; when branched, it can have simple side-branches (= branched to 1 order); or these side branches can have side branches themselves (branched to 2 orders) or even branched side branches (branched to 3 or 4 orders)


BIFID LEAFLET TIP


UNBRANCHED 'SPIKE'
BRANCHED TO 1 ORDER
BRANCHED TO 2 ORDERS
BRANCHED TO 3 ORDERS
BRANCHED TO 4 ORDERS

clustering – with several trunks coming from ground level
columnar – like a column, that is cylindrical with parallel sides
crownshaft – the tube-like leaf bases of several leaves forming a cylinder at the top of the trunk
didymous – of stamens/anthers: two-lobed with a short connecting part

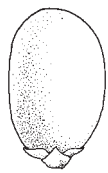
CLUSTERING



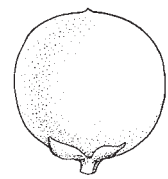
CROWNSHAFT

DIDYMOUS

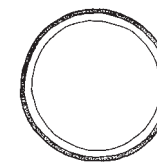
ellipsoid – shaped like an ellipse in 3 dimensions
endosperm – the inside of the seed
endosperm homogeneous – inside of the seed smooth, without darker-coloured parts intruding into the middle
endosperm shallowly ruminate – inside of the seed with small indentations of a different, darker colour
fanned within groups – said of leaflets, when they are not all parallel to each other
geonomoid – of stamens/anthers: with the anther locules hanging from a broad connective
globose – round, in 3 dimensions
homogeneous – of endosperm, uniform, without marginal intrusions



ELLIPSOID



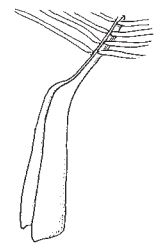
GLOBOSE



HOMOGENEOUS

inflorescence – the flowering branches, composed of stalk, branches, bracts and flowers
inflorescence rachis – the part of the inflorescence above the peduncle, bearing all the branches and rachillae
leaflet – component of a divided leaf
leaflets grouped – leaflets set in bunches, at unequal distances along the leaf rachis
leaflets regular – leaflets set at equal distances along the leaf rachis
leaves in 3 ranks – when seen from below, the leaves are not evenly distributed but seem organized in 3 rows
leaf sheath – base of the leaf, the part that envelops the trunk
leaf sheath open/closed – (see images below)

LEAVES IN 3 RANKS

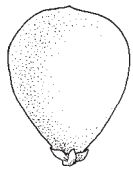


LEAF SHEATH OPEN

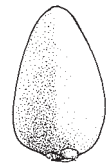
LEAF SHEATH CLOSED

litter-trapping – when palms have leaves held in a tight cone and there is no petiole, leaves and other debris from other trees will fall into this 'funnel', where they accumulate and rot. The palm sends up roots that zigzag up the stem and penetrate this litter mass.
multifold – with more than one fold
obliquely toothed – (see image on right)
obovoid – shaped like an egg, the widest part near the top
ovoid – shaped like an egg, the widest part near the base
palmate – leaf partly divided with the tips radiating from a central core

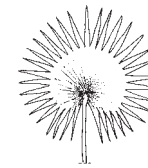
OBLIQUELY TOOTHED



OBOVOID

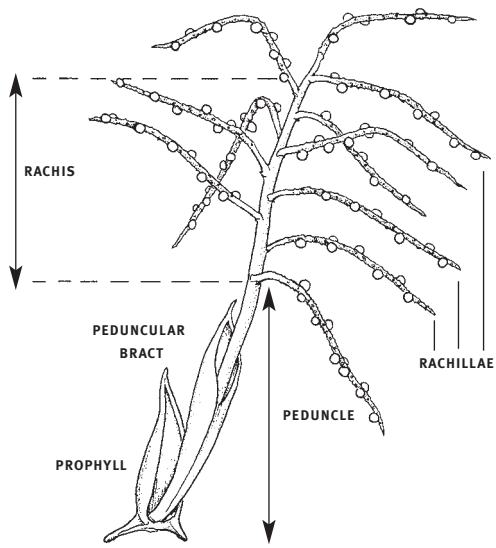


OVOID

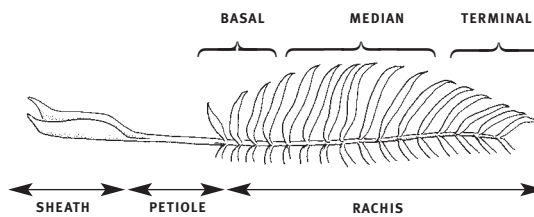


PALMATE

peduncle – the lower, unbranched part of the inflorescence, the stalk of the inflorescence
peduncular bract – bracts within the inflorescence, modified narrow and hollow leaves, usually brown, covering the inflorescence in bud



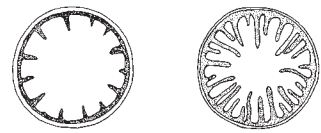
petiole – the stalk of the leaf, the part between sheath and leaflets



pinnate – divided into a central axis (the leaf rachis) and several lateral leaflets, like a feather
plane, one plane – all parts parallel to each other
prophyll – the lowermost bract of an inflorescence, a modified hollow leaf covering the inflorescence in bud (see page 9)
rachilla, plural rachillae – the branch of the inflorescence that bears the flowers or fruits (see page 9)
rachis – of the leaf: the axis bearing the leaflets, the part above the petiole; of an inflorescence: the axis beyond the basal stalk (which is called the peduncle) (see page 9)
ruminate endosperm – inside of the seed with small indentations of a different, darker colour

PINNATE

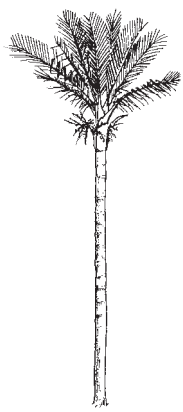
PLANE, ONE PLANE



SHALLOWLY DEEPLY

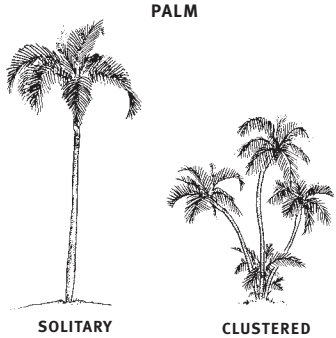
RUMINATE

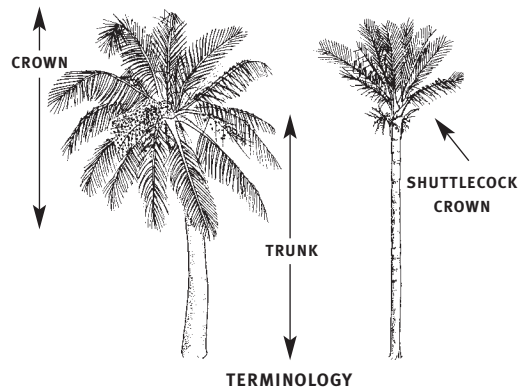
sheaths – of the leaf, the basal part that envelops the trunk
shuttlecock – with parts held upright and straight, pointing slightly outwards, forming a hollow cone
single fold – as opposed to multifold
solitary – not in clumps, with a single trunk
spike/rachilla – said of a rachilla in an unbranched inflorescence
subglobose – almost round, in 3 dimensions
ultramafic – a rock rich in iron and manganese
versatile – of stamens/anthers: as if hinged on the stalk

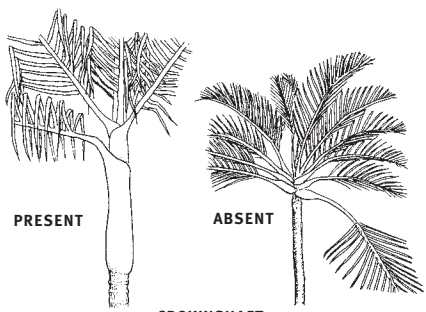


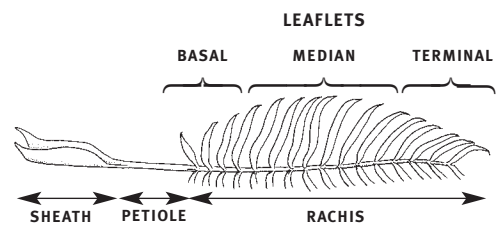
SHUTTLECOCK CROWN

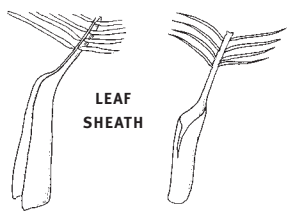
SOLITARY

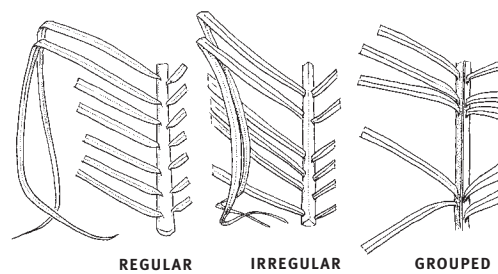

PALM
SOLITARY
CLUSTERED

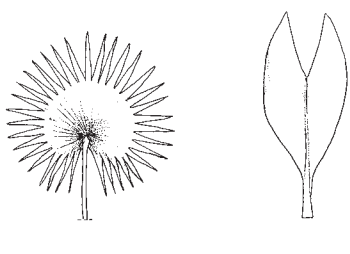

CROWN
TRUNK
SHUTTLECOCK CROWN
TERMINOLOGY

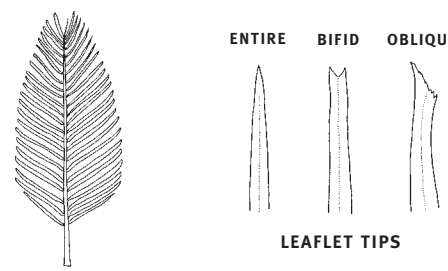

PRESENT
ABSENT
CROWNSHAFT

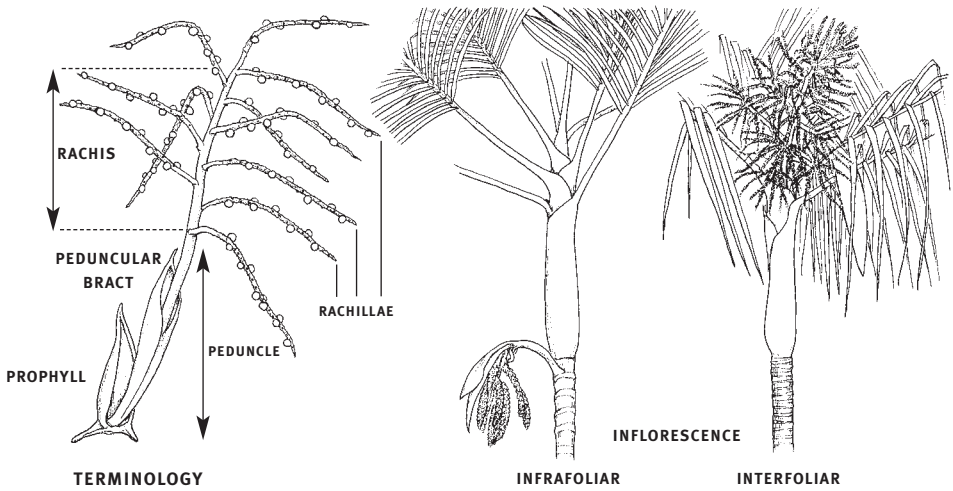

LEAFLETS
BASAL
MEDIAN
TERMINAL
SHEATH
PETIOLE
RACHIS

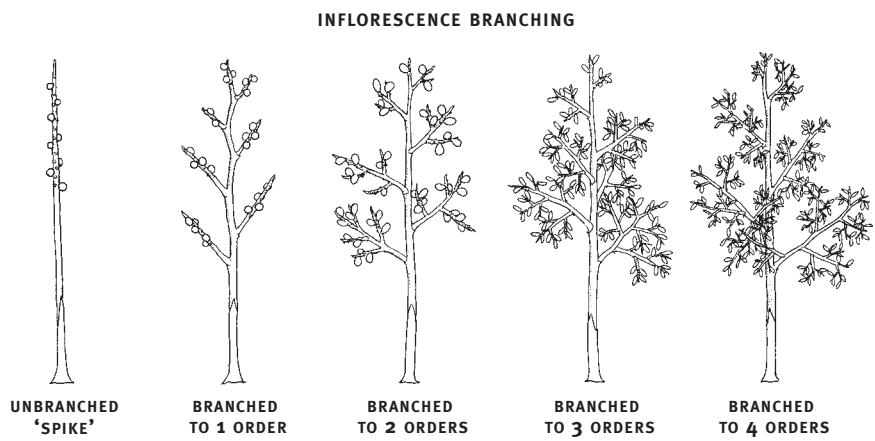

LEAF SHEATH
OPEN
(PARTLY) TUBULAR

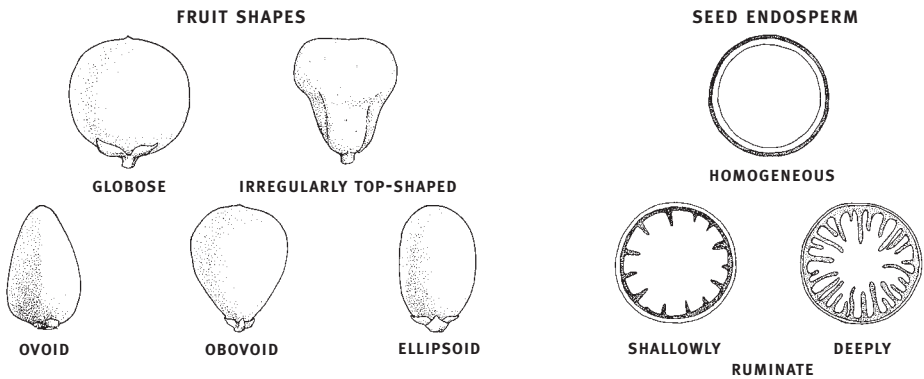

REGULAR
IRREGULAR
GROUPED
LEAFLETS


PALMATE
ENTIRE


PINNATE
ENTIRE
BIFID
OBLIQUE
LEAFLET TIPS


RACHIS
PEDUNCULAR BRACT
RACHILLAE
PEDUNCLE
PROPHYLL
TERMINOLOGY
INFLORESCENCE
INFRAFOLIAR
INTERFOLIAR

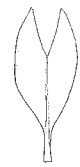

INFLORESCENCE BRANCHING
UNBRANCHED 'SPIKE'
BRANCHED TO 1 ORDER
BRANCHED TO 2 ORDERS
BRANCHED TO 3 ORDERS
BRANCHED TO 4 ORDERS


FRUIT SHAPES
GLOBOSE
IRREGULARLY TOP-SHAPED
OVOID
OBOVOID
ELLIPSOID
SEED ENDOSPERM
HOMOGENEOUS
SHALLOWLY RUMINATE
DEEPLY RUMINATE

Key to Genera

1. Leaves palmate 2
   Leaves pinnate or entire and pinnately ribbed 5

PALMATE



ENTIRE

PINNATE

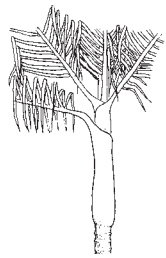
2. Petiole margins armed with irregular black teeth . . . . . ***Borassus*** (p. 16)
   Petiole margins unarmed or armed with regular teeth 3
3. Petiole margins with well defined upward pointing spines to 1 cm long or more . . . . . ***Hyphaene*** (p. 18)
   Petiole margins with minute teeth or unarmed 4
4. Petiole virtually unarmed; leaf segments without clear cross-veinlets; fruit wall more or less smooth; homogeneous endosperm; palm of western grasslands . . . . . ***Bismarckia*** (p. 19)
   Petiole minutely toothed; leaf segments with clear cross-veinlets; inner fruit wall layer winged and crested; endosperm deeply ruminate; palm of eastern rainforest . . . . . ***Satranala*** (p. 20)
5. Petiole or base of leaf rachis armed with spines 6
   Petiole or base of leaf rachis unarmed 7
6. Leaflets V-shaped in cross section, basal leaflets modified as long spines; leaflet tips spine-like . . . . . ***Phoenix*** (p. 15)
   Leaflets Λ-shaped in cross section, fibres of sheath margin spine-like and midribs of basal leaflets modified as spines; leaflet tips not spine-like, more or less irregularly two-lobed . . . . . ***Elaeis*** (p. 167)
7. Leaflet margins and midribs densely armed with short spines; massive palm of village margins and disturbed habitats . . . . . ***Raphia*** (p. 21)
   Leaflet margins and midribs unarmed 8
8. Leaflet tips ragged 9
   Leaflet tips entire or bifid, but not ragged 10

ENTIRE LEAFLET TIP

BIFID LEAFLET TIP

RAGGED LEAFLET TIP

9. Tall solitary palm of canopy or subcanopy, with stems at least 12 cm diameter . . . . . ***Orania*** (p. 39)
   Slender undergrowth palmlets with stems not exceeding 2 cm diameter . . . . . ***Dypsis*** (p. 43)



WITH CROWNSHAFT

WITHOUT CROWNSHAFT

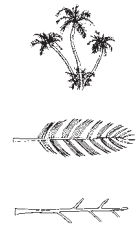
10. Palms with well-defined crownshafts 11
    Palms without well-defined crownshafts 12
11. Immense canopy palm with staminate flowers with more than 50 stamens, large corky warted fruit ..... ***Lemurophoenix*** (p. 152)
    Palms of varying size with staminate flowers with 3 or 6 stamens, smooth fruits ..... ***Dypsis*** (p. 43)
12. Leaf with fibrous sheath that extends to base of lowermost leaflets, but disintegrates partly to produce a false petiole 13
    Leaf with a true petiole or no petiole 15
13. Palm of villages; female flowers very large, at least 3 cm diameter ..... ***Cocos*** (p. 166)
    Palms of natural vegetation; female flowers not exceeding 2 cm diameter 14
14. Leaflets ± 100 to 130 on each side of rachis; peduncular bract borne at tip of peduncle, at least 1 cm thick ..... ***Beccariophoenix*** (p. 162)
    Leaflets ± 70 on each side of rachis; peduncular bract borne near the base of peduncle, about 5 mm thick ..... ***Voanioala*** (p. 164)
15. Massive litter-trapping palms of forest undergrowth, petioles absent or short, leaf bases remaining on trunk 16
    Not so 21
16. Leaflets dark green on upper surface, grey-white on under surface ..... ***Ravenea*** *(R. albicans)* (p. 37)
    Leaflets green on both surfaces 17
17. Petiole well developed, it and sheath densely covered with shining chestnut-brown scales ..... ***Ravenea*** *(R. louvelii)* (p. 38)
    Petiole absent, or if developed with or without dull, irregular indumentum 18
18. Leaflets grouped and fanned within groups ..... ***Dypsis*** *(D. marojejyi)* (p. 90)
    Leaflets regularly arranged or if irregular, then not regularly grouped and fanned, or blade entire 19
19. Inflorescence in bud exserted, torpedo-like, pedundular bract densely covered with red tomentum ..... ***Dypsis*** *(D. perrieri, D.moorei)* (p. 132)
    Inflorescence in bud hidden or, if exserted, then not torpedo-like, peduncular bract smooth 20
20. Inflorescence highly condensed, hidden among leaf sheaths, usually unisexual ..... ***Marojejya*** (p. 158)
    Inflorescence diffuse, exposed, bisexual ..... ***Masoala*** (p. 154)
21. Solitary small to very large tree palms with regularly pinnate leaves and more or less open sheaths ..... ***Ravenea*** (p. 22)
    Solitary or clustered, palmlets to tree palms with regularly or irregularly pinnate leaves, sheaths usually at least 25% tubular ..... ***Dypsis*** (p. 43)

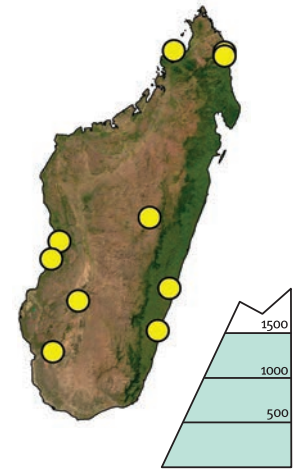
Phoenix reclinata

Dara*, *taratra*, *taratsy

Look for:

- Clustering palm, to 3 m tall.
- Spines as lower leaflets.
- Orange fruit.





Uses
Leaflets used to make baskets. Fruits are edible.

Conservation status
Not threatened.

Habitat
Riverine vegetation; seasonally inundated plains; 0–1500 m.

Clustering palm, to 3 m tall; trunk usually oblique, with persistent leaf sheaths. **Leaves** 2–3 m long, arching, lower leaflets from spines; leaflets arranged in groups of 2–5, to 45 × 3.6 cm. **Inflorescence** male and female on separate trees, branched to 1 order, greenish yellow, rachillae to 20 cm. **Fruit** ovoid to obovoid, 18–20 × 9–12 mm, orange. **Seed** 12–14 × 6 mm, deeply grooved.

Phoenix reclinata, Vohemar

Similar species:

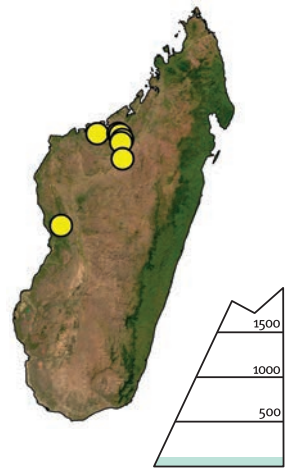
P. dactylifera – the date palm is occasionally cultivated in larger towns. It differs in having a thick stem (to 40 cm) and large edible fruit, 4–7 cm long.

Borassus madagascariensis

Befelatanana*, *dimaka*, *marandravina

Look for:

- Solitary fan palm.
- Trunk often with swelling at or above the middle.
- Fruit 15–17 × 15–18 cm.



Uses
The stem pith gives a slightly bitter sago-like substance which is eaten, as is the palm-heart; hollowed-out stem formerly used for containers. Alcohol produced from fruit; shoots of germinating seedlings eaten.

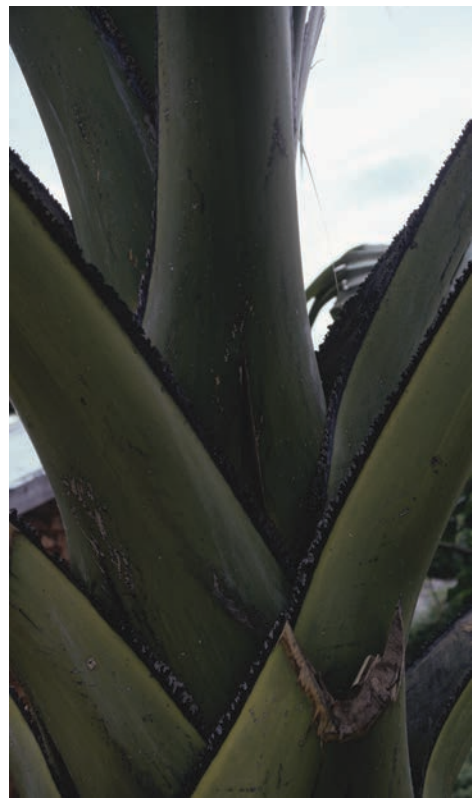
Conservation status
Vulnerable.

Habitat
Along rivers, on alluvium; below 100 m.

Solitary palm, to 16 m tall; trunk cylindrical or with swelling at or above the middle, smooth. **Leaves** 12–30, fan-shaped with a short midrib; petiole 2–3 m with black, irregular flat spines, leaf-blade 1.6–2.2 m long, 2.5–3 m wide, undulating with 60–95 segments. **Inflorescence** male and female on separate trees, male branched to 1 or 2 orders, female unbranched, both ± 1.2 m long; rachillae on male inflorescence 35–40 cm long, on female 25–50 cm. **Fruit** subglobose, 15–18 cm diameter. **Seed** 5–8.5 cm.

Borassus madagascariensis, Ankijabe. (Photo: R. Bayton)

Borassus aethiopum, Sambirano. (Photo: R. Bayton)



Borassus madagascariensis, Ankijabe. (Photo: R. Bayton)

Similar species:

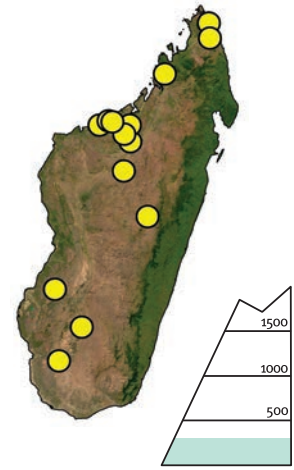
B. aethiopum occurs in the NW and can be distinguished by ± irregular large spines, longer ♀ rachillae (80–90 cm) and more flowers (± 30 in *B. aethiopum* vs. 7–20 in *B. madagascariensis*) and smaller fruit (9–13 cm).

Hyphaene coriacea

Satrana, sata

Look for:

- Clustering fan palm in W Madagascar.
- Trunk occasionally branched.
- Prominent triangular spines on petiole.



Uses
Leaf fibres used in basketry, hat-making, rope-making. Palm heart edible. Sometimes used to make palm wine.

Conservation status
Not threatened. Widespread and common.

Habitat
Littoral or inland, in grassland or wooded grassland, especially on sand; slight slope or flat; able to withstand fire, and sometimes locally common; 1–300 m.

Clustering palm, often seeming solitary, in groups of 2–6, to 6 m tall; trunk occasionally branched. **Leaves** 9–20, erect or spreading, fan-shaped with 39–55 segments; petiole 0.6–1 m with triangular spines, leaf-blade to 70 × 110 cm long. **Inflorescence** among the leaves, male and female on separate trees, male branched to 2 orders, female branched to 1 order, male ± 80 cm long, female 1.2–1.4 m long; rachillae on male inflorescence 9–36 cm long, on female 60–120 cm. **Fruit** irregularly top-shaped, 5–6 cm high, 4–6 cm diameter, on a densely hairy stalk. **Seed** ± 2.7 × 2.7 cm, endosperm homogeneous.

fruit

Similar species:

None.

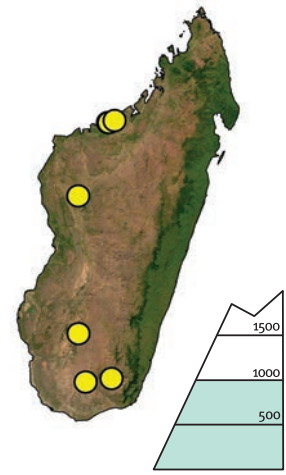
Hyphaene coriacea, Ankarana

Bismarckia nobilis

Satrana*, *satra*, *satrabe*, *satranabe*, *satrapotsy

Look for:

- Solitary palm with fan-shaped leaves in N & W Madagascar.
- Trunk cylindrical and very straight.



Uses
Trunk emptied and flattened for use as planks or partition walling; leaves used for roofing and basketry; pith served as a slightly bitter sago.

Conservation status
Not threatened. Widespread and very common.

Habitat
Plateaux, plains, in all terrains; very common, in large numbers as the only tree on regularly burnt palm grassland; 1–1000 m.

Solitary unarmed tree palm, to 20 m tall; trunk smooth, cylindrical, very straight. **Leaves** 13–30, erect to slightly arching, fan-shaped with 50–77 segments; sheath ± 80 cm long; petiole 70–250 cm, lacking conspicuous spines, densely covered in white wax and patches of reddish fringed scales; leaf-blade ± 1.5 m in diameter. **Inflorescence** among the leaves, branched to 2 orders, male and female on separate trees; rachillae 15–25 cm long. **Fruit** dark brown, ovoid, 40–48 × 30–35 mm. **Seed** 35–38 × 22–24 mm, endosperm homogeneous but penetrated by fruit wall ridges.

Bismarckia nobilis, Isalo

Similar species:

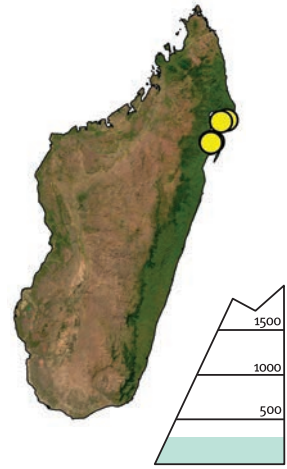
Easily distinguished from ***Hyphaene coriacea*** because the leaf stalks do not have big triangular spines.

Satranala decussilvae

Satranabe

Look for:

- Solitary fan palm in wet forest of E Madagascar.
- Purple-black fruit.



Uses
Leaves used for thatch.

Conservation status
Endangered.

Habitat
Wet forest on shallow soils overlying ultramafic rock or quartzite, in steep-sided valleys; 5–285 m.

Solitary palm, to 15 m tall; trunk smooth, obscurely ringed with scars, sometimes with aerial roots. **Leaves** 20–24, held upright, with up to 6 dead old leaves, fan-shaped, with 54–57 segments; sheath 46–60 cm long; petiole 1.4–1.5 m, with thin white fur and wax beneath; leaf-blade 110–180 × 240–260 cm. **Inflorescence** among the leaves, branched to 2 orders; rachillae 28–31 cm, male and female on separate trees. **Fruit** globose to ovoid, purple-black, to 5.6 × 5 cm; inner fruit wall layer with conspicuous wings and crests. **Seed** to 30 × 32 mm, endosperm deeply ruminate.

Satranala decussilvae

Satranala decussilvae

Similar species:

None.

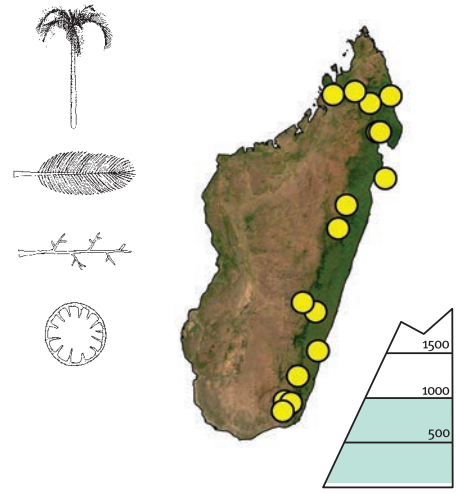
Satranala decussilvae, Mananara Avaratra

Raphia farinifera

Rafia

Look for:

- Associated with human habitation.
- Trunk covered with persistent leaf sheaths.
- "Shuttle-cock" appearance of crown.
- Leaves very long to 20 m.
- Leaflets with small spines along margins and midrib.
- Massive inflorescence and infructescences to 3 m.
- Scaly fruit.



Uses
Fibres from young leaves used for a variety of crafts, including hat-making, fibre-weaving for clothing and basketry; petioles used in hut construction; fruits and palm-heart edible.

Conservation status
Not threatened.

Habitat
Moist situations (swamps, stream banks) near human habitation; 50–1000 m.

Solitary palm, to 10 m tall; trunk covered in persistent leaf sheaths. **Leaves** ± 12, ± erect, slightly spreading, giving crown a "shuttle-cock" appearance, very long to 20 m; leaf sheath and petiole ± 1.5 m long; leaflets up to 150 per side, inserted in 2 planes, to 100 × 4 cm. **Inflorescence** hanging from near stem apex, massive, to 3 m long, branched to 2 orders; rachillae packed very densely, 6–13 cm long. **Fruit** ovoid, chestnut-brown, covered in overlapping scales, 5–6 × 4–4.5 cm. **Seed** ovoid, ± 3.5 × 3.2 cm, endosperm deeply ruminate. Palm dies after flowering and fruiting.

Raphia farinifera

Similar species:

None.

Raphia farinifera, Sainte Marie

Ravenea key

1. Leaflets whitish-tomentose beneath; leaf rachis striped across; litter-trapping palm of moist forest . . . . . *R. albicans* (p. 37)
   Leaflets green and glabrous beneath 2
2. Trunk with dense skirt of sheath remnants in upper 1–4 m; > 5 old dead leaves present on trunk 3
   Trunk smooth, or with some sheath remnants parallel to trunk; old dead leaves absent or very few 4
3. Palm of dry bushland or low forest in southern Madagascar; leaflets on opposite side of rachis at 90° to each other; leaf sheath 13–20 cm wide when flattened . . . . . *R. xerophila* (p. 35)
   Rainforest palm, only known from Moramanga area; leaflets all in one plane; leaf sheath 6.5–8 cm wide when flattened . . . . . *R. louvelii* (p. 38)
4. Petiole absent . . . . . *R. dransfieldii* (p. 34)
   Petiole present, 6 cm long 5
5. Leaflets with sinuous cross-veins connecting longitudinal veins; trunk with erect short woody sheath remnants . . . . . *R. lakatra* (p. 36)
   Leaflets with only longitudinal veins visible; trunk smooth 6
6. Leaflets 18–43 on each side of rachis, in mid-leaf 16–46 × 1–2 cm; leaf rachis < 1 m long, < 7 mm wide in mid-leaf . . . . . *R. nana* (p. 29)
   Leaflets < 49 on each side of rachis, in mid-leaf usually > 50 cm long; leaf rachis > 1.1 m long 7
7. Staminate trees 8
   Pistillate trees 15
8. Staminate inflorescence multiple 9
   Staminate inflorescence solitary . . . . . *R. madagascariensis* (p. 26)
9. Palms growing in water; trunk with swollen base, 30–50 cm diameter; petiole 6–20 cm long 10
   Palms of dry land; trunk columnar, 7–29 cm diameter; petiole 10–80 cm long 11
10. Inflorescence branched to 1 order; internodes 1–2 cm long; wood soft . . . . . *R. musicalis* (p. 32)
    Inflorescence branched to 2 orders; internodes 4–8 cm long; wood with hard layer just below bark . . . . . *R. rivularis* (p. 31)
11. Petals 7.5–9 mm long; leaf sheath with floccose tomentum; palm of dry forest and canyons . . . . . *R. glauca* (p. 33)
    Petals 1.8–6 mm long; leaf sheath with very short velvety tomentum 12
12. Leaf rachis > 3 m long; middle leaflets 5–6.8 cm wide . . . . . *R. latisecta* (p. 26)
    Leaf rachis < 3 m long; middle leaflets < 5.2 cm wide 13
13. Leaves straight or slightly arching; leaflets < 3 cm apart in mid-leaf . . . . . *R. madagascariensis* (p. 26)
    Leaves arching strongly, leaflets held in V, in mid-leaf > 3 cm apart 14
14. Older leaf sheath with fibrous edges; leaflet scales small, < 1 mm . . . . . *R. sambiranensis* (p. 28)
    Older leaf sheath with smooth margins; leaflet scales large, > 2 mm . . . . . *R. julietiae* (p. 30)
15. Inflorescence multiple . . . . . *R. madagascariensis* (p. 26)
    Inflorescence solitary 16
16. Peduncle 1.4–3.1 m long; seed 14–20 mm across . . . . . *R. julietiae* (p. 30)
    Peduncle less than 1.1 mm long 17

17. Palm of standing or flowing water, with thickened trunk to 30–50 cm across; leaf rachis 1.2–1.8 m long 18
Palm of dry land with cylindrical trunk (or, if trunk thickened, then leaf rachis 2.2–4 m long) 19

18 Inflorescence with 125–146 rachillae; fruit red, 7–9 mm ..... *R. rivularis* (p. 31)
Inflorescence with 58–68 rachillae; fruit orange, 14–23 mm ..... *R. musicalis* (p. 32)

19 Leaves with leaflets on opposite sides of rachis at angle of 90° with each other; petiole near top 1–3 cm wide 20
Leaves with leaflets in one plane; petiole near top 3.7–8 cm wide 21

20 Fruit orange or red, 9–12 mm; leaf sheath short-tomentose with marginal fibres ..... *R. sambiranensis* (p. 28)
Fruit yellow, 20–23 mm; leaf sheath with floccose tomentum without marginal fibres ..... *R. glauca* (p. 33)

21. Petals 2.8–3.2 mm long; staminodes 10; fruit 25–30 mm ..... *R. krociana* (p. 25)
Petals 4–4.2 mm long; staminodes 6; fruit 8–18 mm ..... *R. robustior* (p. 24)

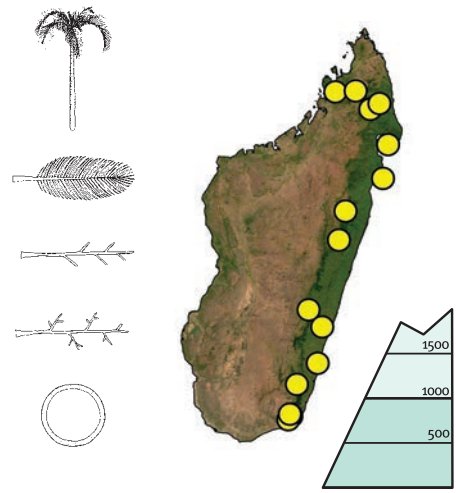
Ravanea rivularis, near Isalo

Ravenea robustior

Anivo*, *bobokaomby*, *hovotravavy*, *laafa*, *lakabolavo*, *loharanga*, *manara*, *monimony*, *ovotretanana*, *retanana*, *tanavy*, *vakabe*, *vakaky*, *vakaboloka

Look for:

- Majestic canopy palm.
- Columnar or slightly bellied trunk, with bulbous base.
- Straight leaves.



Uses
Palm-heart edible; formerly used to make salt from the ash of the trunk; young leaves used to make brooms; outer wood used for floorboards, tables and house walls.

Conservation status
Rare. Widespread but not common – cut for palm heart and construction wood.

Habitat
Moist forest in valley bottoms, on medium or steep slopes, near water or near hill crests; in open or closed forest; often locally common; 1–1000(–2000) m.

Majestic canopy palm, to 30 m tall; trunk columnar or slightly swollen near base; upper part of trunk usually with remnants of sheaths; base bulbous with minute adventitious roots; outer wood hard, heartwood white and soft. **Leaves** 11–25, held in shuttlecock, straight; petiole 17–134 cm, leaf rachis 2–4 m long, leaflets 50–105 per side, to 126 × 7.5 cm. **Inflorescence** male and female on separate trees, solitary, among the leaves or among dead leafbases, male branched to 2(–3) orders, female to 1(–2) orders; male rachillae 10–47 cm long, female 9–81 cm. **Fruit** orange, obovoid to ovoid-globose, 10–18 × 8–15 mm, usually 1-seeded. **Seed** brown, hard, 9–16 × 6–13 mm.

Ravenea robustior, Mantadia

Ravenea robustior

Ravenea krociana

Ravenea krociana, Andohahela

Similar species:

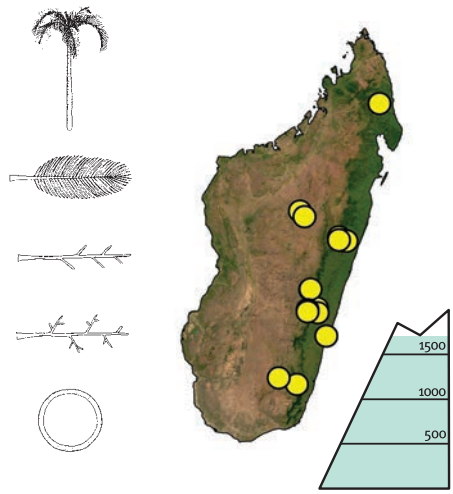
R. krociana is found in southeast Madagascar in lowland and hill forest; it is even larger in all its parts, has a soft trunk and fruit at least twice as large.

Ravenea madagascariensis

Anivo*, *anivokely*, *anivona*, *tovovoko

Look for:

- Graceful palm, generally of high plateaux.
- Base of trunk often thickened and with surface roots.
- Leaves usually straight.



Uses
Outer wood used in house walls and floors.

Conservation status
Rare but may be locally common e.g. in Ifanadiana area.

Habitat
Moist to rather dry hill forest, on steep slopes or hill crests, occasionally on steep slopes in riverine forest; 25–1700 m.

Medium-sized palm, to 12 m tall; trunk often thickened and with surface roots, occasionally with remaining sheath bases in upper part. **Leaves** 10–26, held in shuttlecock mode; petiole 20–80 cm, leaf rachis 2–3 m, leaflets 55–82 per side, to 95 × 5.2 cm. **Inflorescence** male and female on separate trees; male multiple in 4s–9s, branching to 2 orders; female multiple in 3s–7s (only rarely solitary), branching to 1 order; male rachillae 3–20 cm long, female 5–44 cm. **Fruit** orange, globose or obliquely ellipsoid, 5–10 × 7–10 mm, 1-seeded. **Seed** brown, 6–7 × 5–5.5 mm.

Ravenea madagascariensis

Similar species:

R. latisecta – known only from Andasibe, was described as having very broad leaflets. It has not been seen with certainty since the first collection.

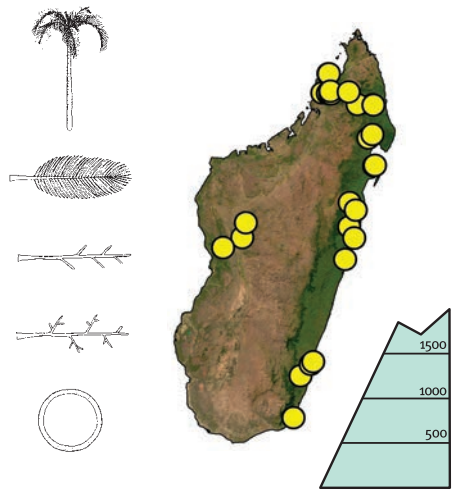
Ravenea madagascariensis, Andasibe

Ravenea sambiranensis

Anivo*, *anivona*, *mafahely*, *ramangaisina*, *soindro

Look for:

- Arching to strongly arching leaves.
- Sheath remnants absent on trunk.
- Surface roots.



Uses
Outer wood used for floorboards; young palm heart cooked with manioc and eaten, but slightly bitter.

Conservation status
Vulnerable.

Habitat
Littoral forest on white sand, dense moist forest or dry montane forests, steep slopes, hill crests or on almost level ground; in the west in remnant riverine forest; 1–2000 m.

Slender small palm to majestic tree palm, to 30 m tall, rarely with sheath remnants on trunk. **Leaves** 10–28, arching to strongly arching; petiole 13–76 cm, leaf rachis 1–2 m long, pale green with white bloom, leaflets 35–67 per side, to 64(–94) × 2.4 cm. **Inflorescence** male and female on separate trees, male multiple in 5s–9s and branched to 1 or 2 orders, the female solitary and branched to 1 order; male rachillae 3–23 cm long, female 5–50 cm. **Fruit** orange to red, 10–12 × 9–10 mm. **Seed** brown, 5–8 mm.

Ravenea sambiranensis, Sainte Marie

Ravenea sambiranensis

Ravenea sambiranensis

Ravenea nana, Andrambovato. (Photo: N. Hockley)

Ravenea nana, Andrambovato. (Photo: N. Hockley)

Similar species:

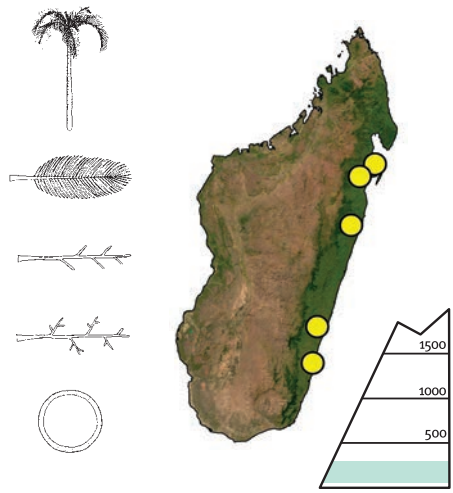
R. nana – known from scattered localities in mountainous areas, is a small palm rarely more than 4 m tall with leaf rachis 30–40 cm and leaflets to 35 × 2 cm. Fruit 13–21 mm long.

Ravenea julietiae

Anive, anivona, saroroira, sindro madiniky, vakapasy

Look for:

- Female inflorescence longer than leaves.
- Large black seeds.



Uses
Used in construction; hollowed trunks used for irrigation pipes.

Conservation status
Endangered.

Habitat
Moist lowland forest; on slight to steep mid-slopes; 50–300 m.

Graceful medium-sized palm, to 10 m tall; base of crown bulbous. **Leaves** 9–23, arching; petiole 30–80 cm, leaf rachis 1–3 m long, green with white scattered scales, leaflets 34–48 per side, to 90 × 5 cm. **Inflorescence** male and female on separate trees, male multiple in 5s–7s, among the leaves and branched to 2 orders, female solitary, 2.5–4 m long, branched to 1 order; male rachillae 3–17 cm long, female 20–49 cm. **Fruit** ellipsoid, 22–27 × 17–20 mm. **Seed** ovoid or ellipsoid, black, 19–20 × 14–17 mm.

Ravenea julietiae, Amby

Similar species:

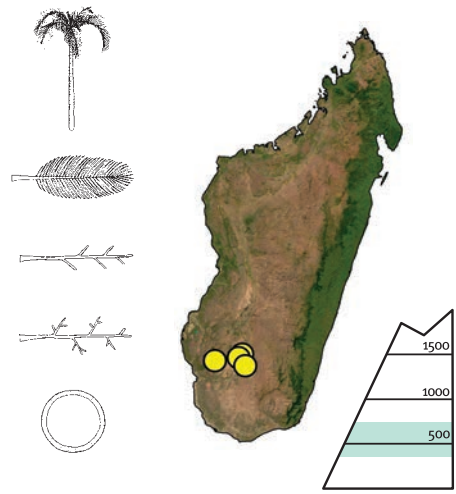
Male trees quite like ***R. sambiranensis***.

Ravenea rivularis

Bakaly, gora, malio, vakaka

Look for:

- Majestic palm growing along riverbanks.



Uses
Seed collected for export.

Conservation status
Vulnerable.

Habitat
Banks of streams and small rivers in the uplands of southwest Madagascar; 350–750 m.

Majestic tree palm, to 22 m tall, trunk cylindrical or slightly inflated towards the middle. **Leaves** 16–25, slightly arching; petiole 6–20 cm long, leaf rachis 1.2–1.7 m long, leaflets 70–73 per side, to 64 × 3 cm. **Inflorescence** male and female on separate trees, male multiple in 5s–7s, among the leaves, branched to 2 orders, female solitary, branched to 1 order; male rachillae 3–21 cm long; female rachillae 10–32 cm long. **Fruit** bright red, globose to slightly ellipsoid, 7.5–9 × 7–8.5 mm, 1-seeded. **Seed** 5.5–6 × 5.5 mm.

Ravenea rivularis

Similar species:

None.

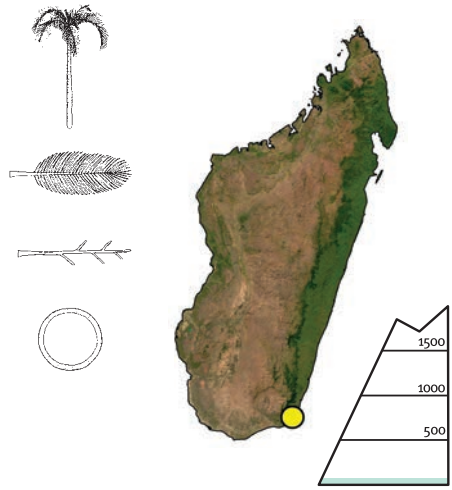
Ravenea rivularis, Ilakaka

Ravenea musicalis

Torendriky

Look for:

- Small to medium-sized palm growing in 0.5–2.5 m deep water.
- Bottle trunk.



Uses
Sometimes used to make temporary canoes.

Conservation status
Vulnerable. Only occurs along a single river.

Habitat
Growing in flowing water 0.5–2.5 m deep; below 50 m.

Small to medium-sized bottle palm, to 8 m tall. **Leaves** 14–16, arching; petiole 15–19 cm, leaf rachis 1.3–1.8 m long, leaflets 59–63 per side, to 53 × 2.4 cm. **Inflorescence** male and female on separate trees, male multiple in 5s, branched to 1 order, female solitary, branched to 1 order; male rachillae 7–24 cm long, female 9–42 cm. **Fruit** orange, globose, 14–23 mm, 1-seeded. **Seed** brown, hard, 10–14 mm.

Ravenea musicalis, seedlings in flowing water.

Similar species:

None.

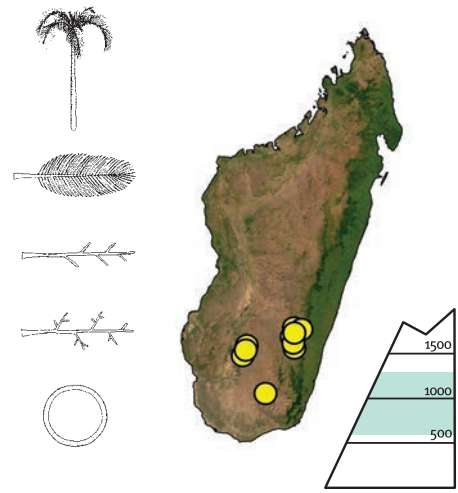
Ravenea musicalis, Belavenona

Ravenea glauca

Anivo*, *sihara

Look for:

- Slender palm of dry regions.
- Undersides of leaflets smooth and waxy.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Dry forest and in ravines and rocky or sandy gullies; 670–1250(?1800) m.

Variable species, 0.2–8 m tall. **Leaves** 14–20, slightly arching; petiole 10–50 cm; rachis 1–2 m long; leaflets 49–73 per side, to 70 × 2.3 cm, smooth with waxy covering when fresh. **Inflorescence** male and female on separate trees, male multiple in 2s–6s, branched to 1–2 orders, female solitary, branched to 1 order; male rachillae 2–12 cm long, female 4–26 cm. **Fruit** yellow, globose, 20–23 mm, 1-seeded. **Seed** dark brown, 16–18 × 18–19 mm.

Ravenea glauca, Isalo

Similar species:

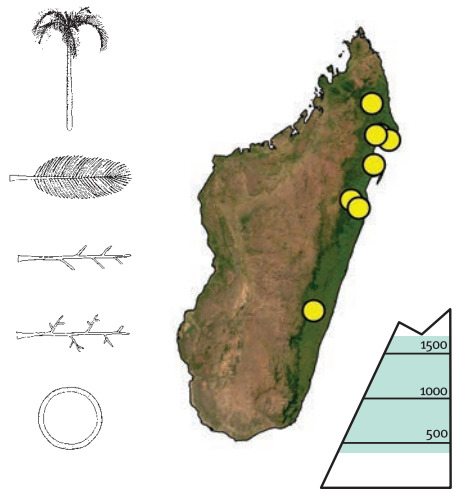
None.

Ravenea dransfieldii

Anivo*, *lakatra* (*for male*) *and lakabolavo* (*for female*), *mandriravina*, *ovotsarorona

Look for:

- Basal leaflets hanging down limply.
- Absence of petiole.
- Extremely hard black wood.



Uses
Palm-heart reported to be poisonous by some, but also reports that it is edible. Leaflets used in hat making.

Conservation status
Vulnerable.

Habitat
Rainforest, on slopes and ridge tops; 400–1700 m.

Medium-sized palm, to 7 m tall; base of crown bulbous. **Leaves** 11–17, straight; petiole absent; rachis 3.3–4.4 m long; leaflets 70–84 per side, to 100 × 5 cm, basal leaflets hang down limply. **Inflorescence** male and female on separate trees, largely concealed at the base of the leaf, solitary in both sexes, male branched to 2 orders, female to 1 order; male rachillae erect, 18–35 cm long; female rachillae tightly packed and 9–27 cm long. **Fruit** orange, ovoid or ellipsoid, 15–20 × 12–15 mm, 1-seeded. **Seed** ellipsoid, 15 × 10 mm, black.

Ravenea dransfieldii

Similar species:

None.

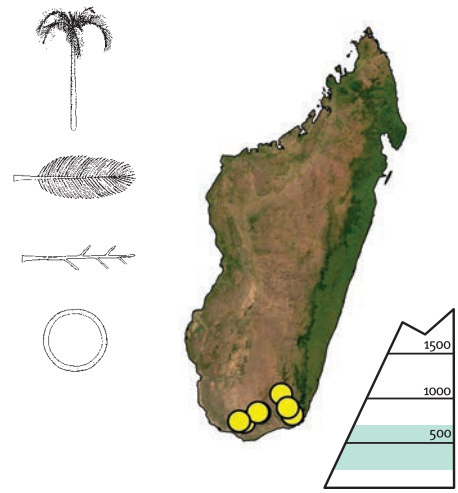
Ravenea dransfieldii, Masoala

Ravenea xerophila

Ahaza*, *anivo*, *anivona

Look for:

- Palm growing in dry spiny forest.
- Trunk covered in densely packed sheath remnants.
- Gracefully arching leaves.



Uses
Leaves used to weave winnowing baskets and hats.

Conservation status
Endangered.

Habitat
Dry spiny *Didieraceae*/*Euphorbia* bush or dry low forest, on laterite or gneiss; 200–700 m. May grow in groups.

Solitary medium-sized palm, to 8 m tall; upper half of trunk (or in smaller trees the entire trunk) covered in densely packed sheath remnants. **Leaves** (11–)18–22, arching; petiole 22–60 cm, leaf rachis 1–2.1 m long, pale green with white bloom, leaflets 47–55 per side, to 64(94) × 2.4 cm. **Inflorescence** male and female on separate trees, solitary and branched to 1 order in both sexes, male rachillae 1–8 cm long, female 5–33 cm. **Fruit** yellowish, 15–22 × 17–27 mm, 1-, 2- or 3-seeded, lobed in more seeded ones. **Seed** globose, 12–18 mm.

Ravenea xerophila, Antanimora

Similar species:

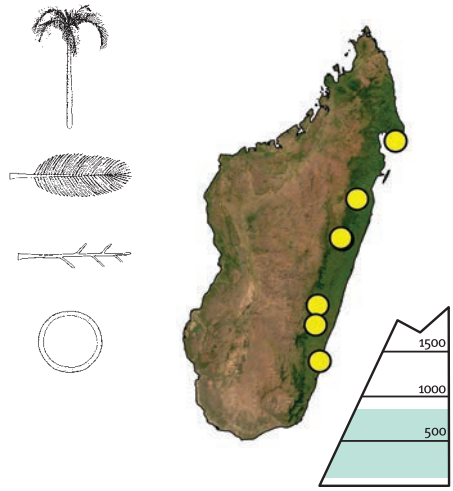
None.

Ravenea lakatra

Lakatra*, *tsilanitafika

Look for:

- Woody 'steps' on trunk (actually remains of leaf sheaths).
- All woody parts are rock-hard.
- Unique seed in genus with a sharp pointed apex.



Uses
Source of fibre for hats. Young leaves are harvested which prevents growth, so many populations pruned to a perpetually juvenile rosette stage.

Conservation status
Endangered.

Habitat
Moist lowland forest on slight mid-slope or ridge crest; 90–850 m.

Moderate-sized palm, to 14 m tall, sheath remnants covering upper part of trunk; short, erect woody sheath base remnants set at nodes over the whole length of trunk; wood very hard, with black fibre layer. **Leaves** 8–10, slightly arching; petiole 80–160 cm, leaf rachis 2.3–3.5 m long, leaflets 87–98 per side, to 77 × 4.7 cm. **Inflorescence** male and female on separate trees, solitary and branched to 1 order in both sexes, male rachillae 6–30 cm long, female 7–65 cm. **Fruit** blackish, ± globose, 15–21 mm, with terminal stigmatic remains, 1-, 2- or 3-seeded. **Seed** black, 9–10 mm.

Ravenea lakatra, Manombo

Similar species:

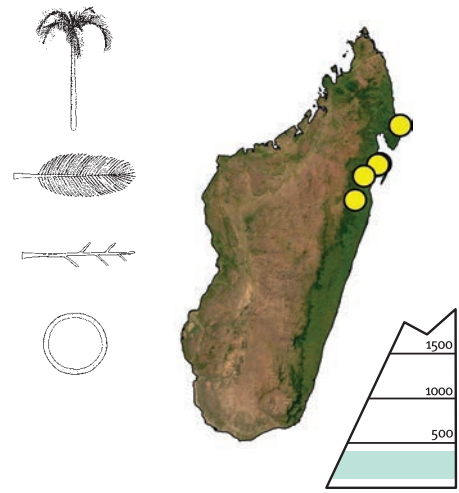
None.

Ravenea albicans

Hoza-tsiketra

Look for:

- White undersides of leaflets.
- Striped leaf rachis.
- Litter-trapping palm.



Uses
Palm-heart edible.

Conservation status
Endangered.

Habitat
Moist lowland forest on slight mid-slope or ridge crest; 100–400 m.

Moderate-sized undergrowth palm, litter-trapping, trunk to 9 m tall, usually covered in rotting leaf bases. **Leaves** 8–14, straight; petiole 0–34 cm; leaf rachis to 3.7 m with pale cross-stripes among the brown, leaflets 45–48 per side, to 93 × 8 cm. **Inflorescence** male and female on separate trees, solitary in both sexes, and branched to 1 order, mostly hidden among leaf sheaths, male rachillae 5–8 cm long, female 16–29 cm. **Fruit** unknown.

Ravanea albicans, Ambatovaky

Similar species:

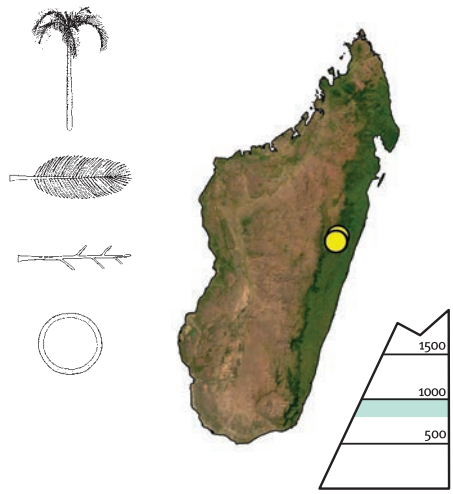
None.

Ravenea louvelii

Lakamarefo, siraboto

Look for:

- Squat litter-trapping palm.
- Very neat narrow stiff leaflets.
- Inflorescence partly hidden among leaves.



Uses
Not recorded.

Conservation status
Critically endangered.

Habitat
Moist lowland forest on steep slope near crest, 800–1000 m.

Moderate-sized litter-trapping palm; trunk to 3 m tall, sheath remnants covering upper part. **Leaves** 9–14, straight; petiole 50–130 cm, covered in shiny brown scales, leaf rachis 2–3 m long with brown scales, leaflets 80–104 per side, to 67 × 2.6 cm. **Inflorescence** male and female on separate trees, solitary in both sexes, and branched to 1 order, mostly hidden among leaf sheaths, male rachillae 1–7 cm long, female 2.5–7 cm. **Fruit** purplish, globose, 13–20 mm, with terminal stigmatic remains, 1-, 2- or 3-seeded. **Seed** black, 9–13 × 6–9 mm.

Ravenea louvelii

Ravenea louvelii

Similar species:

None.

Ravenea louvelii, Andasibe

Orania key

1. Leaves in one plane, resembling a huge fan 2
   Leaves spiral, inflorescence branched to 3 orders ..... *O. longisquama* (p. 42)
2. Inflorescence branched to 2 orders; leaflets with red-brown thin long scales with ragged edges ..... *O. ravaka* (p. 41)
   Inflorescence branched to 3(–4) orders; leaflets with pale grey thin long scales with ragged edges ..... *O. trispatha* (p. 40)

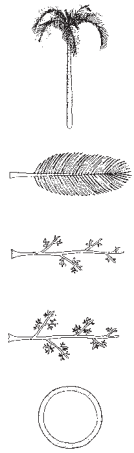
Orania ravaka

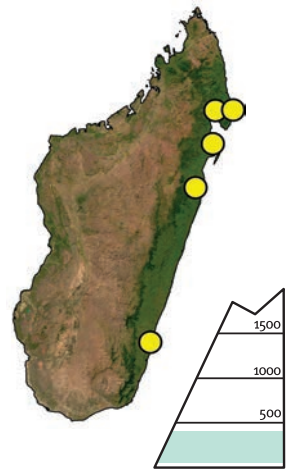
Orania trispatha

Sindro*, *sindroa*, *anivo*, *ovobolamena

Look for:

- Solitary palm, to 22 m tall, with leaves arranged in 2 ranks.
- Obliquely toothed leaflet tips.
- Inflorescence among the leaves, branched to 3–4 orders.





Uses
Wood used in hut construction.

Conservation status
Critical.

Habitat
Lowland rainforest; flat ground near streams, swamp edges; 50–400 m.

Solitary palm, to 22 m tall; trunk with a basal boss; crownshaft absent. **Leaves** 10–12, in 2 ranks, ± straight, forming a fan; sheath ± 60 cm, grading into a 0.7–2 m long petiole, with rusty brown indumentum and white wax; rachis 2–2.3 m long; leaflets 60–65 per side, to 99 × 9.5 cm, tips obliquely toothed. **Inflorescence** among the leaves, branched to 3–4 orders, rachillae 15–46 cm. **Fruit** green, semi-globose or obovoid and 3.9–4.5 cm diameter, but more often 2- or 3-lobed and 5–5.5 × 5–8 cm. **Seed** with homogeneous endosperm.

Orania trispatha

Similar species:

O. ravaka – see page right

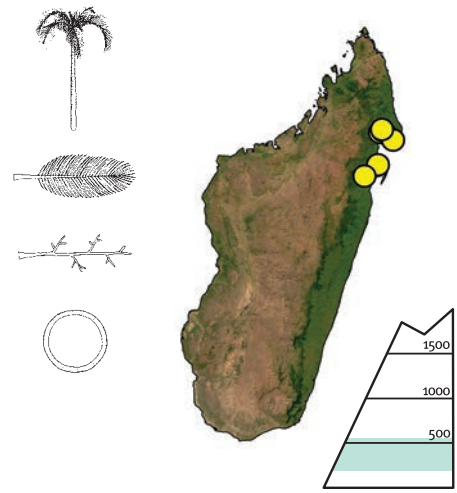
Orania trispatha, Masoala

Orania ravaka

Sindro, vapakafotsy

Look for:

- Solitary palm, to 15 m tall with leaves arranged in 2 ranks.
- Obliquely toothed leaflet tips.
- Inflorescence among the leaves, branched to 2 orders.



Uses
Not recorded.

Conservation status
Vulnerable.

Habitat
Lowland rainforest; ridge crests and valley bottoms; 200–550 m.

Solitary palm, to 15 m tall; trunk with a basal boss and surface roots; crownshaft absent. **Leaves** 6–8, in 2 ranks, slightly arching; sheath 35 cm, open; petiole 30 cm; rachis 1.2–1.8 m long; leaflets 33–44 per side, to 78 × 5 cm, tips obliquely toothed. **Inflorescence** among the leaves, branched to 2 orders, rachillae 7–40 cm. **Fruit** yellow or pale brown, slightly globose or obovoid, 4–6 cm diameter. **Seed** ± globose, 2.5–4 cm, with homogeneous endosperm.

Orania ravaka

Similar species:

O. trispatha – *O. ravaka* is distinguished by fewer and smaller leaflets and inflorescence branched to 2 orders.

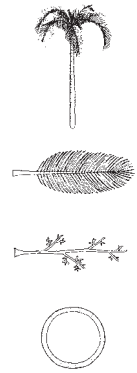
Orania ravaka, Mananara, Avaratra

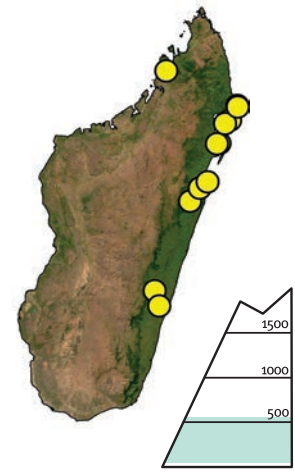
Orania longisquama

Sindro*, *anivona*, *ovobolafotsy*, *vakapasy

Look for:

- Solitary palm, to 20 m tall.
- Toothed leaflet tips.
- Inflorescence among the leaves, branched to 3 orders.





Uses
Wood used for house walls.

Conservation status
Rare.

Habitat
Lowland rainforest; slope base, mid-slope or ridge-crest; 40–550 m.

Solitary palm, to 20 m tall; trunk often with surface roots and a basal boss; crownshaft absent. **Leaves** 8–15, arching; sheath 26–40 cm, green; petiole 33–120 cm; rachis 1.3–2 m long; leaflets 47–65 per side, to 88 × 5 cm, apices toothed. **Inflorescence** among the leaves, branched to 3 orders, rachillae 8–36 cm. **Fruit** green, globose or obovoid, occasionally 2- or 3-lobed, 4–5.5 × 3–4.5 cm. **Seed** globose, 3–4.4 cm, endosperm homogeneous.

Orania longisquama

Similar species:

Ravenea madagascariensis looks very similar when not flowering but *O. longisquama* is immediately distinguished by toothed leaflet tips and white undersurface of leaflets.

Orania longisquama, Betampona

Dypsis key

k1. Inflorescence unbranched or forked once ..... KEY A (p. 43)
Inflorescence branched with 3 or more rachillae k2
k2 Inflorescence branched to 1 order (rarely with lowermost rachilla forked) ..... KEY B (p. 45)
Inflorescence branched to 2–4 orders k3


k2(a)


k2(b)


k2(b)


k2(b)

k3 Leaves entire ..... KEY C (p. 48)
Leaves pinnate k4


k3(b)


k3(b)


k3(a)

k4 Leaflets < 10 on each side of rachis ..... KEY D (p. 49)
Leaflets ≥ 10 on each side of rachis k5
k5 Leaflets grouped or (slightly) irregular ..... KEY E (p. 50)
Leaflets regular ..... KEY F (p. 54)


(KEY F)


(KEY E)

KEY A

a1 Leaves entire and bifid (rarely with 2 pairs of leaflets, the base pair very small) a2
Leaves on flowering stems pinnate with 2 or more leaflets on each side of rachis a17
a2 Leaves lobed for more than or about half their length a3
Leaves lobed for less than half their length a10
a3 Leaf lobes less than 2 × as long as leaf midrib a4
Leaf lobes more than 3 × as long as leaf midrib a7
a4 Leaf blade 29–48 cm long a5
Leaf blade 17–26 cm long a6
a5 Peduncle ± 13 cm long; rachilla/spike ± 9 cm long ..... *D. acaulis* (p. 150)
Peduncle 22–33 cm long; rachilla/spike 13–22 cm long ..... *D. andapae* (p. 111)
a6 Leaf lobes as long as midrib; leaf sheath closed; fruit 5–6.5 mm long ..... *D. heterophylla* (p. 103)
Leaf lobes 2 × as long as midrib; leaf sheath open; fruit 6–13 mm long ..... *D. bernierana* (p. 114)
a7 Leaf blade 11–19 cm long, lobes 8–15 × 0.7–1.3 cm; leaf sheath 2–6 cm long ..... *D. tenuissima* (p. 115)
Leaf blade 19–42 cm long, lobes 16–37 × 1.2–4.5 cm; leaf sheath 6–13 cm long a8

a8 Usually an almost stemless palm; leaf sheaths open almost to base; flower groups dense ..... *D. digita* (p. 115)
Palms with stems 15–80 cm tall; leaf sheaths closed for more than half; flower groups distant a9
a9 Leaf sheath 6–9 cm long; rachilla/spike 4–12 cm long, minutely hairy or smooth ..... *D. minuta* (p. 115)
Leaf sheath 11–13 cm long; rachilla/spike 11–26 cm long, densely scaly ..... *D. poivreana* (p. 115)
a10 Plant almost stemless; leaf blade 25–150 cm long ..... *D. brevicaulis* (p. 115)
Palms with stems > 20 cm tall; leaf < 41 cm long a11
a11 Leaf blade notched < 4 cm deep; clustering palms a12
Leaf blade lobed > 4 cm long; clustering or solitary palms a13
a12 Leaf blade narrowly triangular, 2.5–5 cm wide, smooth; flower groups distant ..... *D. simianensis* (p. 117)
Leaf blade obovate, 4–7 cm wide, with minute scales scattered over minor veins, flower groups dense ..... *D. integra* (p. 117)
a13 Rachilla/spike smooth, 23–24 cm long ..... *D. lucens* (p. 117)
Rachilla/spike hairy or scaly or if smooth, then < 15 cm long a14
a14 Rachilla/spike smooth a15
Rachilla/spike hairy or scaly a16
a15 Stamens 6; blade triangular with the wider part near the top, about as long as the inflorescence ..... *D. catatiana* (p. 116)
Stamens 3, with 3 staminodes; blade obovate, much longer than the inflorescence ..... *D. spicata* (p. 117)
a16 Leaf stiff, like thick paper; anthers didymous ..... *D. catatiana* (p. 116)
Leaf leathery; anthers versatile ..... *D. coriacea* (p. 117)
a17 Leaf sheath 16–18 cm, leaf rachis 70–95 cm; inflorescence > 1 m; solitary palm 4–5 m tall ..... *D. soanieranae* (p. 101)
Leaf sheath < 14 cm, leaf rachis < 40 cm; inflorescence < 75 cm; palms < 2.5 m tall a18
a18 Some of lower and/or middle leaflets multifold, flat and attached to the rachis for more than 1 cm a19
All leaflets (except top pair) composed of a single fold, the attachment less than 1 cm a22
a19 Leaf rachis 29–40 cm long; leaf sheath 8–14 cm long ..... *D. occidentalis* (p. 112)
Leaf rachis < 28 cm long; leaf sheath < 9 cm long (except *D. heterophylla*) a20
a20 Stamens 3; leaflets 2 on each side of rachis; solitary palm from Marojejy area ..... *D. spicata* (p. 117)
Stamens 6; leaflets 2 or more on each side of rachis; solitary or clustering palms a21
a21 Leaflets grouped, terminal pair at narrow angle; stamens versatile ..... *D. heterophylla* (p. 103)
Leaflets regular, terminal pair at wide angle; stamens didymous ..... *D. catatiana* (p. 116)
a22 Leaflets 9–12 on each side of rachis a23
Leaflets ≤ 6 on each side of rachis a25
a23 Rachilla/spike 4–10 cm long ..... *D. heterophylla* (p. 103)
Rachilla/spike 12–24 cm long a24
a24 Leaf sheath 12–13 cm long; prophyll 16–35 cm long ..... *D. curtisii* (p. 101)
Leaf sheath 8–9 cm long; prophyll 8–14 cm long ..... *D. pervillei* (p. 101)
a25 Leaflets without dot-like scales on minor veins a26
Leaflets with small dot-like scales on minor veins a27

a26 Solitary palm; leaflets 21–29 cm long; spike/rachilla 6–16 cm, hairy ..... *D. digitata* (p. 115)
Clustering palm; leaflets 9–14 cm long; spike/rachilla 3–4 cm, smooth ..... *D. tenuissima* (p. 115)
a27 Terminal leaflets joined for 7–8 cm ..... *D. montana* (p. 112)
Terminal leaflets joined for < 5 cm a28
a28 Solitary palm, stem 5–40 cm high; all leaf sheaths open for > 50% ..... *D. digitata* (p. 115)
Clustering palm, stem > 50 cm high; leaf sheaths closed, except for near very apex a29
a29 Rachilla/spike 9–21 cm long; stamens 3, with 3 triangular staminodes ..... *D. monostachya* (p. 117)
Rachilla/spike 4–10 cm long; stamens 6 ..... *D. heterophylla* (p. 103)

KEY B

b1 Leaves entire or with up to 5 leaflets on each side of rachis b2
Leaves pinnate with 6 or more leaflets on each side of rachis b31
b2 Rachillae more than 10 cm long b3
Rachillae less than 10 cm long b9
b3 Rachillae 30–40 cm long ..... *D. sanctaemariae* (p. 100)
Rachillae less than 28 cm long b4
b4 Petiole 10–25 cm long ..... *D. mangorensis* (p. 98)
Petiole less than 10 cm long b5
b5 Rachillae smooth b6
Rachillae hairy or scaly, at least around the flower groups b7
b6 Leaf 13–30 cm long, leaf sheath 7–11 cm; peduncle smooth ..... *D. concinna* (p. 102)
Leaf 30–55 cm long, leaf sheath 10–17 cm; peduncle densely scaly ..... *D. lutea* (p. 109)
b7 Leaf sheath 12–15 cm; stem 2.5–5 m tall; stamens 6, didymous ..... *D. fanjana* (p. 98)
Leaf sheath 6–12 cm; stem 2–3 m tall; stamens 3, or when 6, then versatile b8
b8 Upper leaflet or leaf lobed for more than 10 cm; stamens 3, geonomoid ..... *D. lokohoensis* (p. 131)
Upper leaflet or leaf notched for up to 5 cm; stamens 6, versatile ..... *D. schatzii* (p. 104)
b9 Rachillae 1–3 cm long with continuous flower groups and/or bracts and hairs, giving a fat, furry spike-like appearance; leaflets with large thin long scales with ragged edges; anthers 3, didymous b10
Rachillae with distant flower groups , always some rachilla surface visible b12
b10 Stamens opposite the sepals; peduncle 11–32 cm long; leaf sheath 7–12 cm b11
Stamens opposite the petals; peduncle < 10 cm long; leaf sheath < 6 cm ..... *D. pachyramea* (p. 125)
b11 Leaf lobed for less than one third, lobes 3–9 cm long ..... *D. humbertii* (p. 124)
Leaf lobed to three quarters, lobes 20–24 cm long ..... *D. angustifolia* (p. 125)
b12 Inflorescence with very many (± 90) short rachillae ..... *D. mocquerysiana* (p. 147)
Inflorescence with fewer than 30 rachillae b13
b13 Rachillae smooth or papillose, but without scales or hair b14
Rachillae scaly or smooth b22

b14 Rachillae 14–25 in number b15
Rachillae 2–12 in number b16
b15 Leaf sheath ± 11 cm; peduncle ± 41 cm; inflorescence rachis ± 16 cm; stamens 6 ..... *D. betamponensis* (p. 110)
Leaf sheath 6–8 cm; peduncle 18–23 cm; inflorescence rachis 6–11 cm; stamens 3 ..... *D. glabrescens* (p. 143)
b16 Leaf pinnate with 2–5 leaflets b17
Leaf entire b18
b17 Leaf sheath 6–12 cm; inflorescence rachis 0–5 cm, with 2–6 rachillae; stamens 6 ..... *D. heterophylla* (p. 109)
Leaf sheath 5–6 cm; inflorescence rachis 5–8 cm, with 7–11 rachillae; stamens 3 ..... *D. viridis* (p. 145)
b18 Leaf sheath 5–6 cm; stems < 1 m tall; rachillae 2–5 cm; leaf lobed for more than three quarters b19
Leaf sheath 6–17 cm; stems 1–2.5 m tall; rachillae 4–10 cm; leaf lobed for less than three quarters b20
b19 Petiole 5–7 cm; leaf without thin long scales with ragged edges ..... *D. mahia* (p. 121)
Petiole 9–15 cm; leaf with thin long scales with ragged edges ..... *D. ramentacea* (p. 151)
b20 Peduncle 33–77 cm; leaf sheath 10–17 cm ..... *D. lutea* (p. 109)
Peduncle 7–28 cm; leaf sheath 6–12 cm b21
b21 Peduncle densely hairy ..... *D. heterophylla* (p. 103)
Peduncle smooth ..... *D. concinna* (p. 102)
b22 Rachillae 3–9 in number b23
Rachillae 10–28 in number b27
b23 Stamens 6 ..... b24
Stamens 3 ..... b27
b24 Rachillae 4–13 cm long; leaf sheath 6–12 cm b25
Rachillae 2–4 cm long; leaf sheath 3–7 cm b26
b25 Peduncle 7–19 cm long; entire leaf split for about half, lobes 7–12 cm ..... *D. heterophylla* (p. 103)
Peduncle 28–31 cm long; entire leaf split for about a quarter, lobes 2–7 cm ..... *D. schatzii* (p. 104)
b26 Leaf entire; stamens didymous ..... *D. pulchella* (p. 121)
Leaf pinnate with 5 leaflets; stamens geonomoid ..... *D. plurisecta* (p. 151)
b27 Stamens 6 (Ranomafana) ..... *D. thermarum* (p. 141)
Stamens 3 ..... b28
b28 Stamens opposite the sepals; rachillae reflexed; Moramanga area or Marojejy b59
Stamens opposite the petals; rachillae pointing up or spreading; coastal b29
b29 Rachillae short and stocky, 1.5–2.5 mm diameter ..... *D. angusta* (p. 142)
Rachillae more slender, scarcely exceeding 1 mm diameter b30
b30 Leaf blade usually entire and bifid, sometimes irregularly divided with close leaflets with 2–5 folds ..... *D. glabrescens* (p. 143)
Leaf blade regularly divided into narrow, rather distant leaflets with 1–2 folds ..... *D. linearis* (p. 141)
b31 Leaflets regular b32
Leaflets grouped or irregular b41
b32 Leaflets > 40 on each side of rachis; rachillae > 34 cm b33
Leaflets < 35 on each side of rachis; rachillae < 32 cm b34
b33 Solitary palm; petiole ± 3.5 m long; middle leaflets 80–81 cm long ..... *D. moorei* (p. 133)
Clustering palm; petiole < 1 m long; middle leaflets 52–53 cm long ..... *D. antanambensis* (p. 137)

b34 Middle leaflets 3–11 cm, wedge-shaped with ragged apices ..... *D. thiryana* (p. 106)
Middle leaflets thin and narrow and with an acute apex b35
b35 Leaf sheath 20–40 cm long; petiole usually > 12 cm b36
Leaf sheath 5–19 cm long; petiole usually < 10 cm b38
b36 Petiole 75–100 cm; middle leaflets 38–51 cm long ..... *D. pusilla* (p. 137)
Petiole 6–32 cm; middle leaflets 52–53 cm long b37
b37 Clustering, branching palm; rachillae 2–10 cm long; endosperm ruminate ..... *D. andrianatonga* (p. 82)
Solitary, unbranched palm; rachillae 10–25 cm long; endosperm homogeneous ..... *D. acuminum* (p. 81)
b38 Leaflets 19–21 on each side of rachis; stem 2–7 cm diameter; fruit 12–26 mm, endosperm ruminate. ..... *D. pumila* (p. 86)
Leaflets 6–9 on each side of rachis; stem < 1.5 cm diameter; fruit unknown b39
b39 Rachillae > 7 cm long; stamens 3, geonomoid ..... *D. lokohensis* (p. 131)
Rachillae 2–7 cm long b40
b40 Petiole up to 0.5 cm long; stamens 6, geonomoid ..... *D. plurisecta* (p. 151)
Petiole 3–12 cm long; stamens 3, didymous ..... *D. angusta* (p. 142)
b41 Middle leaflets < 12 cm long, wedge-shaped with ragged apices b42
Middle leaflets with acute or caudate apices b43
b42 Clustering palm; rachillae smooth; fruit 9–11 × 3–5 mm ..... *D. thiryana* (p. 106)
Solitary palm; rachillae scaly; fruit ± 18 x 6 mm ..... *D. trapezoidea* (p. 106)
b43 Middle leaflets ovate, with 2–4 cm long caudate drip tips; Masoala ..... *D. caudata* (p. 95)
Middle leaflets with attenuate apices b44
b44 Leaf sheath > 15 cm b45
Leaf sheath < 15 cm b51
b45 Branching, floppy palm; petiole 40–75 cm ..... *D. serpentina* (p. 82)
Erect, unbranched palms; petiole < 25 cm (except D. oreophila 2–50 cm) b46
b46 Rachillae smooth b47
Rachillae scaly or hairy b48
b47 Leaflets 25–45 each side of rachis; rachillae 3–15 cm long; endosperm ruminate ..... *D. oreophila* (p. 87)
Leaflets 10–18 each side of rachis; rachillae 13–30 cm long; endosperm homogeneous ..... *D. jumelleana* (p. 94)
b48 Rachillae 25–70 cm long b49
Rachillae 3–24 cm long b50
b49 Leaf sheath 21–30 cm long; petiole 5–24 cm ..... *D. boiviniana* (p. 99)
Leaf sheath 17–20 cm long; petiole absent ..... *D. sanctaemariae* (p. 100)
b50 Leaflets 25–45 on each side of rachis; endosperm ruminate ..... *D. oreophila* (p. 87)
Leaflets 11–23 on each side of rachis; endosperm homogeneous ..... *D. procumbens* (p. 95)
b51 Rachillae smooth b52
Rachillae scaly or hairy b55
b52 Rachillae 13–30 cm long ..... *D. jumelleana* (p. 94)
Rachillae 1–12 cm long b53
b53 Leaf sheath 5–6 cm long; leaflets 6–7 on each side of rachis; stamens 3, didymous ..... *D. viridis* (p. 145)
Leaf sheath 6–12 cm long; leaflets 6–25 on each side of rachis; stamens 6, versatile b54
b54 Leaflets 6–13 on each side of rachis; peduncle densely hairy ..... *D. heterophylla* (p. 103)
Leaflets 11–25 on each side of rachis; peduncle smooth ..... *D. concinna* (p. 102)

b55 Leaflets 6–9 on each side of rachis; stamens 3, geonomoid; Marojejy area ..... *D. lokohoensis* (p. 131)
Leaflets 6–23 on each side of rachis; stamens 6, versatile b56
b56 Leaf sheath > 13 cm long; leaflets fanned within groups ..... *D. procumbens* (p. 95)
Leaf sheath 6–12 cm long (occasionally 13–15 cm in *D. corniculata* with leaflets in one plane) b57
b57 Inflorescence erect, orange; leaflets fanned within groups ..... *D. bonsai* (p. 96)
Inflorescence arching, green; leaflets more or less in one plane b58
b58 Middle leaflets 0.4–1.3 cm wide; prophyll 4–15 cm long, borne at 3–5 cm above base of peduncle; fruit 5–7 × 4–5 mm ..... *D. heterophylla* (p. 103)
Middle leaflets 1.2–2.6 cm wide; prophyll 16–27 cm long, borne at ± 6 cm above base of peduncle; fruit 10–12 × 4–6 mm ..... *D. corniculata* (p. 105)
b59 Petiole absent or up to 2 cm long; Moramanga area ..... *D. louvelii* (p. 121)
Petiole 2–9 cm long; Marojejy area ..... *D. lokohoensis* (p. 131)

KEY C

c1 Palm stemless or nearly so (stem underground); leaf with yellow stripe down middle ..... *D. beentjei* (p. 149)
Palms with distinct stems; leaf uniformly green c2
c2 Rachillae 15–50 cm long; leaf sheath 17–31 cm long c3
Rachillae < 15 cm long; leaf sheath < 15 cm long (except *D. lutea*) c5
c3 Leaf lobed for less than half c4
Leaf lobed for more than three-quarters ..... *D. paludosa* (p. 129)
c4 Leaf sheath 21–30 cm long; petiole up to 5 cm long; stamens 6 ..... *D. lutea* (p. 109)
Leaf sheath 17–31 cm long; petiole (3–)10–24 cm long; stamens 3 ..... *D. procera* (p. 128)
c5 Leaf lobed for more than half c6
Leaf lobed for less than half c12
c6 Rachillae smooth; stamens 6 ..... c7
Rachillae scaly or hairy; stamens 3 ..... c10
c7 Leaf ≤ 30 cm long; inflorescence rachis up to 30 cm long c8
Leaf 45–55 cm long; inflorescence rachis ± 16 cm long ..... *D. betamponensis* (p. 110)
c8 Inflorescence branched to 1 order ..... *D. concinna* (p. 102)
Inflorescence branched to 2 orders c9
c9 Clustering palm ..... *D. delicatula* (p. 144)
Solitary palm ..... *D. turkii* (p. 122)
c10 Inflorescence with 1–2 branched first order branches; stamens opposite the sepals ..... *D. louvelii* (p. 121)
Inflorescence with > 37 branched first order branches; stamens opposite the petals c11
c11 Petiole 7–13 cm; midrib ± 2 cm long ..... *D. furcata* (p. 146)
Petiole up to 6 cm; midrib 8–19 cm long c19
c12 Rachillae smooth c13
Rachillae scaly or hairy c16

c13 Inflorescence with 1–5 branched first order branches; rachillae 3–17 cm; stamens 6 ..... c14
Inflorescence with > 5 branched first order branches; rachillae 2–6 cm; stamens 3 ..... c15
c14 Leaf sheath 7–11 cm long; leaf blade 13–30 cm long ..... *D. concinna* (p. 102)
Leaf sheath 10–17 cm long; leaf blade 30–55 cm long ..... *D. lutea* (p. 109)
c15 Stamens opposite the sepals ..... *D. forficifolia* (p. 118)
Stamens opposite the petals ..... *D. ambilaensis* (p. 119)
c16 Leaf sheath ± 15 cm long; leaf blade ± 48 cm long, without thin long scales with ragged edges ..... *D. lanuginosa* (p. 146)
Leaf sheath < 10 cm long; leaf blade < 40 cm long, usually with thin long scales with ragged edges c17
c17 Leaf blade 12–21 cm long ..... *D. hildebrandtii* (p. 146)
Leaf blade > 30 cm long c18
c18 Rachillae ± 30; stamens 6; fruit 16 mm long ..... *D. eriostachys* (p. 109)
Rachillae 50–100; stamens 3; fruit 10 mm long ..... *D. lantzeana* (p. 119)
c19 Rachillae smooth; coastal white sand forest around Toamasina ..... *D. ambilaensis* (p. 119)
Rachillae scaly; lowland rainforest around Bay of Antongil ..... *D. mocquerysiana* (p. 147)

KEY D

(Note: *D. thouarsiana* belongs in this group but is not keyed out due to lack of information)
d1 Inflorescence branched to 4 orders: flower groups at distant (± 7 mm) intervals ..... *D. remotiflora* (p. 119)
Inflorescence branched to 2–3 orders; flower groups at intervals of less than 4 mm d2
d2 Inflorescence rachis 1–11 cm long d3
Inflorescence rachis > 11 cm long d14
d3 Leaflets beneath with scattered minute scales d4
Leaflets beneath smooth; SE Madagascar ..... *D. henrici* (p. 124)
d4 Rachillae smooth d5
Rachillae scaly or hairy d7
d5 Leaflets unequal, some multifold and broad d6
Leaflets all narrow, single-fold and < 1 cm wide, leathery and metallic green ..... *D. cookei* (p. 148)
d6 Leaf rachis 15–22 cm long; inflorescence rachis 9–11 cm long ..... *D. ambilaensis* (p. 119)
Leaf rachis ± 11 cm long; inflorescence rachis 5–8 cm long ..... *D. viridis* (p. 145)
d7 Rachillae 6–23 cm long, the lowermost usually > 9 cm d8
Rachillae ≤ 7 cm long d9
d8 All leaflets ± equal; stamens 6, versatile ..... *D. corniculata* (p. 105)
Leaflets unequal, some multifold and broad; stamens 3, geonomoid ..... *D. lokohoensis* (p. 131)
d9 Rachillae < 50 ..... d10
Rachillae ± 90 ..... *D. mocquerysiana* (p. 147)
d10 Leaf rachis 37–40 cm long ..... *D. bosseri* (p. 146)
Leaf rachis < 30 cm long d11
d11 Inflorescence with < 3 branched first order branches; petiole 3–14 cm long d12
Inflorescence with > 5 branched first order branches; petiole up to 3 cm long ..... *D. hildebrandtii* (p. 146)
d12 Stamens 6; Ranomafana ..... *D. thermarum* (p. 141)
Stamens 3 ..... d13

d13 Leaflets irregular along rachis; Bay of Antongil area ..... *D. viridis* (p. 145)
Leaflets regular; Mananjara/Farafangana area ..... *D. angusta* (p. 142)
d14 Rachillae smooth d15
Rachillae scaly or hairy d20
d15 Leaf sheath 20–30 cm long; petiole > (11–)40 cm long d16
Leaf sheath < 15 cm long; petiole < 15 cm long d17
d16 Leaflets beneath with scattered scales; inflorescence rachis 12–25 cm long ..... *D. paludosa* (p. 129)
Leaflets beneath without scattered scales; inflorescence rachis ± 70 cm long ..... *D. mirabilis* (p. 129)
d17 Leaf rachis 40–60 cm long; stamens 6 ..... *D. singularis* (p. 93)
Leaf rachis 15–38 cm long; stamens 3 ..... d18
d18 Rachillae 6–7.5 cm long ..... *D. laevis* (p. 119)
Rachillae 2–5.5 cm long d19
d19 Stamens 3, opposite the sepals; Masoala peninsula to Ile Sainte Marie ..... *D. forficifolia* (p. 118)
Stamens 3, opposite the petals; Tampolo to Ambila-Lemaitso ..... *D. ambilaensis* (p. 119)
d20 Leaf sheath 17–32 cm long; rachillae 10–50 cm long; leaflets 25–72 cm long d21
Leaf sheath 5–16 cm long; rachillae 1–14 cm long; leaflets 4–30 cm long d23
d21 Leaflats beneath with thin long scales with ragged edges present; stamens 6 ..... *D. faneva* (p. 98)
Leaflets beneath withour thin long scales with ragged edges; stamens 3 ..... d22
d22 Petiole (3–)10–25 cm long; rachillae 10–18 ..... *D. procera* (p. 128)
Petiole up to 7.5 cm long; rachillae ± 50 ..... *D. paludosa* (p. 129)
d23 Leaflets beneath without either scales or thin long scales with ragged edges; petiole 5–30 cm long; stamens 6 ..... d24
Leaflets beneath with scales, often with thin long scales with ragged edges; petiole up to 12 cm long, stamens 3 ..... d25
d24 Inflorescence branched to 2 orders, with a rachis 20–33 cm long; rachillae 0.5–2.5 cm long ..... *D. commersoniana* (p. 93)
Inflorescence branched to 3 orders, with a rachis 15–16 cm long; rachillae 0.5–2.5 cm long ..... *D. intermedia* (p. 93)
d25 Stems usually 2–4 m tall; stamens 3, opposite the sepals d26
Stems usually < 2 m tall; stamens 3, opposite the petals d27
d26 Rachillae sparsely hairy ..... *D. forficifolia* (p. 118)
Rachillae densely hairy and scaly, flower groups almost obscured ..... *D. lantzeana* (p. 119)
d27 Inflorescence arching; uplands S of Analamazoatra ..... *D. hildebrandtii* (p. 146)
Inflorescence erect; lowlands around Bay of Antongil ..... *D. mocquerysiana* (p. 147)

KEY E

e1 Middle leaflets > 50 cm long e2
Middle leaflets < 50 cm long e25
e2 Rachillae densely scaly or hairy e3
Rachillae smooth or with very few scales e6
e3 Middle leaflets 97–112 cm long; leaf sheath > 1 m long ..... *D. prestoniana* (p. 66)
Middle leaflets < 70 cm; leaf sheath < 50 cm long e4
e4 Litter-trapping palm; leaf rachis 3–4 m long; inflorescence rachis > 1 m long ..... *D. marojejyi* (p. 90)
Palms not accumulating litter; leaf rachis < 1.5 m long; inflorescence rachis < 50 cm e5

e5 Leaflets ± 32 on each side of rachis; inflorescence branched to 3 orders; stamens 6 ..... *D. rivularis* (p. 89)
Leaflets 10–13 on each side of rachis; inflorescence branched to 2 orders; stamens 3 ..... *D. paludosa* (p. 129)
e6 Leaf sheath < 30 cm long; stem < 6 cm diameter; clustering palm e7
Leaf sheath > 30 cm long; stem > 7 cm e8
e7 Petiole 12–46 cm long; leaflets 55–60 on each side of rachis ..... *D. tsaratananensis* (p. 87)
Petiole 0–8 cm long; leaflets 10–13 on each side of rachis ..... *D. paludosa* (p. 129)
e8 Inflorescence branched to 2 orders e9
Inflorescence branched to 3 orders e15
e9 Clustering palm with trunks with swollen bases, > 50 cm diameter; central Madagascar ..... *D. decipiens* (p. 76)
Solitary palm, or trunk < 15 cm diameter e10
e10 Stem 2–7 m tall, 10–15 cm diameter; inflorescence among the leaves, peduncle > 40 cm e11
Stem > 6 m tall, > 15 cm diameter; inflorescence below the leaves, peduncle < 30 cm e12
e11 Leaf sheath ± 40 cm long; thin long scales with ragged edges absent from lower leaflet surface ..... *D. basilonga* (p. 78)
Leaf sheath 60–100 cm long; thin long scales with ragged edges present on lower leaflet surface ..... *D. ambositrae* (p. 76)
e12 Leaflets without scattered minute scales on lower surface e13
Leaflets with scattered minute scales on lower surface e14
e13 Palm 15–25 m tall; fruit ± 2 cm, with ruminate endosperm ..... *D. bejofo* (p. 56)
Palm 6–15 m tall; fruit ± 1 cm, with homogeneous endosperm ..... *D. hovomantsina* (p. 57)
e14 Leaf sheath smooth and waxy; leaflets with continuous thin long scales with ragged edges on lower surface ..... *D. canaliculata* (p. 56)
Leaf sheath densely scaly near top; leaflets without any thin long scales with ragged edges on lower surface ..... *D. ankaizinensis* (p. 57)
e15 Leaf rachis < 3 m long; inflorescence among the leaves, peduncle 52–200 cm e16
Leaf rachis > 3 m long; inflorescence below the leaves, peduncle 13–40 cm e18
e16 Solitary palm, trunk 45–50 cm diameter; peduncle 2 m long ..... *D. tokoravina* (p. 67)
Clustering palm, stems 7–20 cm diameter; peduncle < 1.3 m long e17
e17 Leaves in 3 ranks; leaflets in tight groups; endosperm homogeneous ..... *D. madagascariensis* (p. 74)
Leaves spiral; leaflets irregular along the rachis; endosperm ruminate ..... *D. ambositrae* (p. 79)
e18 Leaflets with scattered minute scales on lower surface e19
Leaflets without scattered minute scales on lower surface (thin long scales with ragged edges may be present) e20
e19 Pistillate petals 5–6 mm long; fruit 16–20 x 8–13 mm, with ruminate endosperm ..... *D. ceracea* (p. 58)
Pistillate petals 2–3 mm long; fruit 5–7 mm, with homogeneous endosperm ..... *D. pilulifera* (p. 63)
e20 Thin long scales with ragged edges absent from lower surface of leaflets ..... *D. mananjarensis* (p. 64)
Thin long scales with ragged edges present on lower surface of leaflets e21
e21 Central plateau palm; fruit ± 1 cm, with ruminate endosperm ..... *D. oropedionis* (p. 62)
East coast palm; fruit, if with ruminate endosperm, > 2 cm e22

e22 Leaf sheath waxy, near petiole with dense patch of furry hair; fruit ± 1 cm, with homogeneous endosperm ..... *D. hovomantsina* (p. 57)
Leaf sheath waxy, near petiole smooth or with scattered scales e23
e23 Peduncle 13–20 cm long; prophyll 20–30 cm long; fruit > 2 cm, with ruminate endosperm ..... *D. bejofo* (p. 56)
Peduncle 20–30 cm long; prophyll 40–75 cm long; fruit < 1 cm, with homogeneous endosperm e24
e24 Leaf sheath with scales; peduncular bract 37–70 cm; Marojejy to Moramanga ..... *D. pilulifera* (p. 63)
Leaf sheath smooth; peduncular bract 72–117 cm; Andohahela ..... *D. malcomberi* (p. 65)
e25 Inflorescence branched to 3–4 orders e26
Inflorescence branched to 2 orders e33


e33


e26


e26

e26 Short squat palm, trunk 20–30 cm diameter, litter-trapping, with 18–20 leaves. ..... *D. marojejyi* (p. 90)
Trunk/stem < 20 cm diameter; not litter-trapping, with 15–20 leaves e27
e27 Clustering palm e28
Solitary palm e29
e28 Trunk 7–20 cm diameter; middle leaflets > 45 cm ..... *D. madagascariensis* (p. 74)
Stem < 2 cm diameter; middle leaflets 8–24 cm long ..... *D. scottiana* (p. 92)
e29 Palm of dry and riverine forest, with leaves in 3 ranks; leaf rachis 1.6–3 m long ..... *D. madagascariensis* (p. 74)
Palm with spiral leaves of wet forests; leaf rachis < 1.4 m long (–2.2 in *D. pinnatifrons*) e30
e30 Leaflets ± in one plane; rachillae densely hairy; next to streams ..... *D. rivularis* (p. 89)
Leaflets fanned within groups; rachillae smooth or nearly so e31
e31 Leaflets 12–21 on each side of rachis; inflorescence erect; fruit < 1 cm, with homogenous endosperm ..... *D. hiarakae* (p. 107)
Leaflets (12)23–59 on each side of rachis; inflorescence arching e32
e32 Leaf sheath 25–48 cm long, rachis 70–220 cm; stamens 3; endosperm homogenous ..... *D. pinnatifrons* (p. 126)
Leaf sheath 12–31 cm long; rachis 20–80 cm; stamens 6; endosperm ruminate ..... *D. nodifera* (p. 127)
e33 Climbing palm; internodes > 20 cm long; upper leaflets reflexed with basal swelling ..... *D. scandens* (p. 97)
Erect or leaning palm; internodes < 15 cm long e34
e34 Rachillae > 15 cm long e35
Rachillae < 15 cm long e44
e35 Leaflets with scattered minute scales on lower surface e36
Leaflets without scattered minute scales on lower surface e41
e36 Trunk 8–18 cm diameter; fruit > 2 cm long, with ruminate endosperm ..... *D. coursii* (p. 88)
Trunk < 6 cm diameter; fruit < 1.8 cm long, with homogeneous endosperm (ruminate in *D. nodifera*) e37

e37 Leaflets in tight groups, fanned in several directions, often with swollen base; endosperm ruminate ..... *D. nodifera* (p. 127)
Leaflets in looser groups, not fanned or only fanned in one plane; endosperm homogeneous e38
e38 Leaflets 24–29 on each side of rachis, in a few groups within which leaflets regularly spaced ..... *D. interrupta* (p. 120)
Leaflets 10–23 on each side of rachis, grouped with leaflets bunched within the group e39
e39 Stamens 6; leaflets 11–23 on each side of rachis, the middle ones 7–31 cm long; leaflets slightly fanned e40
Stamens 3; leaflets 10–13 on each side rachis, the middle ones 30–50 cm long; leaflets in one plane ..... *D. paludosa* (p. 129)
e40 Clustering palms, with scaly upper internodes; leaf rachis densely hairy ..... *D. procumbens* (p. 95)
Solitary palms, with smooth internodes; leaf rachis with scattered scales ..... *D. hiarakae* (p. 107)
e41 Leaf rachis ± 1 m long; stem 3–8 cm diameter ..... *D. sahanofensis* (p. 108)
Leaf rachis < 0.9 m long; stem 1–4 cm diameter e42
e42 Rachillae up to 24 cm long; stamens 6; fruit < 1.4 cm e43
Rachillae 20–50 cm long; stamens 3; fruit ± 1.4 cm ..... *D. fasciculata* (p. 130)
e43 Inflorescence with 4–16 branched first order branches; leaflets smooth ..... *D. mcdonaldiana* (p. 93)
Inflorescence with 1–3 branched first order branches; leaflets with scales on upper margins ..... *D. procumbens* (p. 95)
e44 Leaflets ovate and acuminate, often with swollen base; endosperm ruminate ..... *D. nodifera* (p. 127)
Leaflets thin and narrow to narrowly ovate, without swollen base e45
e45 Middle leaflets 8–15 × 0.4–0.6 cm; leaflets 41–65 on each side of rachis; regular within distant groups ..... *D. elegans* (p. 102)
Middle leaflets usually wider; leaflets irregular or in tight groups e46
e46 Leaf sheath 18–55 cm long, waxy; leaflets 25–47 on each side of rachis; endosperm ruminate e47
Leaf sheath often smaller, not waxy; leaflets 10–28 on each side of rachis; endosperm homogeneous e49
e47 Solitary palm, stem 8–15 cm diameter; fruit > 2 cm ..... *D. coursii* (p. 88)
Clustering palm, stems 3–6 cm diameter; fruit < 1.5 cm e48
e48 Peduncle 6–12 cm long; inflorescence rachis 1.5–9 cm long; seed 6–8 × 3–7 mm ..... *D. oreophila* (p. 87)
Peduncle ± 42 cm long; inflorescence rachis ± 18 cm long; seed 11–13 × 9–10 mm ..... *D. ambanjae* (p. 87)
e49 Inflorescence with 1–3 branched first order branches e50
Inflorescence with 4 or more branched first order branches e53
e50 Rachillae scaly or hairy e51
Rachillae smooth ..... *D. concinna* (p. 102)
e51 Inflorescence orange, erect; fruit < 1 cm e52
Inflorescence green, arching; fruit 1–1.2 cm ..... *D. corniculata* (p. 105)
e52 Leaf sheath 13–35 cm, scaly; leaf rachis 20–70 cm long ..... *D. procumbens* (p. 95)
Leaf sheath 6–9 cm long, densely hairy; leaf rachis 10–20 cm long ..... *D. bonsai* (p. 96)
e53 Leaflets with scattered minute scales on lower surface e55
Leaflets without scattered minute scales on lower surface; inflorescence rachis 7–40 cm e54

e54 Leaflets grouped, 8–24 cm long in mid-leaf; rachillae 0.7–6.5 cm long. ..... *D. scottiana* (p. 92)
Leaflets irregular, 21–43 cm long in mid-leaf; rachillae 4–20 cm long ..... *D. mcdonaldiana* (p. 93)
e55 Inflorescence rachis 1–9 cm long ..... *D. corniculata* (p. 105)
Inflorescence rachis 10–36 cm long ..... *D. confusa* (p. 107)

KEY F

f1 Inflorescence branched to 2 orders f2
Inflorescence branched to 3–4 orders f19


f2


f19


f19

f2 Leaflets with scattered minute scales on lower surface f3
Leaflets without scattered minute scales on lower surface f11
f3 Almost stemless palm in or near water; leaflets 21–24 × 1–1.5 cm ..... *D. aquatilis* (p. 140)
Palms with distinct stems f4
f4 Solitary palm, trunk 20–30 cm diameter; leaf sheath ± 1 m, red-tomentose ..... *D. perrieri* (p. 132)
Clustering palm (rarely solitary), stems < 12 cm diameter; leaf sheath < 60 cm f5
f5 Upper leaflets joined for > 5 cm and multifold, looking like a fan f6
Upper leaflets similar to others, single-fold f7
f6 Leaflets with thin long scales with ragged edges; stamens 6 ..... *D. faneva* (p. 98)
Leaflets without thin long scales with ragged edges; stamens 3 ..... *D. paludosa* (p. 129)
f7 Coastal palms, growing near sea; endosperm homogeneous f8
Inland palms; endosperm ruminate f9
f8 Petiole 19–37 cm long; leaflets 44–59 on each side of rachis ..... *D. lutescens* (p. 84)
Petiole 60–72 cm long; leaflets 28–30 on each side of rachis ..... *D. arenarum* (p. 85)
f9 Branching palm with floppy stems, 1.5–2.5 cm diameter; inflorescence rachis 4–14 cm ..... *D. andrianatonga* (p. 82)
Erect, unbranched palms, stems 2–12 cm diameter; inflorescence rachis 10–35 cm f10
f10 Endosperm deeply ruminate (up to 7 mm) ..... *D. heteromorpha* (p. 81)
Endosperm shallowly ruminate (< 3 mm) ..... *D. baronii* (p. 80)
f11 Middle leaflets ± 120 cm long ..... *D. ligulata* (p. 59)
Middle leaflets < 80 cm long f12
f12 Inflorescence with swollen bases to first order branches; upper trunk with fibrous mass f13
Inflorescence without such bases; trunk clean f15
f13 Petiole up to 30 cm long; leaf rachis < 1.7 m long; leaflets without thin long scales with ragged edges ..... *D. dransfieldii* (p. 134)
Petiole 39–100 cm long; leaf rachis > 2 m long; leaflets with thin long scales with ragged edges on lower surface f14
f14 Palm solitary, not branched; petiole 39–40 cm long ..... *D. nossibensis* (p. 137)
Palm clustering, usually branched; petiole 90–100 cm long ..... *D. crinita* (p. 137)

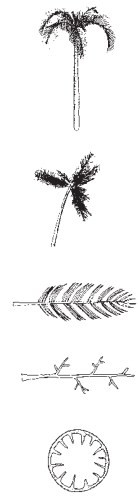
f15 Petiole absent; middle leaflets 75–80 × 1.5 cm ..... *D. canescens* (p. 151)
Petiole usually present; leaflets 35–75 cm long f16
f16 Leaf sheath green, hairy near top; leaflets 12–21 on each side of rachis; SE Madagascar ..... *D. mcdonaldiana* (p. 93)
Leaf sheath waxy-white, sparsely scaly near top; leaflets 30–65 on each side of rachis 17
f17 Solitary palm; leaflets ± 30 on each side of rachis ..... *D. acuminum* (p. 81)
Clustering palm; leaflets 40–65 on each side of rachis f18
f18 Inland palm from N and W Madagascar; leaf rachis > 1m long ..... *D. onilahensis* (p. 81)
Coastal palm from Toamasina area ..... *D. psammophila* (p. 85)
f19 Branched palms, with dense fibrous mass around upper trunks; rachillae with swollen base f20
Unbranched palms with clean trunks; rachillae bases not swollen f21
f20 Trunk 25–37 cm diameter; middle leaflets 77–92 cm long; rachillae 69–91 cm long ..... *D. utilis* (p. 137)
Trunk 5–18 cm diameter; middle leaflets 46–71 cm long; rachillae 17–53 cm long ..... *D. fibrosa* (p. 136)
f21 Clustering palm, stems < 15 cm diameter; leaf rachis < 2 m; endosperm homogeneous ..... *D. lutescens* (p. 84)
Solitary palm (except *D. saintelucei*), stems > 13 cm diameter; leaf rachis > 2 m; endosperm ruminate (except *D. ifanadianae*, unkown for *D. tsaravoasira*) f22
f22 Leaf sheath 30–65 cm long, with dense red or brown tomentum; inflorescence among the leaves f23
Leaf sheath ± 1 m long, densely red-tomentose ..... *D. perrieri* (p. 132)
Leaf sheath 70–150 cm long, waxy or green with a few scales near top f26
f23 Palm with leaves in 3 ranks; leaf sheath open; leaflets with scattered minute scales on lower surface ..... *D. decaryi* (p. 75)
Leaves spirally inserted; leaf sheath closed; leaflets without scattered minute scales on lower surface f24
f24 Petiole ± 47 cm long; leaflets without thin long scales with ragged edges; rachillae 10–20 cm long (Mananara only) ..... *D. ovobontsira* (p. 73)
Petiole up to 20 cm long; leaflets with thin long scales with ragged edges beneath; rachillae 20–50 cm long f25
f25 Petiole up to 10 cm long; fruit 18–24 × 12–17 cm ..... *D. lastelliana* (p. 70)
Petiole ± 17 cm long; fruit 10–12 mm ..... *D. leptocheilos* (p. 71)
f26 Leaflets with scattered minute scales and thin long scales with ragged edges on lower surface f27
Leaflets completely glabrous on lower surface f28
f27 Trunk 6–10 m tall, ± 14 cm diameter; leaflets 59–61 on each side of rachis; SE Madagascar ..... *D. saintelucei* (p. 72)
Trunk ± 6 m tall; leaflets ± 90 on each side of rachis ..... *D. carlsmithii* (p. 69)
Trunk usually > 10 m tall, > 18 cm diameter; leaflets > 100 on each side of rachis f28
f28 Palm with leaves in 3 ranks; leaf sheath 110–150 cm long; endosperm ruminate ..... *D. ampasindavae* (p. 59)
Palm with spirally inserted leaves; leaf sheath ± 70 cm long; endosperm homogeneous ..... *D. ifanadianae* (p. 68)

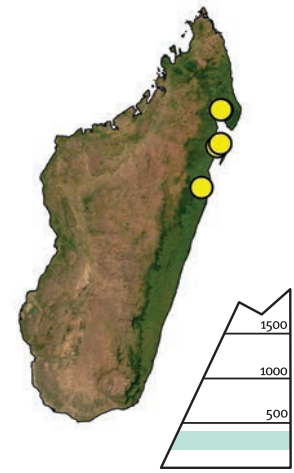
Dypsis bejofo

Bejofo*, *hovotraomby*, *tavilona

Look for:

- Solitary canopy palm with 1–2 m white, waxy crownshaft.
- Inflorescence below leaves.
- Seed with dense and deep grooves, penetrating 2–9 mm into endosperm.





Uses
None recorded.

Conservation status
Endangered.

Habitat
Moist lowland forest; steep slope; 200–400 m.

Solitary palm, to 25 m tall; crownshaft massive, white and waxy. **Leaves** 7–10, in ± 3 ranks, arching; sheath 1–2 m; petiole 12–34 cm; rachis 3–6 m long; leaflets 80–100 per side, in groups of 5–7 and fanned within the groups, to 144 × 4 cm. **Inflorescence** below leaves, branched to 2(–3) orders; rachillae 20–44 cm long. **Fruit** ellipsoid, 20–25 × 18–21 mm, with very fibrous inner fruit wall layer. **Seed** ellipsoid, black, deeply grooved, 17–23 × 15–20.5 mm.

Dypsis bejofo, Masoala

Similar species:

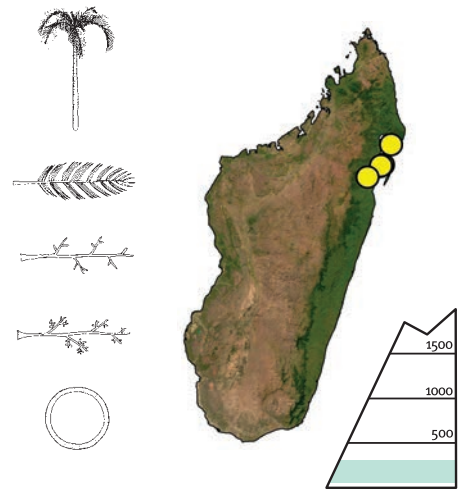
D. canaliculata – Possibly extinct, not seen for over 50 years. Only known from Manongarivo area and from near Ampasimanolotra. Can be distinguished by continuous thin long scales with ragged edges on midrib, scattered scales and absence of petiole. ***D. hovomantsina*** and ***D. pilulifera*** (when sterile).

Dypsis hovomantsina

Hovomantsina

Look for:

- Leaf sheath white and waxy near base, red and furry near top.
- Inflorescence below the leaves, branched to 2–3 orders.
- Crownshaft 1–1.2 m.



Uses
Palm-heart smelly but still eaten.

Conservation status
Critical.

Habitat
Rainforest, steep slopes either near valley bottom or ridge crest; 50–300 m.

Solitary palm, to 15 m tall; crownshaft 1–1.2 m, well-developed, white and waxy near base, red and furry near top. **Leaves** 6–7; petiole 10–56 cm; rachis 3–3.5 m long; leaflets 80–96 per side grouped and fanned in 3s–6s, to 135 × 4 cm. **Inflorescence** below leaves, branched to 2–3 orders; rachillae 16–40 cm long. **Fruit** unknown. **Seed** obovoid, 9–10 × 7–8 mm, homogeneous endosperm.

Dypsis hovomantsina, Soanierana-Ivongo

Similar species:

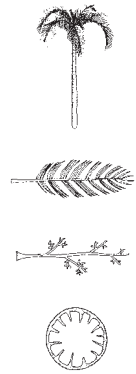
D. ankaizinensis – Not seen for over 80 years. Known only from Mt Tsaratanana; can be distinguished by glabrous leaf sheath.

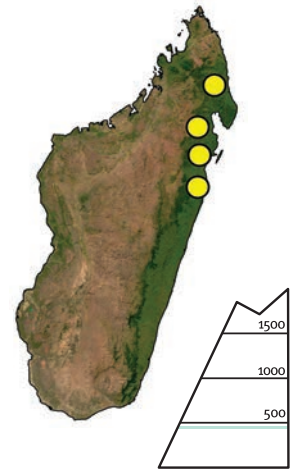
Dypsis ceracea

Lafaza

Look for:

- Solitary subcanopy palm with white waxy leaf sheath.
- Inflorescence among leaves, branched to at least 3 orders.





Uses
Leaves used in thatching.

Conservation status
Threatened.

Habitat
Moist lowland forest; 450 m. Recently refound in Ambatovaky.

Solitary palm, to 15 m tall, trunk cylindrical. **Leaves** with sheath medium brown with dense layer of wax; petiole ± 35 cm; leaflets in groups of 4–6, to 92 × 3.2 cm. **Inflorescence** among the leaves, branched to 3 orders (or more); rachillae 16–30 cm long. **Fruit** ellipsoid with fibrous inner fruit wall layer, 16–20 × 8.5–12.5 mm. **Seed** ellipsoid 12–13 × 5–6 mm, endosperm deeply ruminate.

Dypsis ceracea, Ambatovaky

Similar species:

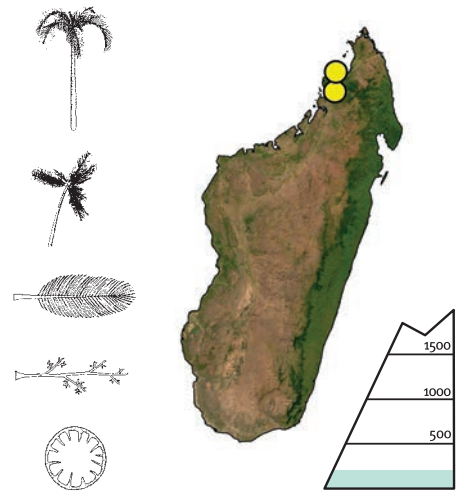
Resembles ***D. pilulifera*** but can be distinguished by smaller, thinner trunk, more branched inflorescence and much smaller fruit.

Dypsis ampasindavae

Lavaboka

Look for:

- Solitary palm with basal trunk swelling and surface roots.
- Leaves in 3 ranks.
- Inflorescence among leaves, branched to 3 orders.



Uses
Used in house construction; palm-heart eaten.

Conservation status
Endangered.

Habitat
Moist lowland forest, steep mid-slopes; 10–200 m.

Solitary palm, to 15 m tall; trunk with basal swelling and surface roots. **Leaves** 9–11, in 3 ranks, arching; sheath 110–146 cm, pale green with some wax; petiole absent or up to 18 cm; rachis 3.6–5 m long; leaflets 84–103 per side, to 170 × 5.1 cm. **Inflorescence** among leaves, branched to 3 orders; rachillae 24–58 cm long. **Fruit** ovoid, 10–13 × 7.5–9 mm. **Seed** ellipsoid 9–11 × 7–8 mm, endosperm ruminate.

Dypsis ampasindavae, Nosy Be

Similar species:

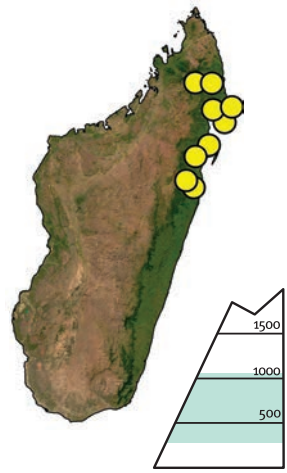
D. ligulata – possibly extinct, not seen for over 80 years. Found in NW Madagascar. Resembles ***D. tsaravoasira*** and ***D. pilulifera***; but can be distinguished by longer rachillae and ruminate endosperm.

Dypsis tsaravoasira

Tsaravoasira*, *hovotravavy*, *lavaboko*, *ovotaitso

Look for:

- Majestic palm with leaves in 3 ranks.
- Trunk with prominent rings.
- Green, swollen crownshaft 1–1.5 m long.
- Inflorescence below the leaves, branched to at least 3 orders.



Uses
Palm-heart eaten.

Conservation status
Endangered.

Habitat
Open primary forest, steep upper slopes or ridgetop hollows; 275–1050 m.

Solitary palm, to 25 m tall; trunk prominently ringed above; crownshaft green, swollen, 1–1.5 m. **Leaves** 5–9, in 3 ranks, stiff to arching; sheath 60–150 cm; petiole absent or up to 13 cm; rachis 2–3.5 m long, leaflets 102–120 per side, regular, to 135 × 3 cm. **Inflorescence** below the leaves, branched to 3 orders; rachillae 13–53 cm long. **Fruit** only known young, round, 4–5.5 mm.

Similar species:

D. ampasindavae and ***D. pilulifera***; distinguished from these by shorter rachillae.

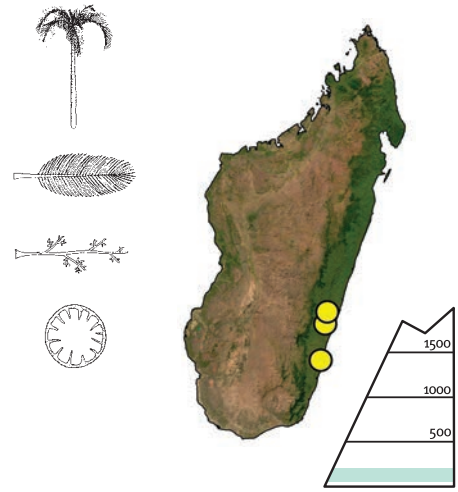
Dypsis tsaravoasira, Marojejy

Dypsis nauseosa

***Rahoma*, *mangidibe*, *laafa* (general palm name)**

Look for:

- Solitary palm, to 15 m tall.
- Leaves spirally arranged.
- Inflorescence below the leaves, branched to 3 orders.



Uses
Wood used for roofing beams, outer wood used for floorboards. Palm-heart bitter, said to be poisonous.

Conservation status
Critical.

Habitat
Eastern forest, possibly rather dry; 50–200 m.

Solitary palm, to 15 m tall; trunk with basal swelling. **Leaves** 12–13, ± straight; sheath 91–105 cm; petiole absent or up to 27 cm; rachis 3.4–3.9 m long; leaflets 108–131 per side, to 133 × 4.3 cm. **Inflorescence** below the leaves, branched to 3 orders; rachillae 14–47 cm long. **Fruit** only known young, ellipsoid. **Seed** ellipsoid 15–16 × 12–14 mm, endosperm ruminate.

Dypsis nauseosa, Manombo

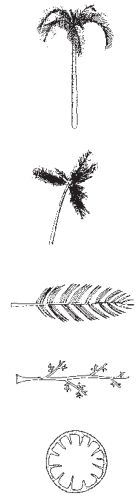
Similar species:

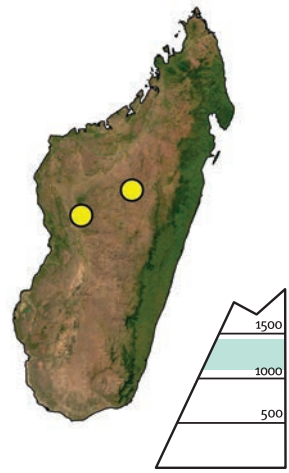
D. ampasindavae and ***D. pilulifera***.

Dypsis oropedionis

Look for:

- Solitary palm to 20 m tall in forest remnants on high plateau.
- Conspicuous grey-green crownshaft.





Uses
None recorded.

Conservation status
Critical.

Habitat
Relict dry evergreen plateau forest in steep-sided valleys; 1100–1450 m.

Solitary palm, to 20 m tall; trunk with clear node scars; crownshaft grey-green, covered in white wax. **Leaves** 6–11, in 3 ranks, arching; sheath 80–157 cm; petiole 25–35 cm; rachis ± 3 m long; leaflets 80–172 per side in groups of 3–9 and fanned within the groups, to 110 × 3.5 cm. **Inflorescence** below the leaves, branched to 3 orders; rachillae 10–37 cm long. **Fruit** ellipsoid, 7.5–10 × 6–7.5 mm. **Seed** subglobose to ellipsoid, 7–8 × 5.5–6 mm, endosperm ruminate.

Dypsis oropedionis, Ambohitsaratelo

Similar species:

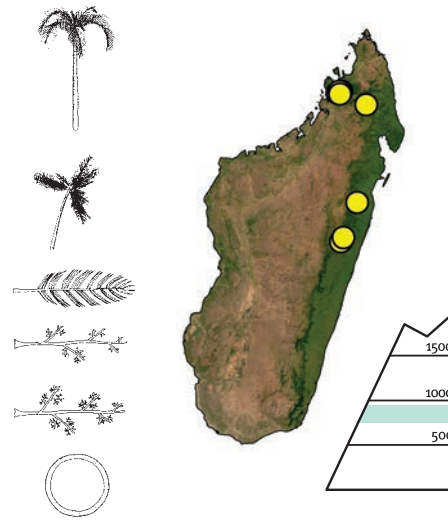
Differs from ***D. pilulifera*** in ruminate endosperm.

Dypsis pilulifera

Hozatanana*, *lavaboko*, *ovomamy

Look for:

- Large palm with leaves arranged in 3 ranks.
- Trunk conspicuously ringed.
- Inflorescence below the leaves, branched to at least 3 orders.
- Large reddish-furry scales on leaf sheath.



Uses
Palm-heart eaten.

Conservation status
Vulnerable.

Habitat
Moist submontane forest; slight or steep mid-slopes; 750–950 m.

Solitary palm, to 30 m tall; trunk conspicuously ringed; crownshaft green becoming greyish or dark brown. **Leaves** 4–9, in 3 ranks, slightly arching; sheath 1.1–1.7 m; petiole absent or up to 40 cm; rachis 2.9–5 m long; leaflets 70–144 per side, grouped and fanned or ± irregular, to 124 × 4 cm. **Inflorescence** below the leaves, branched to 3–4 orders, cream; rachillae 20–40 cm long. **Fruit** globose, 5–7 mm. **Seed** globose, 4–5 mm, homogeneous endosperm.

Similar species:

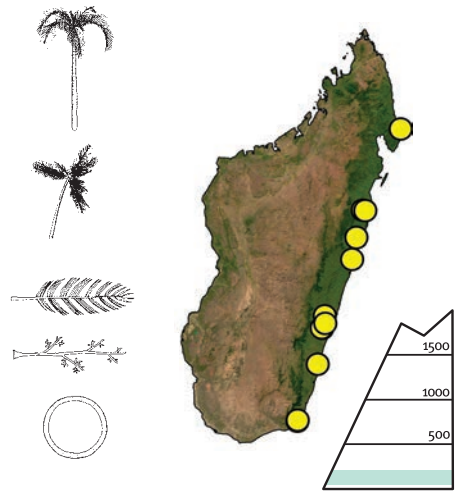
D. tanalensis, known from one specimen from Vohipeno, seems similar but has ruminate endosperm. Can be distinguished from ***D. mananjarensis*** by reddish furry scales; from ***D. tsaravoasira*** by irregular leaflets and the absence of scattered scales on the leaflets; from ***D. ampasindavae*** by shorter rachillae and homogeneous endosperm.

Dypsis mananjarensis

Laafa*, *lakatra* (general palm names on east coast), *ovodaafa

Look for:

- Large palm with leaves arranged in 3 ranks.
- Trunk ringed.
- Inflorescence below the leaves, branched to 3 orders.
- Large white waxy scales on leaf sheath.



Uses
Palm-heart eaten; the rachis produces a fibre formerly much used by the Betsimisaraka.

Conservation status
Vulnerable.

Habitat
Moist or dry forest (remnants); slight or steep mid-slopes; 30–200 m.

Solitary palm, to 25 m tall; trunk ringed; crownshaft green to orange. **Leaves** 6–10, in 3 ranks, straight to arching; sheath 0.6–1.6 m, $^1/_4$ to $^2/_3$ open, with characteristic large, white, waxy scales; petiole absent or up to 12 cm; rachis 3–3.5 m long; leaflets 121–149 per side, ± irregular or in groups of 3–7, but always in several planes, to 135 × 4.6 cm. **Inflorescence** below the leaves, branched to 3 orders; rachillae 17–58 cm long. **Fruit** globose, 4–6 mm. **Seed** globose, 3.5–4.5 mm, homogeneous endosperm.

Dypsis mananjarensis

Similar species:

D. pilulifera.

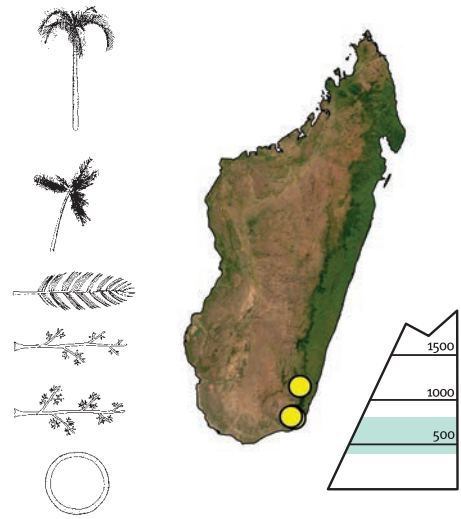
Dypsis mananjarensis, Amby

Dypsis malcomberi

Rahosy*, *vakaka

Look for:

- Large palm with leaves arranged in 3 ranks.
- Trunk with raised step-like rings, with ± bulbous base and a few aerial roots.
- Crownshaft green, waxy, swollen.
- Inflorescence below the leaves, branched to 3–4 orders.



Uses
Outer wood used to make planks for walls.

Conservation status
Vulnerable.

Habitat
Moist forest; slight or steep mid-slopes; 400–800 m.

Solitary palm, to 25 m tall; trunk ± bulbous at base with a few aerial roots, with raised step-like rings; crownshaft green. **Leaves** 6–8, in 3 ranks, arching; sheath 1.5–2 m, waxy, swollen; petiole 20–50 cm; rachis 3–4 m long; leaflets 135–188 per side, ± irregular or in groups of 2–8, to 135 × 4.6 cm. **Inflorescence** below the leaves, branched to 3–4 orders; rachillae 15–48 cm long. **Fruit** pale orange, globose to ellipsoid, 8–10 × 4–7 mm. **Seed** ± 5.5 × 4 mm, with homogeneous endosperm.

Dypsis malcomberi

Similar species:

D. pilulifera and ***D. mananjarensis***.

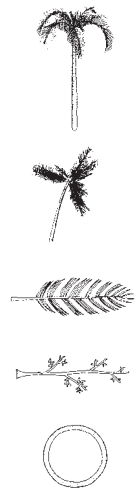
Dypsis malcomberi, Andohahela

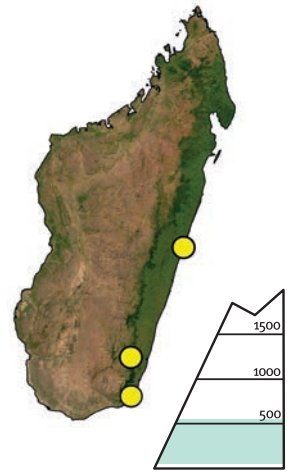
Dypsis prestoniana

Babovavy*, *tavilo

Look for:

- Solitary palm, to 12 m tall.
- Trunk with pale grey rings.
- Leaf sheath 90% open.
- Inflorescence among the leaves, branched to 3 orders.





Uses
Palm-heart eaten.

Conservation status
Vulnerable.

Habitat
Moist forest; slight mid-slopes; 50–550 m.

Solitary palm, to 12 m tall; trunk with pale grey rings, green and smooth in upper part. **Leaves** 8–10, in 3 ranks, arching; sheath 90% open, green to pale brown or grey, with waxy covering and brown fur; petiole 0–17 cm; rachis ± 4.4 m long; leaflets ± 164 per side, in groups of 3–9, fanned, groups dense and irregular, to 112 × 4.7 cm. **Inflorescence** among the leaves, branched to 3 orders; rachillae 9–42 cm long. **Fruit** orange, ellipsoid, 12–15 × 6–8 mm. **Seed** 11–12 × 5–5.5 mm, with homogeneous endosperm.

Dypsis prestoniana, Sainte Luce

Similar species:

Differs from ***D. tokoravina*** in pale grey sheaths.

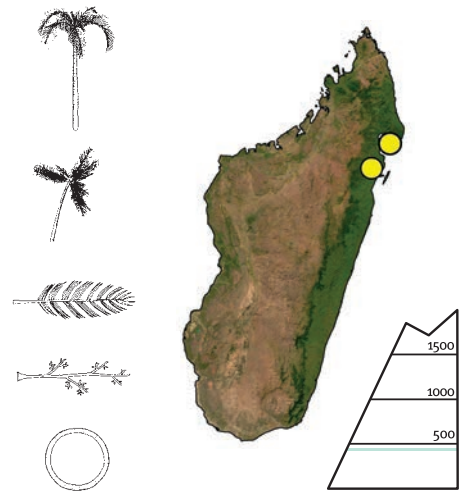
Dypsis prestoniana, Midongy

Dypsis tokoravina

Tokoravina

Look for:

- Solitary immense palm, to 20 m tall, of primary forest.
- Enormous, open, swollen leaf sheaths.
- Huge ± 3 m inflorescence among the leaves, branched to 3 orders.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Lowland rainforest; edge of swamp in valley bottom and ridge tops; ± 420 m.

Solitary palm, to 20 m tall, trunk ± 60 cm across at base. **Leaves** 10–14, in ± 3 ranks; sheath scarcely forming crownshaft, 0.7–1 m long, very swollen, open for most of length, greyish brown, bright red-brown within; petiole 6–34 cm; rachis ± 2.7 m long, leaflets 80–110 per side, held irregularly in groups of 3–8 in different planes, to 128 × 4 cm. **Inflorescence** among the leaves, branched to 3 orders, huge, ± 3 m; rachillae numerous and very slender (exact size unknown). **Fruit** obovoid with pointed base, 15–20 × 11–13 mm. **Seed** not seen entire, but with homogeneous endosperm.

Similar species:

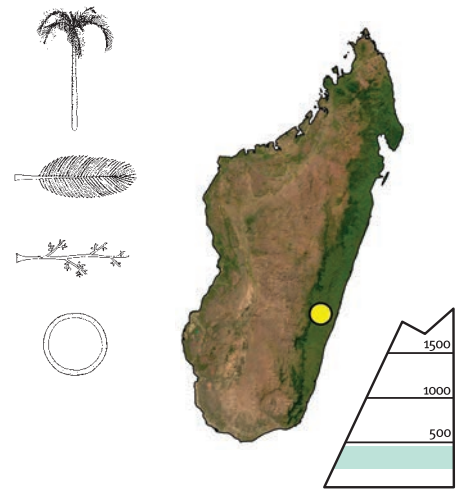
D. bejofo and ***D.pilulifera*** but open leaf sheaths make it instantly recognizable. The open leaf sheath and large size resemble ***D. prestoniana***, but that species has a more slender trunk and grey rather than red-brown sheaths.

Dypsis tokoravina, Mananara Avaratra

Dypsis ifanadianae

Look for:

- Slender, solitary palm, to 24 m tall with trunk with raised step-like rings.
- Drooping leaflets.
- Inflorescence below the leaves, branched to 3 orders.



Uses
None recorded.

Conservation status
Critical.

Habitat Lowland rainforest; steep mid-slopes; 200–450 m.

Slender, solitary palm, to 24 m tall; trunk with raised step-like rings. **Leaves** 7, ± straight with leaflets in one plane but curving downwards; sheath 72 cm long, 50–75% open, green; petiole 30 cm; rachis ± 3 m long; leaflets 55 per side, regular, to 110 × 5 cm. **Inflorescence** below leaves, branched to 3 orders, rachillae 12–33 cm. **Fruit** 8 × 7–10 mm. **Seed** ellipsoid but attached near the middle, 6.5 × 5.5 × 8–9 mm, with homogeneous endosperm.

Similar species:

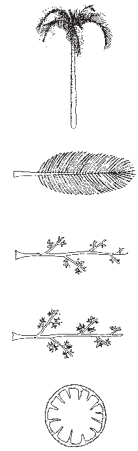
Can be distinguished from ***D. nauseosa*** by small fruit with homogeneous endosperm.

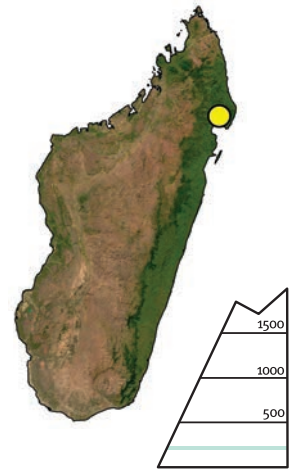
Dypsis ifanadianae, Ifanadiana

Dypsis carlsmithii

Look for:

- Solitary palm, to 6 m tall.
- Crownshaft 140 cm.
- Inflorescence among leaves, branched to 3 or 4 orders.
- Black fruit.





Uses
None recorded.

Conservation status
Unknown.

Habitat
In lowland forest; 200 m.

Solitary palm, to 6 m tall, sometimes forking below ground to give paired trunks; crownshaft 140 cm. **Leaves** curved with a slight twist; sheath ± 140 cm, with some wax and scattered scales; petiole 45 cm; rachis ± 3 m, leaflets ± 90 on each side. **Inflorescence** among leaves, branched to 3 or 4 orders, rachillae 6–8 cm. **Fruit** black, irregularly ovoid-ellipsoid, 16 × 9 mm. **Seed** 13 × 8 mm, homogeneous endosperm.

Dypsis carlsmithii

Similar species:

Perhaps ***D. bejofo***, by its size, but differs in regular leaflets and inflorescence among the leaves.

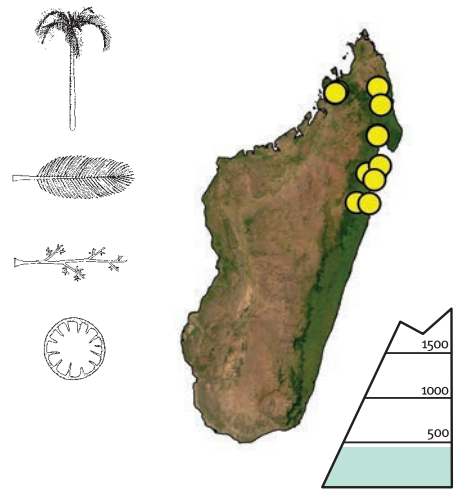
Dypsis carlsmithii, Masoala

Dypsis lastelliana

Menavozona*, *ravintsira

Look for:

- Solitary palm, to 15 m tall.
- Rich velvet red-brown crownshaft.
- Inflorescence among the leaves, branched to 3 orders.



Uses
Pith formerly used to make salt; palm-heart bitter, inedible, said to be poisonous by Sakalava and Tsimihety.

Conservation status
Not threatened. Fairly widespread over wide altitude range.

Habitat
Moist lowland forest on slopes (gneiss, quartz, granite), also in coastal forests on white sand; 1–450 m.

Solitary palm, to 15 m tall; trunk with swollen base; wood hard; crownshaft 70–75 cm, rich velvet red-brown. **Leaves** 9–15, straight or arching near tip; sheath 40–60 cm, partially open; petiole absent or up to 10 cm; rachis yellowish, to 3.8 m; leaflets 94–102 per side, to 89 × 4.3 cm. **Inflorescence** among the leaves, branched to 3 orders, rachillae 27–47 cm. **Fruit** obovoid, 18–24 × 12–17 mm. **Seed** 12–21 × 10–16 mm, endosperm deeply ruminate.

Dypsis lastelliana, Masoala

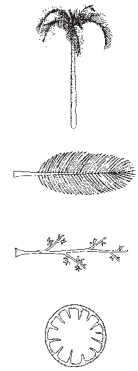
Similar species:

Can be distinguished from ***D. leptocheilos*** by larger fruit, shorter petiole and thicker rachilla bract.

Dypsis leptocheilos

Look for:

- Solitary palm to 10 m tall.
- Leaf sheath covered with rusty brown fur.
- Petiole c. 17 cm.
- Globose, dark brown fruit to 12 mm diam.



Uses
None recorded.

Conservation status
Unknown. Species only known from cultivation.

Habitat
Unknown but said to be at low elevations along and in rocky, sandy, seasonally dry streambeds.

Solitary palm, to 10 m tall. **Leaves** c. 15, porrect; sheath c. 62 cm, partially open, covered in rusty brown fur; petiole c. 17 cm; rachis to 4 m; leaflets to 103 per side, to 85 × 4 cm. **Inflorescence** among leaves becoming below leaves when in fruit, branched to 3 orders, rachillae to 30 cm. **Fruit** globose, dark brown, 10–12 mm. **Seed** 8.5–10 × 8.5–9 mm, endosperm irregularly ruminate.

Dypsis leptocheilos, cultivated, Queensland

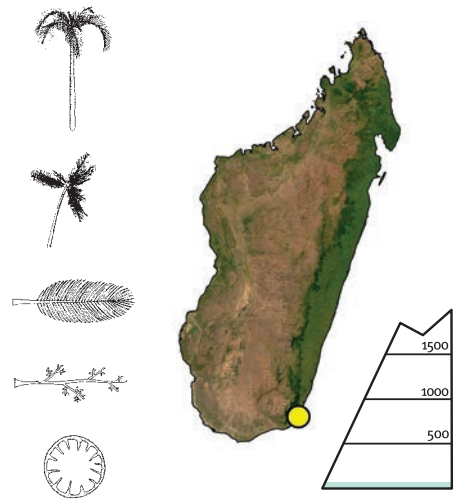
Similar species:

D. lastelliana.

Dypsis saintelucei

Look for:

- Solitary palm, to 10 m tall, in coastal forest with leaves arranged in three ranks.
- Crownshaft waxy green.
- Inflorescence solitary, among the leaves, branched to 3 orders.



Uses
Destructively used for making lobster pots.

Conservation status
Critical.

Habitat
Coastal forest on white sand; 10–20 m.

Solitary palm, to 10 m tall, sometimes in clumps of 2–3 trunks; trunk grey but green in upper part; wood very hard; crownshaft waxy green. **Leaves** in 3 ranks, 7–11; sheath ± 80 cm, closed, waxy pale green, smooth; petiole absent or up to 13 cm; rachis 2.3–2.4 m; leaflets 59–61 per side, to 104 × 3.7 cm. **Inflorescence** solitary, among the leaves, branched to 3 orders, rachillae 16–27 cm. **Fruit** not known. **Seed** ellipsoid, 11–13 × 7 mm, endosperm deeply ruminate.

Similar species:

Distinguished from ***D. ampasindavae*** by closed leaf sheath and inflorescence among the leaves.

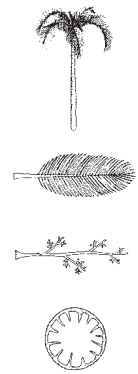
Dypsis saintelucei, Sainte Luce

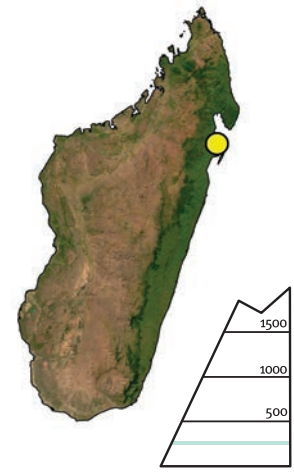
Dypsis ovobontsira

Ovobontsira

Look for:

- Solitary palm, to 10 m tall, with pink wood.
- Spirally inserted leaves and regular leaflets.
- Inflorescence among the leaves, branched to 3 orders.
- Ruminate endosperm.





Uses
None recorded.

Conservation status
Critical.

Habitat
Moist forest, steep mid-slope; ± 265 m.

Solitary palm, to 10 m tall; wood pink with dense fibre-layer below bark. **Leaves** 6, arching; sheath ± 62 cm, green with dense brown and white scales; petiole ± 47 cm, green with dense white scales; rachis 2.5–2.6 m; leaflets 68–69 per side, stiff, in 1 plane, to 90 × 5.2 cm. **Inflorescence** among the leaves, branched to 3 orders, long peduncle (79 cm), rachillae 10–19 cm. **Fruit** green, ellipsoid, 15–17 × 13–15 mm. **Seed** 13–15 × 11–13 mm, endosperm slightly ruminate.

Similar species:

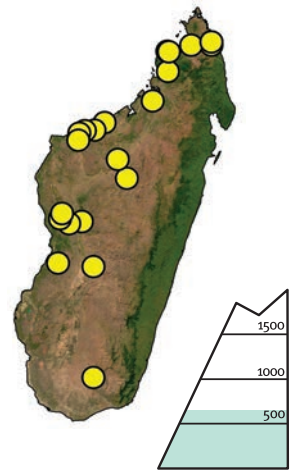
None.

Dypsis madagascariensis

Farihazo*, *hirihiry*, *kizohazo*, *kindro*, *madiovozona

Look for:

- Solitary or clustering palm, in tufts of 2–4, to 18 m tall.
- Inflorescence between the leaves, branched to 3 orders.
- Homogeneous endosperm.



Uses
Excellent palm-heart; fruit eaten by children; outer wood used for floorboards.

Conservation status
Rare.

Habitat
Moist rainforest or semi-deciduous dry or plateau forest; 1–650 m.

Solitary or clustering palm, in tufts of 2–4, to 18 m tall; wood very hard; crownshaft green, white-waxy. **Leaves** 7–12, in 3 ranks, arching near tip; sheath 75% to completely open, 40–63 cm, green and waxy outside, orange inside; petiole 12–40 cm, with red-brown fur beneath; rachis 1.6–3.1 m; leaflets 88–126(–177) per side, in groups of 2–6, fanned within the groups, upper part drooping, to 95 × 2(–3) cm. **Inflorescence** between the leaves, branched to 3 orders (rarely 4), rachillae 10–40 cm. **Fruit** purple, obovoid or ellipsoid, 10–16 × 5–10 mm. **Seed** narrowly ellipsoid, 9–12 × 5–6 mm, homogeneous endosperm.

Similar species:

Robust solitary forms look rather like ***D. prestoniana***, but inflorescence is much smaller and habitat is quite different; more slender forms look somewhat like ***D. onilahensis*** but differ in leaflet arrangement, endosperm, habit and habitat.

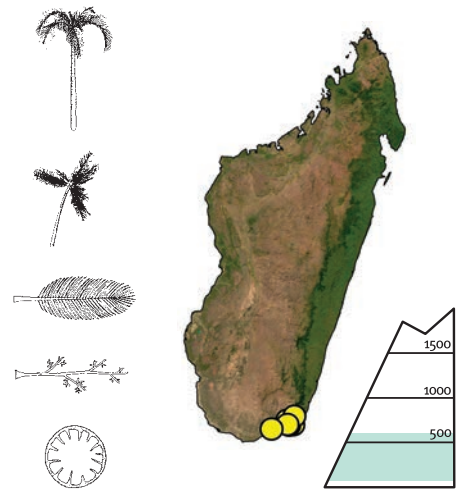
Dypsis madagascariensis, Mahajana

Dypsis decaryi

Laafa

Look for:

- Solitary palm, to 6 m tall, in dry forest.
- Leaves arranged in 3 ranks.
- Triangular arrangement of open leaf sheaths.
- Inflorescence among leaves, branched to 3 orders.



Uses
Leaves used for thatching; fruits eaten by children, and formerly used to prepare a fermented drink; seeds exported for horticultural use.

Conservation status
Vulnerable. Listed on CITES Annexe II.

Habitat
Dry forest or bush on stony soil, mid-slope; 80–600 m.

Solitary palm, trunk to 6 m tall. **Leaves** 18–24, in 3 ranks; sheath open, 30–45 cm, yellow-green with dense white wax usually overlaid by thick reddish fur when young; petiole 33–50 cm; rachis 2.2–3 m; leaflets 55–97 per side, to 90 × 3.5 cm. **Inflorescence** among the leaves, branched to 3 orders, rachillae 12–26 cm.

Fruit ovoid, later subglobose, 15–22 × 12–19 mm. **Seed** subglobose to ellipsoid, 17–19 × 15–17 mm, endosperm ruminate.

Similar species:

Quite similar to ***D. madagascariensis*** but can be distinguished by more compact habit and densely three-ranked leaves.

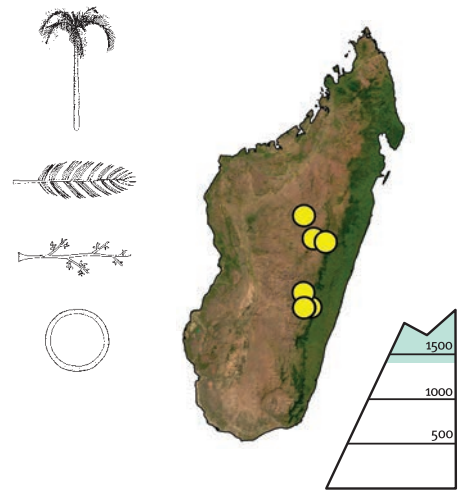
Dypsis decaryi, Andohahela

Dypsis decipiens

Betefaka*, *manambe*, *sihara leibe

Look for:

- Squat palm with single or paired bottle trunks, on high plateaux.
- Crownshaft pale waxy grey-green.
- Inflorescence below leaves, branched to 3 orders.



Uses
Good palm-heart. Leaves used for erosion control.

Conservation status
Endangered.

Habitat
Plateau forest (remnants), either near streams or on rocky sites; 1400–2000 m.

Single or paired bottle trunks, to 20 m tall; crownshaft pale waxy grey-green. **Leaves** 9–12, arching; sheath $^1/_3$ to $^1/_2$ open, ± 70 cm; petiole 10–25 cm; rachis ± 2.2 m; leaflets ± 90 per side, in groups of 2–6, fanned within groups, to 100 × 4.3 cm. **Inflorescence** below the leaves, branched to 3 orders, rachillae 7–40 cm. **Fruit** broadly ellipsoid or almost globose, 22–25 × 20–22 mm. **Seed** 10–20 × 11–18 mm, homogeneous endosperm.

Dypsis decipiens, Ambositra

Similar species:

Unmistakeable. ***D. ambositrae*** is somewhat similar, but is more slender and has ruminate endosperm.

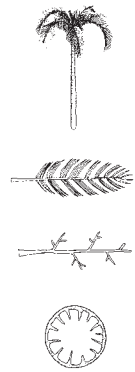
Dypsis decipiens, Itremo. (Photo: M. Rakotoarinivo)

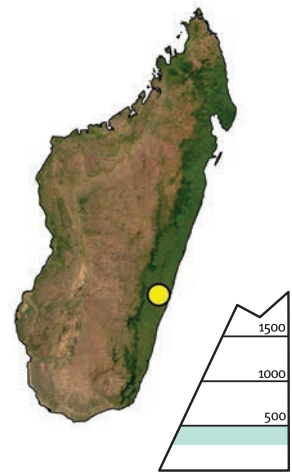
Dypsis basilonga

Madiovozona

Look for:

- Solitary palm, to 5 m tall.
- Crownshaft well-developed and whitish.
- Inflorescence among the leaves, branched to 2 orders.
- Ruminate endosperm.





Use
Excellent palm-heart.

Conservation status
Endangered.

Habitat
Small-crown, submontane forest, on Mt Vatovavy and Andrambovato; 300–500 m.

Solitary palm, trunk to 5 m tall, with well-developed whitish crownshaft ± 40 cm. **Leaves** 6–7, strongly curved; sheath white and waxy, ± 40 cm; petiole 14–16 cm, with patches of dense fur; rachis ± 1 m; leaflets more than 30 per side, in groups of 2–3, the lower leaflets with a very long gap between basal pair and next pair, to 68 × 3 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae 15–19 cm. **Fruit** ellipsoid, ± 20 × 9–10 mm. **Seed** oblong, endosperm ruminate.

Similar species:

Can be differentiated from ***D. decipiens*** by much smaller size, inflorescence among leaves and ruminate endosperm.

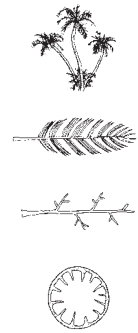
Dypsis basilonga, Andrambovato. (Photo: N. Hockley)

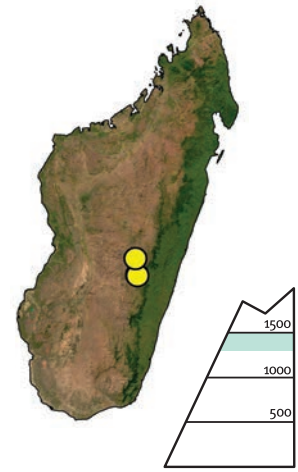
Dypsis ambositrae

Tsiara kinangala

Look for:

- Solitary or clustering palm in tufts of 2–3 of high plateaux, to 7 m tall.
- Stem green and ringed when young.





Uses
None recorded.

Conservation status
Critical.

Habitat
Riverine forest remnants, medium or steep mid-slope; 1300–1500 m.

Clustering palm, in tufts of 2–3, sometimes appearing solitary; trunk 3–7 m tall, green and ringed when young, crownshaft pale waxy grey-green. **Leaves** 7–11, gracefully arching; sheath pale green with a white bloom, 64–103 cm; petiole 9–30 cm; rachis 2.1–2.8 m; leaflets 74–84 per side, slightly grouped ± in 2s–5s, in one plane, to 114 × 3 cm. **Inflorescence** among the leaves, branched to 2(–3) orders, rachillae 14–32 cm. **Fruit** ± 14 × 10.5 mm. **Seed** with ruminate endosperm.

Dypsis ambositrae, Ambositra

Similar species:

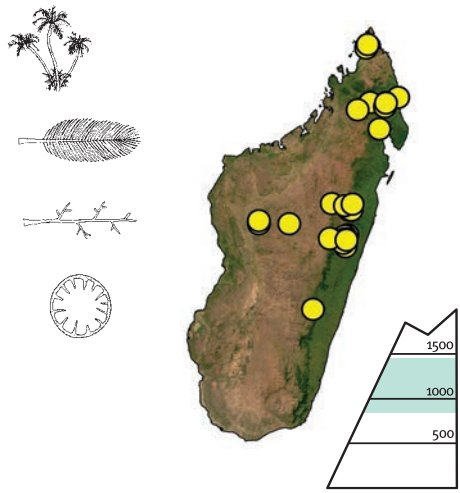
Distinguished from ***D. decipiens*** by smaller size, lack of bottle trunk and ruminate endosperm.

Dypsis baronii

Farihazo*, *tongalo

Look for:

- Clustering palm, in tufts of 3–5, to 8 m tall.
- Pale green to pale yellow waxy crownshaft.
- Submontane to montane forest habitat.



Uses
Excellent palm-heart; fruit edible and sweet.

Conservation status
Not threatened.

Habitat
Moist montane forests, bamboo-dominated forests; usually on steep mid-slopes, less often on ridge crests; 850–1470 m.

Very variable, in clumps of 3–5, rarely solitary; trunk to 8 m tall; crownshaft pale green to pale yellow, waxy, unexposed sheaths pale orange. **Leaves** 4–8, spiral or in 3 ranks, arching; sheath 28–60 cm; petiole 0–37 cm; rachis 0.5–1.2 m; leaflets 35–60 per side, regular, in one plane, to 50 × 2.7 cm. **Inflorescence** among or below the leaves, branched to 2 orders, rachillae 3–24 cm. **Fruit** yellow, ellipsoid or subglobose, 10–20 × 8–16 mm. **Seed** 9.5–12 × 7.5–11 mm, endosperm shallowly ruminate.

Dypsis baronii, Marojejy

Dypsis onilahensis, Isalo

Similar species:

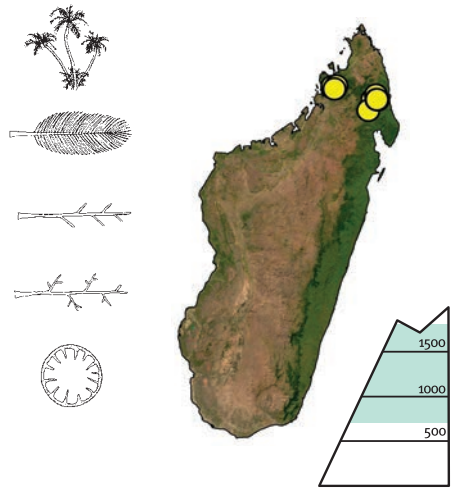
D. onilahensis (Kindro, Sihara) – occurs widely on the plateau in forest fragments in much drier areas than *D. baronii*; similar in habit and variability but has homogeneous endosperm. ***D. acuminum*** – known from Manongarivo and Marojejy; possibly the same as *D. onilahensis* but has inflorescence branched to 1 (rarely 2) orders only, endosperm homogeneous. ***D. albofarinosa*** – described from cultivation and not yet recorded from wild; very similar to *D. onilahensis*, distinct in long petioles, abundant white powder on stems and sheaths, inflorescence below the leaves and homogeneous endosperm. ***D. heteromorpha*** – known from high altitude (Tsaratanana, Anjanaharibe and neighbouring areas); possibly not distinct from *D. baronii*, but has deeply ruminate endosperm.

Dypsis andrianatonga

Tsiriky andrianatonga

Look for:

- Small clustering palm, in high mountains of the North.
- Stem snaking and branching close to ground.



Use
Leaf decoction used in drink for convalescence, highly prized.

Conservation status
Rare.

Habitat
Open, moist montane forest or heath vegetation, occasionally on rocks in denser forest; 700–1800 m.

Clustering palm, in tufts of 8–14; stem branching, to 9 m long. **Leaves** ± 5, spiral to ± 3-ranked, arching; sheath 20–39 cm, closed; petiole 6–32 cm; rachis 42–128 cm; leaflets 12–35 per side, to 35 × 3.2 cm. **Inflorescence** among the leaves, branched to 1–2 orders, rachillae 2–10 cm. **Fruit** ellipsoid, 9–20 × 12–15 mm. **Seed** ellipsoid, 15–18 × 11–14 mm, endosperm ruminate.

Dypsis andrianatonga, Manongarivo

Similar species:

D. serpentina from Mananara, which differs in having the inflorescence below the leaves.

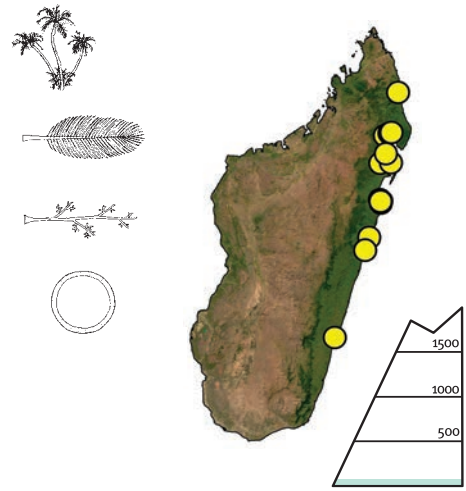
Dypsis serpentina, Mananara Avaratra

Dypsis lutescens

Lafahazo*, *lafaza*, *rehazo

Look for:

- Graceful clustering palm, in tufts of 4–20, in forest of the east coast.
- Yellowish leaf sheaths with white waxy bloom.
- Inflorescence among the leaves, branched to 3 orders.
- Homogeneous endosperm.



Uses
One of the most important ornamental palms in commerce.

Conservation status
Not threatened.

Habitat
Littoral forest or heath vegetation on white sand, also on rock; persists in secondary growth and may be locally common; 5–35 m.

Clustering palm, in tufts of 4–20, stems to 7 m tall. **Leaves** 5–11, spiral or more often in 3 ranks, strongly arching; sheath yellowish with white waxy bloom, 39–60 cm, orange inside; petiole 19–37 cm; rachis 1.1–1.9 m; leaflets 44–59 per side, to 70 × 3 cm. **Inflorescence** among the leaves, branched to 3 orders (rarely 2 or 4), rachillae 6–30 cm. **Fruit** yellow, ellipsoid to obovoid, 12–18 × 7–10 mm. **Seed** ovoid, 11–16 × 6–9.5 mm, endosperm homogeneous.

Dypsis lutescens, Ambila-Lemaitso

Dypsis psammophila, Sainte Marie

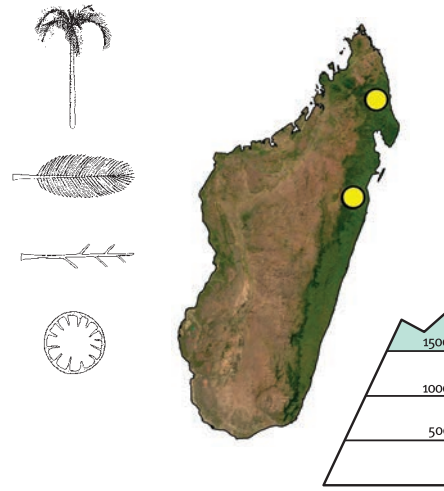
Similar species:

D. arenarum – known from a few places on the east coast, differs in longer petioles, smaller number of leaflets, longer petals and robust rachillae. The inflorescence never branches to more than 2 orders. ***D. psammophila*** – known from a few places on the east coast, differs in smaller dimensions, lacking scales on undersurface of leaflets and inflorescence branched to 2 orders only. ***D. baronii*** and ***D. onilahensis***.

Dypsis pumila

Look for:

- Solitary dwarf palm of high altitiudes.
- Inflorescence below the leaves branched to 1 order.
- Ruminate endosperm.



Uses
None recorded.

Conservation status
Vulnerable. Only known from Marojejy.

Habitat
In heath vegetation or montane forest, also in high altitude swamp; 1500–2100 m.

Solitary palm (probably), to 1 m tall. **Leaves** 3–4; sheath 11–19 cm; petiole absent or up to 4 cm; rachis 26–47 cm; leaflets 19–21 per side, to 20 × 2.1 cm. **Inflorescence** below the leaves, branched to 1 order, rachillae 6–10 cm. **Fruit** subglobose to ± obovoid, 17–26 × 12–20 mm. **Seed** ± obovoid, 16–17 × 13–14 mm, endosperm ruminate.

Similar species:

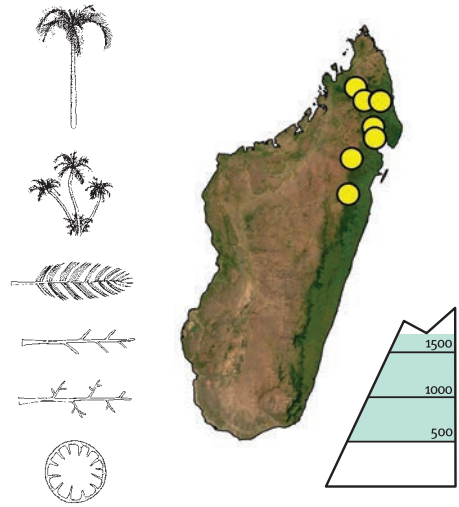
Distinguished from ***D. heteromorpha*** by solitary habit, being much shorter, having smaller leaves and an inflorescence branched to only 1 order; and from ***D. acuminum*** by ruminate endosperm.

Dypsis oreophila

Fitsiriky*, *kindro*, *lafaza

Look for:

- Clustering palm of NE with fanned leaflets.
- Inflorescence below the leaves, branched to 1–2 orders.
- Ruminate endosperm.



Uses
Palm-heart eaten. Hollowed out stems used for blowpipes.

Conservation status
Vulnerable.

Habitat
Moist montane forest, on steep slopes; 500–1700 m.

Clustering palm, occasionally solitary, stems to 8 m tall. **Leaves** 6–8, young leaves tinged pink; sheath pale brown, 18–55 cm; petiole 2–50 cm; rachis 0.5–1.5 m; leaflets 25–45 per side, in groups of 2–5, fanned, to 46 × 2.7 cm. **Inflorescence** below the leaves, branched to 1–2 orders, rachillae 3–15 cm. **Fruit** subglobose to ± obovoid, 5–11 × 3–8 mm. **Seed** ellipsoid, 6–7.5 × 3.5–7 mm, endosperm ruminate.

Dypsis oreophila, Marojejy

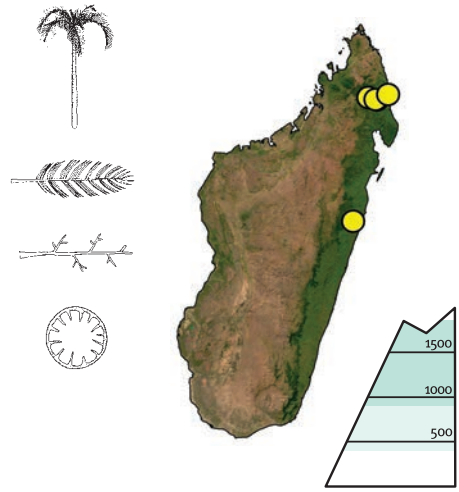
Similar species:

Distinguished from ***D. tsaratananensis***, which is only known from Mt Tsaratanana, by fewer and smaller leaflets and ruminate endosperm; and from the poorly known ***D. ambanjae*** (known from the upper Sambirano River) by its ruminate endosperm.

Dypsis coursii

Look for:

- Solitary palm, to 8 m tall, in montane forest.
- Leaf sheath with dense reddish fur and wax.
- Distant groups of leaflets.
- Large fruits.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Moist montane forest or dense small-leaved forest on ridges; on gneiss and quartzite, (400–)900–1850 m.

Solitary palm, to 8 m tall. **Leaves** ± 4; sheath 18–36 cm with dense reddish fur and wax; petiole 4–27 cm; rachis 0.4–1 m; leaflets 35–39 per side, in groups, to 34 × 3.5 cm. **Inflorescence** below the leaves, branched to (1–)2 orders, rachillae 1–27 cm. **Fruit** ellipsoid or slightly obovoid, 20–35 × 15–25 mm. **Seed** obovoid, ± 25 × 13–17 mm, endosperm ruminate.

Similar species:

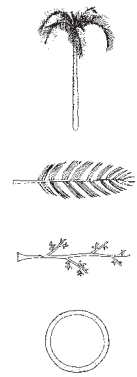
Poorly known species, with no obvious close relatives.

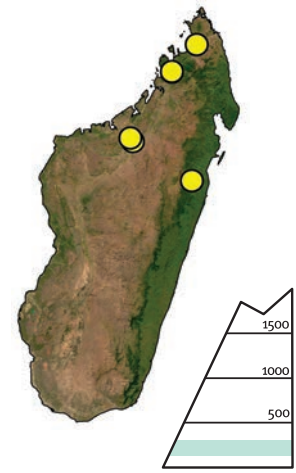
Dypsis rivularis

Sarimadiovozona

Look for:

- Solitary palm, with untidy crown and stilt roots.
- Leaf sheath $^3/_4$ open and yellow.
- Irregularly grouped leaflets.





Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Moist forest stream edge; 130–300 m.

Solitary palm, with untidy crown and stilt roots, trunk to 5.5 m tall. **Leaves** 7–14, arching; sheath 26–43 cm, $^3/_4$ open, yellow; petiole absent or up to 2 cm; rachis ± 1.4 m; leaflets ± 32 per side, in groups of 2–5, to 68 × 6 cm. **Inflorescence** among leaves in flower, below leaves in fruit, branched to 3 orders, rachillae 3–19 cm. **Fruit** ellipsoid, 12–14 × 5–7 mm. **Seed** 10–11 × 4.5–5 mm, endosperm homogeneous.

Similar species:

Unlikely to be confused with other species.

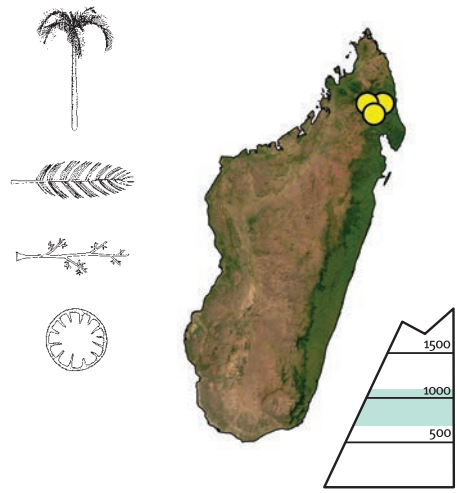
Dypsis rivularis, Manongarivo

Dypsis marojejyi

Menamosona beratiraty

Look for:

- Squat solitary litter-trapping palm, to 6 m tall, with stilt roots.
- Upper part of trunk covered with dead leaves and sheath remnants.
- Leaf sheaths with dense rusty-brown hairs.



Uses
None recorded.

Conservation status
Vulnerable. Only known from Marojejy.

Habitat
Submontane rainforest; 700–1100 m.

Solitary palm, with stilt roots, litter-trapping, trunk to 6 m tall, upper part covered with dead leaves and sheath remnants. **Leaves** 18–20; sheath 20 cm, open, with dense rusty-brown hairs; petiole absent or up to 10 cm; rachis 3–4 m; leaflets ± 60 per side, in groups of 3–6, fanned, to 70 × 5 cm. **Inflorescence** among the leaves, branched to 3 orders, rachillae 9–32 cm. **Fruit** pale yellow-green, ellipsoid to ± obovoid, 22–25 × 14–18 mm. **Seed** ± obovoid, 18–20 × 13–16 mm, endosperm ruminate.

Dypsis marojejyi, Marojejy

Dypsis marojejyi, Marojejy

Similar species:

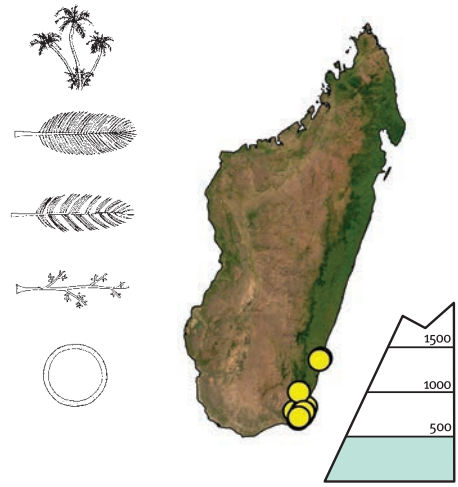
D. perrieri – distinguished by grouped leaflets and more diffusely branched inflorescence. ***D. coursii*** – distinguished by much more robust stem, much larger leaves and longer, narrower leaflets.

Dypsis scottiana

Raosy

Look for:

- Clustering palm, in tufts of 3–16.
- Leaf sheath light brown with dense red scales.
- Elegant slender inflorescence with short rachillae.



Uses
Has been used for fish traps.

Conservation status
Vulnerable.

Habitat
Forest and heath scrub on white sand, rainforest; 10–515 m.

Clustering palm, in tufts of 3–16; stems to 4 m tall. **Leaves** 4–7, arching; sheath 8–31 cm, closed in outermost leaves, light brown with dense red scales; petiole 4–30 cm; rachis 15–66 cm; leaflets 11–27 per side, in groups of 2–8 or almost regular, to 24 × 2 cm. **Inflorescence** among or below the leaves, branched to (2) 3 (4) orders, rachillae 0.7–6.5 cm. **Fruit** red, ellipsoid, 6–11 × 3.5–6.5 mm. **Seed** ellipsoid, 6.5–9 × 3–5 mm; endosperm homogeneous.

Dypsis scottiana, Tolagnaro

Dypsis singularis, Manombo

Dypsis mcdonaldiana, Andohahela

Dypsis mcdonaldiana, Andohahela

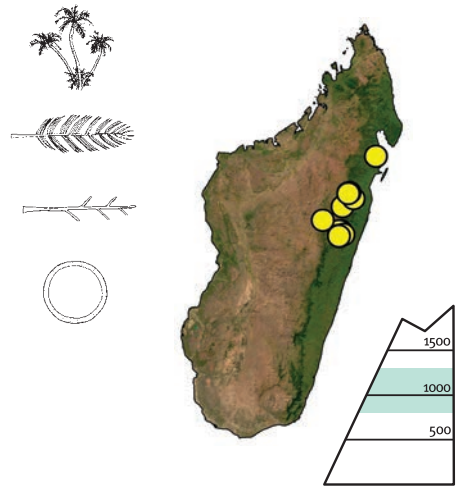
Similar species:

D. commersoniana – known only from coastal areas of the southeast; very similar to *D. scottiana* but distinguished by much shorter rachillae. **D. henrici** – known from one collection near Fort Dauphin, from forest; probably the same as *D. commersoniana*. ***D. intermedia*** – known only from Manombo, Farafangana, from lowland rainforest at 30–60 m above sea level; very similar to *D. scottiana* but with fewer and broader leaflets. ***D. mcdonaldiana*** – occurs in humid rainforest at mid elevation in Andohahela; distinguished from *D. scottiana*, with which it grows in some places, by its greater size, its slightly s-shaped broader leaflets and more robust inflorescence with longer rachillae. ***D. singularis*** – known only from Manombo, Farafangana, from lowland forest ± 45 m above sea level; similar to *D. commersoniana* but with stamens of a completely different type.

Dypsis jumelleana

Look for:

- Clustering palm, in tufts of 4–6.
- Leaf sheath pale green.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Submontane rainforest on gentle to steep slopes; 800–1300 m.

Clustering palm, in tufts of 4–6; stems to 4 m tall, green with reddish scales, later turning brown-grey. **Leaves** 3–8; sheath 8–20 cm, pale green; petiole 1.5–15 cm; rachis 24–56 cm; leaflets 10–18 per side, in irregular groups of 2–4 or just irregular, in one plane, to 27 × 2.2 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 13–30 cm. **Fruit** red, subglobose, 9–12 mm diameter. **Seed** 6.5–9 × 6–8 mm, endosperm homogeneous.

Dypsis jumelleana, Andasibe

Similar species:

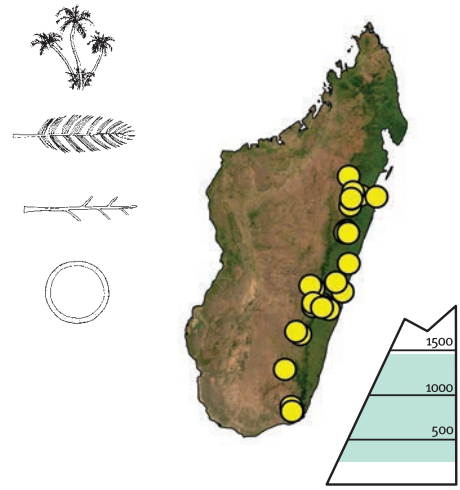
Perhaps most like ***D. procumbens*** but lacking the abundant scales of that species.

Dypsis procumbens

Ambolo*, *ovana*, *sinkara*, *sirahazo*, *tsirikabidy

Look for:

- Clustering palm in tufts of 4–40.
- Leaf sheath pale green, with dense red-brown scales.
- Inflorescence among or below the leaves, branched to 1(–2) orders.



Uses
None recorded.

Conservation status
Not threatened.

Habitat
Bamboo-rich montane forest on steep slopes, secondary bush on white gritty sand; hillcrest or mid-slope; 250–1450 m.

Clustering palm, in tufts of 4–40, or seemingly solitary; stem to 7 m tall, green with dense red-brown to purple scales, turning smooth and grey with age. **Leaves** 4–8, dead leaves sometimes present; sheath 13–35 cm, pale green with dense red-brown scales; petiole absent or up to 16 cm; rachis 22–70 cm; leaflets 11–23 per side, in groups of 2–5, fanned, to 26 × 3 cm. **Inflorescence** among or below the leaves, branched to 1(–2) orders, rachillae 5–24 cm. **Fruit** yellow to red, ellipsoid, 6–9 × 4–6 mm. **Seed** 5–6.5 × 3–3.3 mm, endosperm homogeneous.

Similar species:

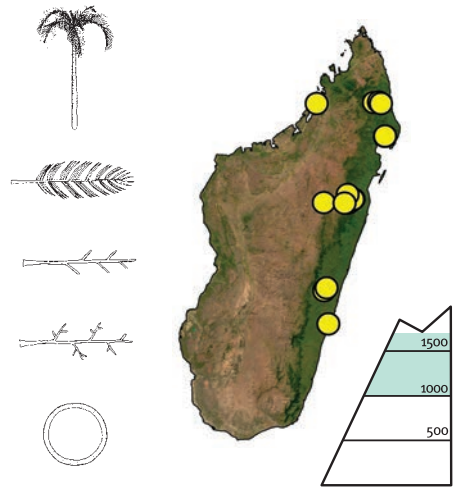
D. caudata – known from a few collections from Masoala, differs in having broad leaflets ending in long drip tips and yellow inflorescence lacking abundant scales.

Dypsis procumbens, Andasibe

Dypsis bonsai

Look for:

- Solitary dwarf palm, to 2 m tall.
- Reddish hairy stem and leaf sheath.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Low forest or ericoid vegetation on ridge crests; 1000–1700 m.

Solitary palm, to 2 m tall, stem reddish hairy. **Leaves** 4, pinnate; sheath 6.5–9 cm, densely reddish, hairy; petiole 1–4 cm; rachis 10–18 cm; leaflets 10–14 per side, in groups of 2–5, to 11 × 2.2 cm. **Inflorescence** among the leaves, branched to 1–2 orders, rachillae 4–12 cm. **Fruit** only seen young, golden yellow, c. 8.5 × 4 mm. **Seed** 8 × 3.5 mm, endosperm homogeneous.

Similar species:

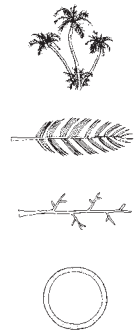
Distinguished from ***D. procumbens*** by slighter build and smaller leaflets.

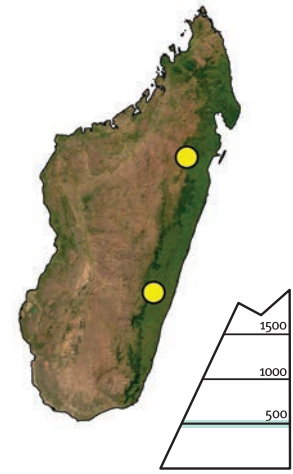
Dypsis scandens

Olokoloka

Look for:

- Clustering climbing palm.
- Petiole absent.
- Inflorescence among the leaves, branched to 2 orders.





Uses
Stems harvested and split to make fish traps, bird cages and hats.

Conservation status
Probably endangered if not critical.

Habitat
Low canopy forest with small crowns on poor soils on quartzite ridge; 500 m.

Clustering climbing palm; stems to 10 m tall, bright green, with scattered dark brown scales. **Leaves** ± 15 with several dead leaves; sheath 15–30 cm, pale green, smooth, with white wax; petiole absent; rachis 1–1.5 m, leaflets 15–18 per side, grouped, to 30 × 3.5 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae 8–12 cm. **Fruit** ellipsoid, 8 × 4.5 mm. **Seed** with homogeneous endosperm.

Similar species:

Distinguished from all others by climbing habit.

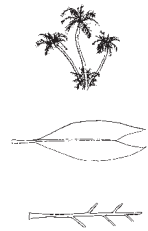
Dypsis scandens, Andilamena. (Photo: M. Rakotoarinivo)

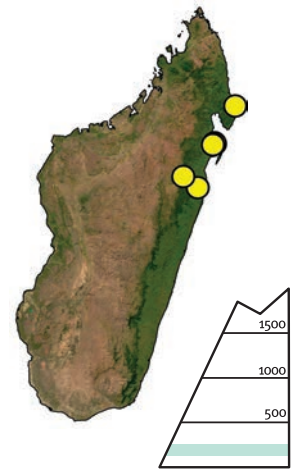
Dypsis fanjana

Fanjana

Look for:

- Clustering palm, in tufts of 3–4.
- Entire leaves.
- Inflorescence among the leaves, branched to 1 order.





Uses
None recorded.

Conservation status
Endangered.

Habitat
Lowland rainforest, steep mid-slope or level slope; 115–250 m.

Clustering palm, in tufts of 3–4, occasionally solitary; stem to 5 m tall. **Leaves** 6–11, spirally inserted, entire or rarely with a few leaflets, arching; sheath 12–15 cm, green; petiole absent or up to 8 cm; leaf-blade 57–62 cm with midrib 20–21 cm; or pinnate with rachis 18–24 cm and leaflets 2(–3) per side, to 56 × 5.3 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 16–25 cm. **Fruit** unknown.

Similar species:

Differs from ***D. faneva***, from east coast lowland forest, which has regularly pinnate leves with 8–21 leaflets; and from ***D. mangorensis***, from the basin of the Mangoro and Mananara Avaratra, by shorter petiole and more slender rachillae.

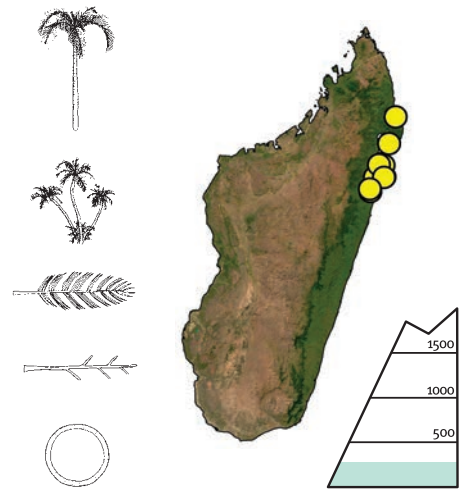
Dypsis fanjana, Mananara Avaratra

Dypsis boiviniana

Talanoka*, *tsingovatra

Look for:

- Solitary or clustering palm, in tufts of 3–4.
- 6–15 leaflets in groups of 2–6.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Open lowland rainforest on white sand forest, slight slope; 5–285 m.

Solitary or clustering palm, in tufts of 3–4; stem to 8 m tall with dense red-brown fur when young. **Leaves** 4–8; sheath 21–30 cm, pale yellow or pale green tinged purple in upper part; petiole 5–24 cm; rachis 29–75 cm; leaflets 6–15 per side, in groups of 2–6, to 51 × 5 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 25–70 cm. **Fruit** ± 10 × 4 mm. **Seed** ± 5.3 × 2.3 mm when young, endosperm homogeneous.

Dypsis boiviniana

Similar species:

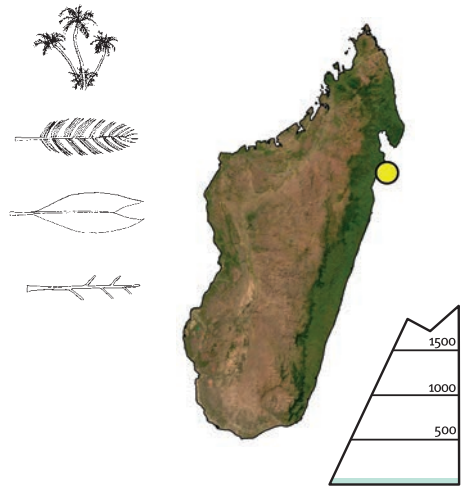
Close to ***D. sanctaemariae*** but differing in grouped leaflets; and ***D. soanieranae*** and relatives, but differing in the branched inflorescence.

Dypsis boiviniana, Antanambe

Dypsis sanctaemariae

Look for:

- Clustering palm of forest undergrowth, to 2.5 m tall.
- Petiole absent.
- Bifid or irregularly divided leaf.
- Rachillae > 30 cm.



Uses
None recorded.

Conservation status
Critical. Only known from Nosy Boraha/Ile Ste Marie.

Habitat
White sand forest; 20 m.

Clustering palm of forest undergrowth; stems to 2.5 m tall. **Leaves** ± 8, forming a "shuttlecock" and litter-trapping, entire and bifid or with 2 very broad leaflets on one side or irregularly divided into up to 10 leaflets; sheath 17–20 cm, yellow-green or crimson; petiole absent; midrib or rachis 80–88 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 30–40 cm. **Fruit** unknown.

Dypsis santaemariae, Sainte Marie. (Photo: J. Searle)

Similar species:

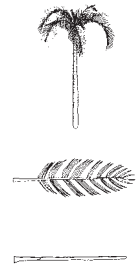
D. boiviniana – can be distinguished by form of leaf; can be distinguished from ***D. mangorensis*** by much larger leaf, lack of petiole and longer rachillae.

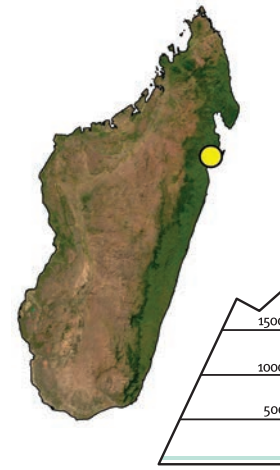
Dypsis soanieranae

Tsinkary

Look for:

- Solitary palm, to 5 m tall.
- Unbranched inflorescence among leaves.





Uses
None recorded.

Conservation status
Probably extinct. Not seen for over 60 years in an area where forest has been severely fragmented.

Habitat
Lowland rainforest; 75 m.

Solitary palm; stem to 5 m tall. **Leaves** with sheath 16–17.5 cm; petiole 13–13.5 cm; rachis 71–95 cm; leaflets 19–21 per side, in groups of 2–3, to 37 × 2 cm. **Inflorescence** among the leaves, unbranched, rachilla/spike ± 72 cm. **Fruit** unknown.

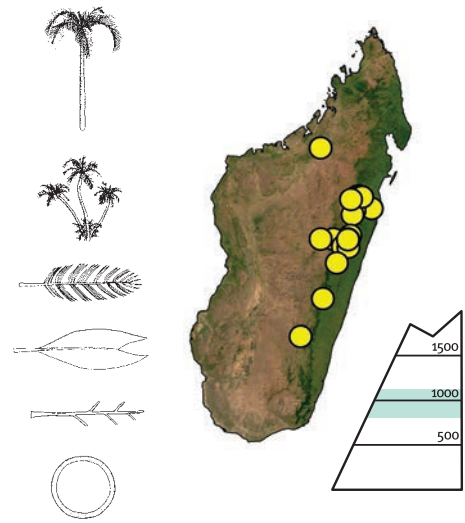
Similar species:

D. curtisii – known from two collections, one of unknown origin, the other from Tsaratanana, differs from ***D. soanieranae*** in the leaf having only 9–12 leaflets on each side. ***D. pervillei*** – known from a single collection from Betampona, similar but much smaller than *D. soanieranae*.

Dypsis concinna

Look for:

- Solitary or clustering palm, to 2 m tall.
- Entire or pinnate leaves.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Submontane rainforest, often with much bamboo; gentle slopes or ridge tops; 800–1120 m.

Solitary or clustering palm, stem to 2 m tall. **Leaves** 5–12; sheath 7–11 cm; petiole absent or up to 3 cm; when entire leaf-blade 13–30 × 3–5.3 cm; when pinnate rachis 11–29 cm, leaflets 11–25 per side, irregular or in groups of 2–7, to 10 × 1.3 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 3–12 cm. **Fruit** red, ellipsoid, 6–16 × 3.5–7 mm. **Seed** 5.5–8.5 × 3–4.5 mm, endosperm homogeneous.

Dypsis concinna, Andasibe

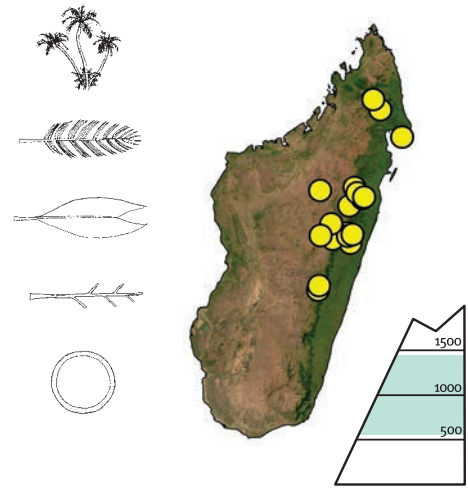
Similar species:

D. heterophylla, but this species has a hairy inflorescence stalk. ***D. elegans***, known from Manombo in lowland forest, critically endangered, is similar but has inflorescence branched to 2 orders.

Dypsis heterophylla

Look for:

- Clustering palm, to 2.5 m tall.
- Entire or pinnate leaves, often on same stem.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Rare.

Habitat
Submontane rainforest; steep slopes or ridge tops; 550–1450 m.

Clustering palm, often seeming solitary; stems to 2.5 m tall. **Leaves** 5–9, entire or pinnate; sheath 6–12 cm; petiole absent or up to 12 cm; rachis 9–28 cm; leaf-blade *entire* 17–24 cm, lobes 7–14 × 1–3.5 cm, apices toothed; or *pinnate* with 2–13 leaflets per side, in groups of 2–5 or irregular, to 15 × 1.3 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 4–10 cm. **Fruit** red, ellipsoid, 5–6.3 × 4–5 mm. **Seed** ± 6 × 3.5–4 mm, endosperm homogeneous.

Similar species:

D. concinna, but this species has a smooth inflorescence stalk.

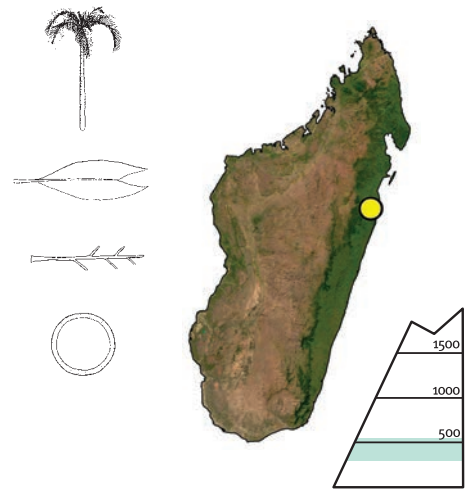
Dypsis heterophylla, Marojejy

Dypsis schatzii

Amboza

Look for:

- Solitary palm, to 4 m tall.
- Entire obovate leaves.
- Inflorescence among the leaves, branched to 1 order.



Uses
Stems formerly used to make blowpipes.

Conservation status
Vulnerable.

Habitat
Lowland rainforest, ridge crest, steep mid-slope and valley bottoms; 300–550 m.

Solitary or very rarely clustering palm, to 4 m tall; stem often with sheath remnants. **Leaves** 8–22, entire or rarely with 2 pinnae; sheath 5–21 cm; petiole absent or up to 12 cm; when entire leaf-blade obovate, 17–49 × 6.8–18.2 cm; when pinnate rachis 14–44 cm, 2 leaflets usually only on one side of rachis. **Inflorescence** among the leaves, branched to 1 order, rachillae 6.5–13 cm; flowers yellow. **Fruit** pinkish red, narrowly ovoid, 13–14 × 4–6 mm. **Seed** ± 8 × 2.5 mm, endosperm homogeneous.

Dypsis schatzii, Betampona

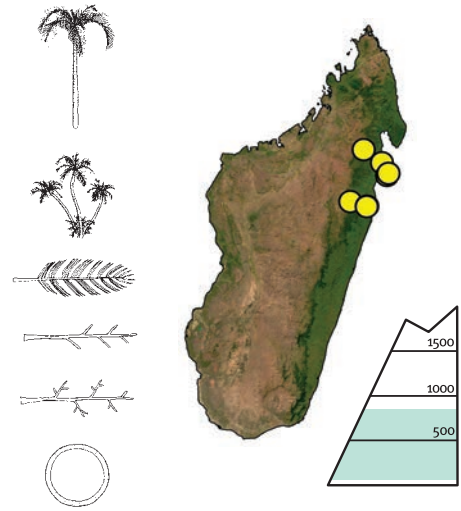
Similar species:

Unlikely to be confused with any other species.

Dypsis corniculata

Look for:

- Clustering palm, in groups of 5 or solitary but in subcolonial groups.
- Pinnate leaves.
- Inflorescence among the leaves, branched to 1–2 order(s).



Uses
Not recorded.

Conservation status
Vulnerable.

Habitat
Rainforest, flat to steep mid-slopes or ridge tops; 70–850 m.

Clustering palm, in groups of 5, or solitary but in subcolonial groups; stems to 6 m tall; crownshaft pale green with dark brown scales. **Leaves** 6–10; sheath 6–15 cm; petiole absent or up to 7.5 cm; rachis 13–40 cm; leaflets 9–18 per side in groups of 2–4, to 14 × 2.6 cm. **Inflorescence** among the leaves, branched to 1 or 2 order(s), rachillae 6–14 cm; flowers white. **Fruit** red, ellipsoid, 10–12 × 4–5.5 mm. **Seed** ± 7.5 × 4.5 mm, endosperm homogeneous.

Dypsis corniculata, Mananara Avaratra

Similar species:

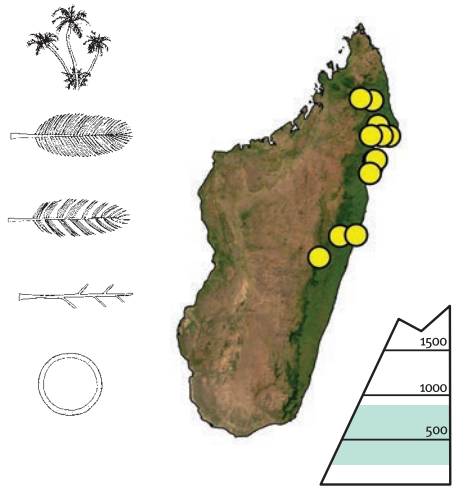
D. thiryana, but that has jagged leaflet tips.

Dypsis thiryana

Tsinkiara, sinkarambolavo maroampototra, taokonampotatra

Look for:

- Clustering palm, in tufts of 2–4.
- Pinnate leaves, leaflets unequally jagged and toothed at apex.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Rare.

Habitat
Lowland rainforest, slight to steep slopes or ridge tops; 220–900 m.

Clustering palm, in tufts of 2–4; stems to 1 m tall. **Leaves** 8–10, ± straight; sheath 6–11 cm, open for 1–2 cm; petiole 1–18 cm; rachis 14–30 cm; leaflets 9–14 per side, almost regular or in groups of 2–3, unequally jagged and toothed at apex, to 11 × 1.3(–2.5) cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 6–15 cm. **Fruit** bright red, ellipsoid, 9–11 × 3–5 mm. **Seed** ± 9 × 2–3 mm, endosperm homogenous.

Similar species:

D. trapezoidea – known only from Vatovavy, near Ifanadiana, differs in always being solitary, having sparse evenly distributed scales on the sheath, much longer petioles, wider leaflets, shorter rachillae and ripe fruit twice the size of those of ***D. thiryana***.

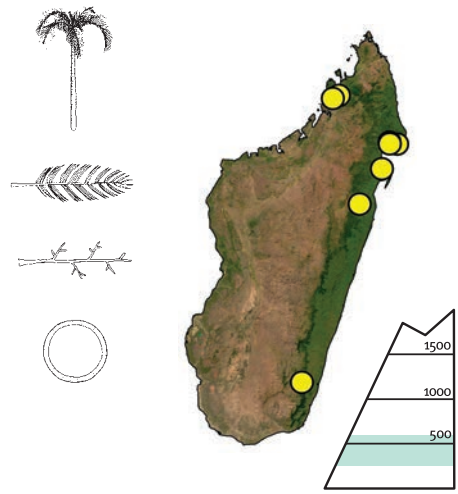
Dypsis thiryana, Masaola

Dypsis hiarakae

Sinkiara, tsirika

Look for:

- Solitary palm, to 6 m tall.
- Pinnate leaves.
- Inflorescence below the leaves, branched to 2 orders.



Uses
Stems used to make blowpipes.

Conservation status
Rare, possibly vulnerable.

Habitat
Lowland to submontane rainforest; ridge top or flat slope; 240–600 m.

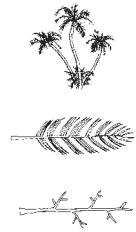
Solitary palm; stem to 6 m tall, sometimes stilt-rooted at base. **Leaves** 7–9, arching; sheath 18–22 cm; petiole 15–17 cm; rachis 35–67 cm; leaflets 12–21 per side, in groups of 2–5, ± fanned, to 31 × 5 cm. **Inflorescence** below the leaves, branched to 2 (rarely 3) orders, rachillae 17–27 cm. **Fruit** red, ellipsoid, ± 9 × 5 mm. **Seed** 6.5–7 × 3.5 mm, endosperm homogenous.

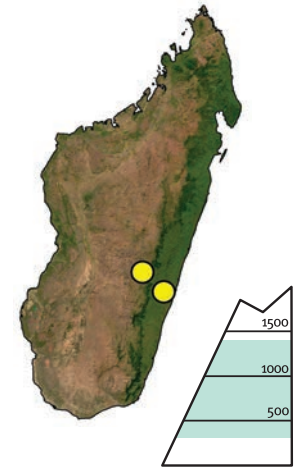
Dypsis hiarakae, Ambalafary

Similar species:

D. confusa – a palm of lowland forest in Masoala, Mananara Avaratra and Betampona, has the inflorescence among the leaves and rachillae 2–15 cm long.

Dypsis sahanofensis





Look for:

- Clustering palm, in groups of up to 12, to 6 m tall.
- Inflorescence among the leaves, branched to 2 orders.

Uses
None recorded.

Conservation status
Endangered.

Habitat
Rainforest; 315–1400 m.

Clustering palm, in groups of ± 12; stem to 6 m tall. **Leaves** with sheath 20–31 cm; petiole 17–18 cm; rachis ± 1 m; leaflets 23–24 per side, grouped to irregular, to 38 × 3 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae 19–33 cm. **Fruit** unknown.

Dypsis sahanofensis, Vatovavy

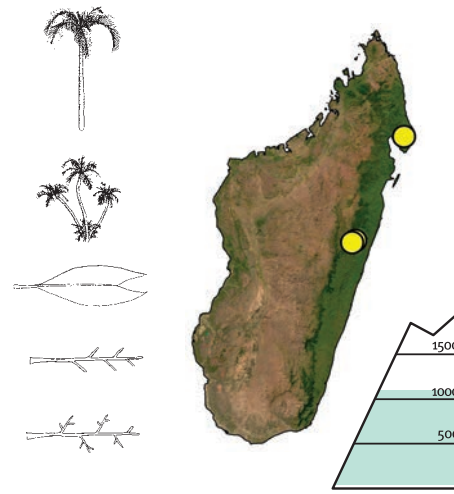
Similar species:

Unlikely to be confused with other species.

Dypsis lutea

Look for:

- Clustering or solitary palm, to 3 m tall.
- Entire bifid inverted-triangular leaves.
- Inflorescence among the leaves, yellow to orange, branched to 1–2 orders.



Uses
None recorded.

Conservation status
Critical.

Habitat
Lowland and submontane rainforest; ridge top; 40–1100 m.

Clustering or solitary palm, to 3 m tall. **Leaves** ± 9, entire, bifid; sheath 10–17 cm; petiole absent or to 4.5 cm; midrib/rachis 21–43 cm; leaf-blade inverted-triangular, 30–55 cm, the two lobes to 17 × 4 cm, toothed on upper outside margins. **Inflorescence** among the leaves, yellow to orange, branched to 1 or 2 orders, rachillae 4–17 cm. **Fruit** (young) oblong.

Similar species:

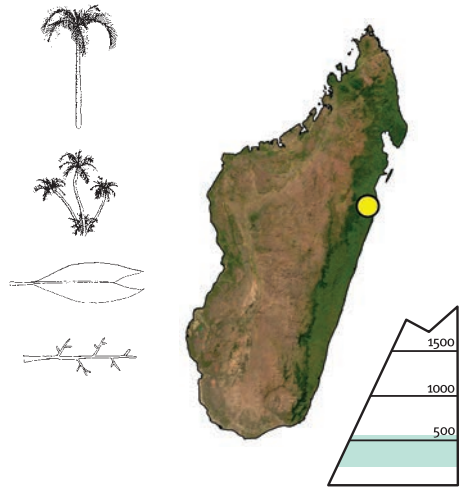
D. eriostachys – known only from Vatovavy, is smaller and has densely woolly inflorescence branches.

Dypsis betamponensis

Vonombodidronga

Look for:

- Clustering or occasionally solitary palm to 5 m tall.
- Entire bifid leaves.
- Inflorescence among the leaves, much branched to 2 orders.



Uses
None reported.

Conservation status
Endangered.

Habitat
Lowland rainforest; ridge top to valley bottoms; 200–550 m.

Clustering or occasionally solitary palm; stem to 4 m tall. **Leaves** 4–9, entire, bifid; petiole absent or to 8 cm; sheath 7–14 cm; rachis 15–37 cm; leaf-blade 40–67 cm, the lobes with dentate apices. **Inflorescence** among the leaves, much branched to 2 orders, rachillae 3–5.2 cm. **Fruit** red, obovoid, 10 mm long. **Seed** not known.

Similar species:

D. schatzii, that grows nearby, has a different shaped leaf and far fewer inflorescence branches.

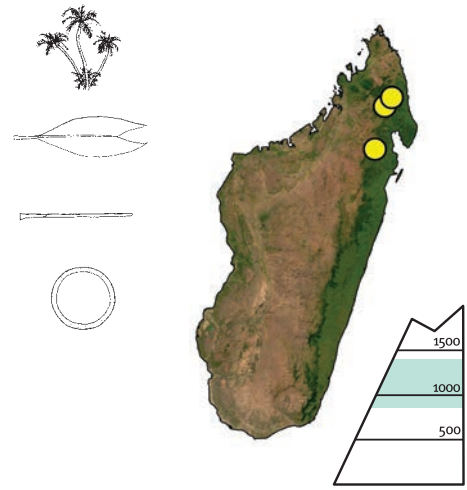
Dypsis betamponensis, Betampona

Dypsis andapae

Tsingovatrovatra

Look for:

- Clustering palm, in tufts of 4–6, to 1.2 m tall.
- Entire bifid leaves. Leaf sheath > 10 cm.
- Leaf lobes > 18 × 3.3 cm.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Rare.

Habitat
Submontane rainforest; steep mid-slope; 850–1400 m.

Clustering palm, in tufts of 4–6; stems to 1.2 m tall. **Leaves** 6–10, arching, entire, bifid; sheath 10–16 cm, closed for 3/4; petiole 7–18 cm; leaf-blade 29–48 cm, lobes 18–28 × 3–7.5 cm, apices toothed. **Inflorescence** among the leaves, unbranched, rachilla 13–22 cm. **Fruit** orange, ellipsoid, 11–13 × 7–7.5 mm. **Seed** 9–11.5 × 4.5–5.5 mm, endosperm homogeneous.

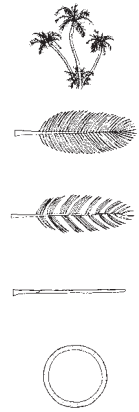
Similar species:

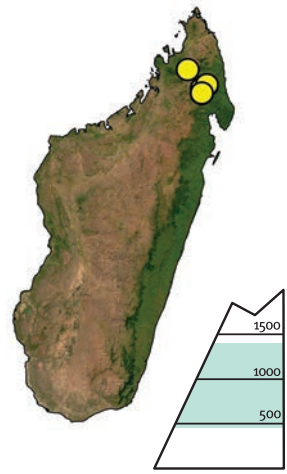
Distinguished from ***D. coriacea*** and ***D. tenuissima*** by larger leaf sheath and much larger leaf lobes.

Dypsis occidentalis

Look for:

- Clustering palm, in tufts of 6–8, to 2 m tall.
- Pinnate leaves.
- Inflorescence among the leaves, unbranched.





Uses
None recorded.

Conservation status
Uncertain.

Habitat
Montane or submontane forest; 450–1400 m.

Clustering palm, in tufts of 6–8; stems to 2 m tall. **Leaves** 5–8, pinnate; sheath 8–14 cm; petiole absent or to 5 cm; rachis 29–40 cm, leaflets 4–13 per side, ± regular (with few leaflets) to grouped (when more leaflets are present), to 30 × 5 cm. **Inflorescence** among the leaves, unbranched, rachilla 15–31 cm. **Fruit** reddish-orange, ellipsoid, 9–10 × 4–5 mm. **Seed** not known.

Similar species:

D. montana – known only from Tsaratanana, differs in having only 3–5 leaflets on each side of the rachis.

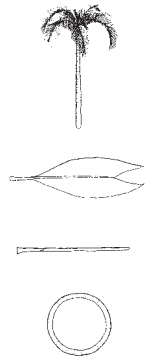
Dypsis lastelliana (quite unlike *Dypsis occidentalis*!)

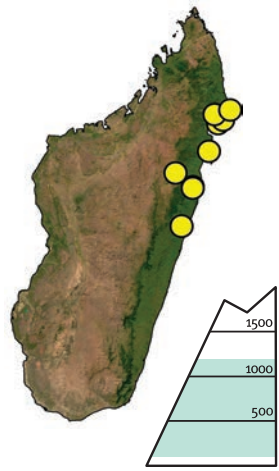
Dypsis bernierana

Ambosa, sinkara

Look for:

- Solitary dwarf palm to 1 m tall.
- Entire bifid leaves with open leaf-sheath.
- Inflorescence unbranched.





Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland to submontane rainforest, steep slope to flat; 100–1200 m.

Solitary dwarf palm; stem to 1 m but often appearing stemless. **Leaves** entire, bifid; sheath 3.5–7 cm, open; petiole 2–21 cm; leaf-blade entire, 17–26 cm, shiny dark green; lobes 12–19 × 2–3.5, apex narrowly toothed. **Inflorescence** unbranched, spike/rachilla 5–15 cm. **Fruit** red, ellipsoid, 6–13 × 4–5 mm. **Seed** with homogeneous endosperm.

Dypsis bernierana, Masoala

Dypsis bernierana, Masoala

Dypsis poivreana, Tampolo

Dypsis digitata, Manombo

Dypsis tenuissima, Andohahela

Similar species:

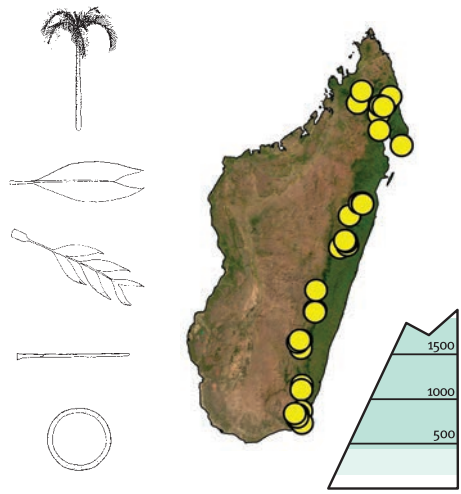
D. poivreana – a local palm from around Fenoarivo, differs in being solitary or clustered and in having taller stems with larger leaves, the lobes of which are much narrower and not hooded as in ***D. bernieriana***. ***D. minuta*** – a rare palm of Masoala, differs in having abundant scales on the sheaths. ***D. tenuissima*** – known only from Andohahela, one of the smallest palms in the world with extremely slender stems and very narrow leaf blades. ***D. digitata*** – restricted to lowland forest between Mananjara and Tolagnaro, this species has stiff narrow leaves with 2–4 leaflets each. ***D. brevicaulis*** –restricted to lowland forest in the southeast, this species has very short stems that usually remain ± subterranean and very narrow leaves split only at the very tip.

Dypsis catatiana

Sinkaramboalavo, varaotra

Look for:

- Solitary dwarf palm, to 1 m tall.
- Entire bifid or pinnately divided leaves.
- Inflorescence among the leaves, unbranched.



Uses
None recorded.

Conservation status
Not threatened.

Habitat
Lowland to montane rainforest to bamboo forest, slight to steep mid-slope; (150–)450–1900 m.

Solitary dwarf palm, stem to 1 m tall, dark green, often with a vertical pale green stripe. **Leaves** 4–10; sheath 3–8 cm; petiole absent or to 5 cm; leaf-blade entire or with 2–7 pairs of flat leaflets, young leaves reddish; when *entire* shortly bifid, 14–32 cm, lobes 5–12 × 2–5 cm, apices squared and toothed, when *pinnately divided* rachis 9–24 cm, leaflets to 21 × 3.5 cm. **Inflorescence** among the leaves, unbranched, rachilla 2–14 cm. **Fruit** shiny red, ellipsoid, 10–15 × 5–9.5 mm. **Seed** 8.5–10 × 4–5.5 mm, endosperm homogeneous.

Dypsis catatiana, Andohahela

Dypsis coriacea, Masoala

Dypsis spicata, Marojejy

Dypsis simianensis, Manombo

Dypsis simianensis, Manombo

Similar species:

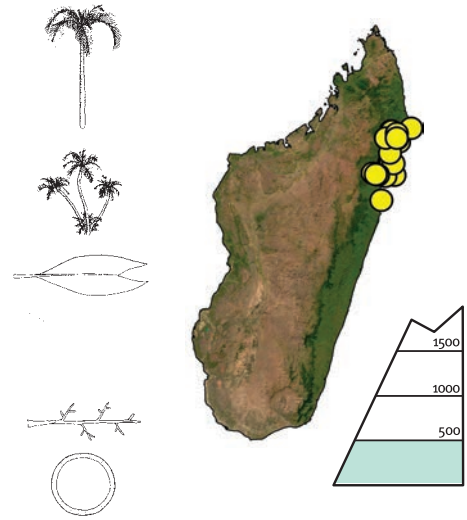
D. coriacea – a local palm of rainforest in the northeast, which is distinguished by the very shiny leathery entirely glabrous leaves and the stiff rather thick inflorescence. ***D. lucens*** – only known from a single collection from the Bay of Antongil, this species has large scales on the leaf veins. ***D. simianensis*** – a very slender palm known from scattered localities along the east coast in the lowlands, distinguished by the very narrow entire leaves with a very shallow notch at the tip. ***D. integra*** – known from a few scattered localities in the east coast lowlands, distinguished by the entire leaves with ± rounded apex with only a very shallow, inconspicuous notch. ***D. monostachya*** – known only from Rantabe and Mandritsara, this appears very similar to *D. catatiana* but has only 3 stamens in the male flower instead of 6; there is a very conspicuous bunch of brown hairs surrounding the flowers on the spike. ***D. spicata*** – known only from Marojejy and Anjanaharibe, this is very close to *D. monostachya* but lacks the bunch of brown hairs around the flowers and in general is much smaller.

Dypsis forficifolia

Tsingovatra madinka

Look for:

- Solitary or clustering palm, to 4 m tall.
- Leaves entire, bifid, or with few broad leaflets.
- Inflorescence among the leaves, branched to 2 or rarely 3 orders, short branches.



Uses
None recorded.

Conservation status
Not threatened.

Habitat
Coastal lowlands and hill forest; 5–500 m.

Slender, solitary or clustered palm; stems to 4 m tall, dark green near nodes, pale green between. **Leaf** with sheath 7–9 cm; petiole absent or to 12 cm; rachis 16–32 cm; leaf-blade entire bifid to 35 × 18 cm, split from $^1/_3$ to $^1/_2$, or with 2–6 leaflets per side, 6–30 × 0.7–8 cm. **Inflorescence** among the leaves, branched to 2 or rarely 3 orders, rachillae 2–4.5 cm. **Fruit** red, turning black, ellipsoid, to ± 15 × 9 mm. **Seed** 14 × 6 mm, endosperm homogeneous.

Dypsis forficifolia, Masoala

Dypsis lantzeana, Nosy Mangabe

Dypsis ambilaensis, Ambila-Lemaitso

Dypsis lantzeana, Masoala

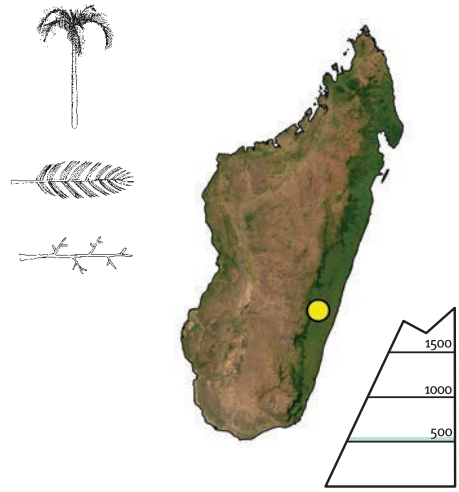
Similar species:

D. lantzeana – known from the northeast in forest up to about 350 m altitude, this species is very similar to *D. forficifolia* but is distinguished by the very hairy rachillae. ***D. remotiflora*** – known from a single collection from Ambadikala in the southeast coastal lowlands, this is immediately recognizable by the very many threadlike inflorescence branches that bear very few distant flowers. ***D. ambilaensis*** – known from Ambila-Lemaitso in coastal forest on white sand, this appears very similar to *D. forficifolia* and can only be distinguished with certainty by dissection of male flowers. In *D. ambilaensis* the three stamens are opposite the petals whereas in *D. forficifolia* they are opposite the sepals. ***D. laevis*** – known from a single collection from Manombo, Farafangana, this is close to *D. ambilaensis* but differs in having much longer more highly branched inflorescence.

Dypsis interrupta

Look for:

- Solitary palm, to 3 m tall.
- Well-defined crownshaft.
- Interrupted sequence of otherwise regularly arranged leaflets.
- Inflorescence among the leaves, branched to 2 orders.



Uses
None recorded.

Conservation status
Critical. Only known from Ifanadiana.

Habitat
Hill forest; 510 m.

Solitary palm, stem to 3 m tall. **Leaves** 7, arching; sheaths forming well-defined crownshaft, 19–20 cm; petiole 9–12 cm; rachis 64–70 cm, leaflets 24–29 per side, thin and narrow, grouped in lower part of leaf, regularly arranged in upper part, regularly arranged within the groups, the leaflet series thus appearing interrupted. **Inflorescence** among the leaves, branched to 2 orders, rachillae 19–30 cm. **Fruit** unknown.

Dypsis interrupta, Ifanadiana

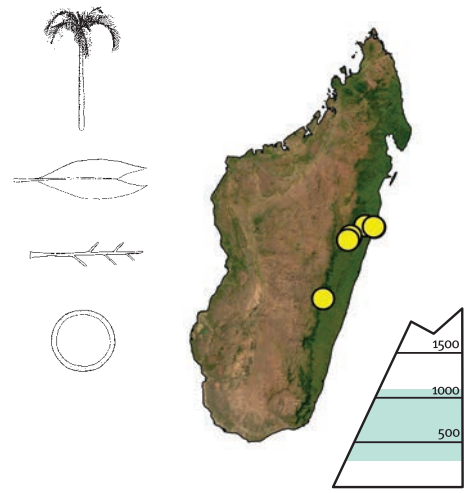
Similar species:

Somewhat resembles ***D. sahanofensis***, but much smaller.

Dypsis louvelii

Look for:

- Slender solitary palm, to 1 m tall.
- Deeply bifid leaves.
- Slender inflorescence branched to 1 order, with short rachillae.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland and montane rainforest, usually in valley bottoms; 300–1100 m.

Solitary palm, to 1 m tall. **Leaves** 5–10, deeply bifid; sheath 6–7 cm; petiole absent or to 2 cm; leaf-blade 19–50 cm, with 2 lobes 10–25 × 1.5–4 cm, or very rarely divided into 3 distant narrow leaflets on each side. **Inflorescence** among the leaves, branched to 1 order (rarely the lowermost branch forked), rachillae 1–4 cm. **Fruit** scarlet, irregularly ellipsoidal, 14 × 8 mm. **Seed** 11 × 4 mm, endosperm homogeneous.

Dypsis louvelii, Mantadia

Similar species:

D. mahia – known from Manombo, Farafangana, appears similar but has more deeply divided leaves and male flowers with 6 rather than 3 stamens. ***D. pulchella*** – known from Andasibe and the lower Mangoro, is very similar to *D. louvelii* but like *D. mahia* has 6 rather than 3 stamens; the stamens are however of different lengths, 3 longer than the others.

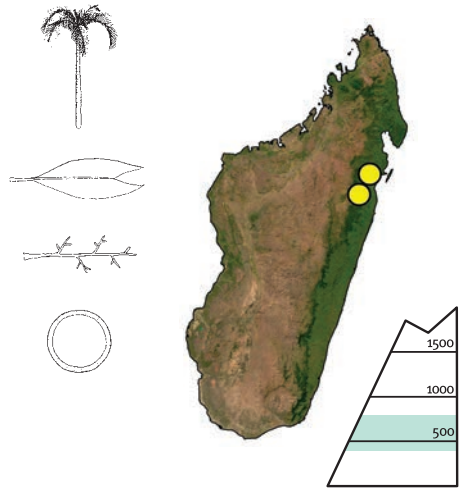
Dypsis louvelii, Mantadia

Dypsis turkii

Sinkiaramboalavo

Look for:

- Solitary, slender, short stemmed litter-trapping palm, to 1 m tall.
- Leaves entire, bifid.
- Inflorescence among leaves, branched to 2 orders.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Upland forest on slopes near valley bottoms, 400–800 m.

Solitary, slender, short-stemmed litter-trapping palm, to 1 m tall, may appear stemless. **Leaves** 7–9; sheath yellow-green, 8–9 cm; petiole absent or up to 4 cm; rachis 10–26 cm; blade entire, bifid, to 29 × 14 cm. **Inflorescence** among leaves, very slender, exceeding leaves, branched to 2 orders, rachillae very slender, 4–8 cm. **Fruit** red, broadly ellipsoid, 14 × 8 mm. **Seed** ellipsoid, 11 × 4 mm, homogenous endosperm.

Dypsis turkii, Ambatovaky

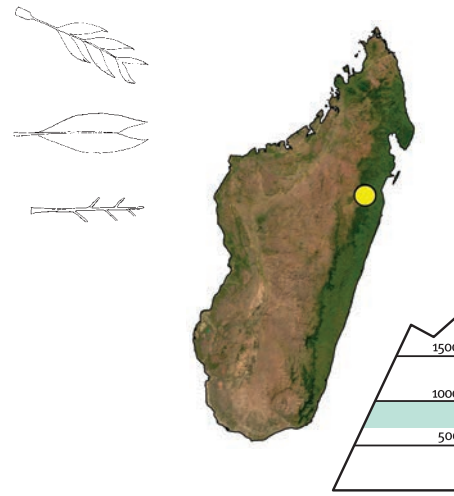
Dypsis turkii, Ambatovaky

Similar species:
Unmistakeable.

Dypsis humbertii

Look for:

- Slender palm, to 1.2 m tall.
- Leaves entire, bifid or irregularly divided into 3–4 pairs of broad leaflets.
- Inflorescence among the leaves, branched to 1 order, held erect.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Humid lower montane forest; 700–1000 m.

Slender palm, stem to 1.2 m tall. **Leaves** 6–8; sheath 7–9 cm; petiole absent or to 7 cm; leaf-blade entire, bifid, 20–35 × 12 cm, with apical cleft not exceeding one-third of blade length, or irregularly divided into broad leaflets, up to 3–4 per side; rachis 11–18 cm; leaflets 10–26 × 1.5–4 cm. **Inflorescence** among the leaves, erect, branched to 1 order, rachillae to 6 cm. **Fruit** unknown.

Dypsis angustifolia, Mahavelona

Dypsis pachyramea, Masoala

Dypsis pachyramea, Masoala

Dypsis angustifolia, Mahavelona

Similar species:

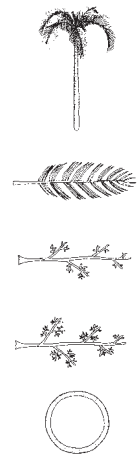
D. angustifolia – a small palm of the east coast lowlands, differing from *D. humbertii* in having much narrower leaves. ***D. pachyramea*** – a common undergrowth palm from Masoala, this appears identical to *D. humbertii*, but the 3 stamens are opposite the petals rather than the sepals, a feature that can only be seen after dissection under a microscope.

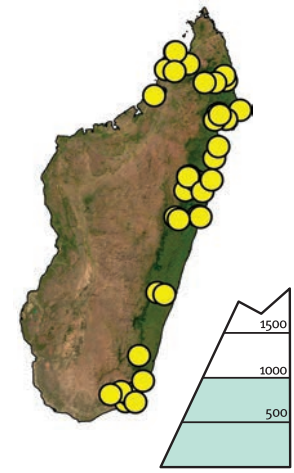
Dypsis pinnatifrons

Tsingovatra, tsingovatrovatra, ambolo, hova, ovatsiketry, tsobolo

Look for:

- Solitary palm, to 12 m tall.
- Well-developed crownshaft, rather swollen and green.
- Inflorescence among the leaves, branched to 3–4 orders.





Uses
Stems used to make blowpipes.

Conservation status
Not threatened.

Habitat
Lowland and montane rainforest, somewhat tolerant of disturbance; to 1000 m.

Solitary palm; stem to 12 m tall, corky-warted and vertically cracked with age. **Leaves** 8–16, slightly arching, crownshaft well developed, rather swollen and green; sheath 25–48 cm; petiole usually very short or absent, rarely 8–36 cm; rachis 75–220 cm; leaflets 22–46 per side, arranged in groups of 2–7, to 49 × 7.5 cm. **Inflorescence** among the leaves, branched to 3–4 orders, rachis with red-brown fur, rachillae 4–45 cm. **Fruit** ellipsoid, green turning brownish, 14 × 6.5 mm. **Seed** 10 × 4 mm, endosperm homogeneous.

Dypsis pinnatifrons, Marojejy

Similar species:

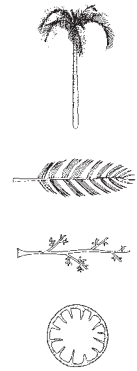
D. nodifera, which differs in having 6 stamens and ruminate endosperm.

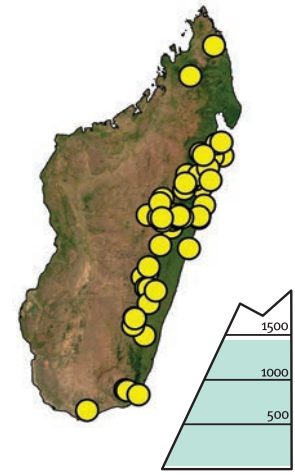
Dypsis nodifera

Ovana, bedoda, tsirika, tsingovatra

Look for:

- Solitary palm, to 10 m tall.
- Pale green crownshaft.
- Rather broad leaflets with drooping apices.
- Inflorescence usually branched to 3 orders.





Uses
None recorded.

Conservation status
Not threatened.

Habitat
Moist forest, on mid-slopes, or littoral forest on white sand; 5–1440 m.

Solitary palm; stem to 10 m tall; crownshaft pale green with reddish flecks. **Leaves** 6–12, slightly arching; sheath 12–30 cm; petiole absent or up to 28 cm; rachis 24–75 cm; leaflets (12–)23–59 per side, in groups of 2–6, twisted and fanned, with drooping apices, to 37 × 4.5 cm. **Inflorescence** among or below the leaves, branched to 3 orders, less often to 2 or 4, rachillae (7–)12–34 cm. **Fruit** ellipsoid, green, 8–10 × 5–8 mm. **Seed** ellipsoid, ± 7.5 × 5.5 mm, endosperm deeply ruminate.

Dypsis nodifera

Similar species:

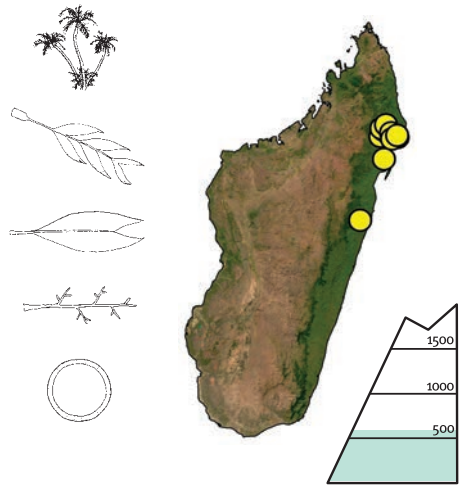
D. pinnatifrons, which differs in having 3 stamens and homogeneous endosperm.

Dypsis nodifera, cultivated, Tsimbazaza

Dypsis procera

Look for:

- Clustering palm, to 6 m tall.
- Leaves entire bifid or irregularly divided.
- Inflorescence among the leaves, branched to 2 orders.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland rainforest, usually on flat land, sometimes on slopes; to 600 m.

Clustering (very rarely solitary) palm; stems to 6 m tall, spreading by stolons, growing in rather loose colonies. **Leaves** ± 8; sheath 17–31 cm, forming a crownshaft; petiole rarely very short, usually 10–25 cm; rachis 38–60 cm; leaf-blade entire bifid or irregularly divided into 2–8 narrow to broad leaflets, to 50 × 8.5 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae to 15–50 cm. **Fruit** when young ellipsoid, 7 × 3 mm. **Seed** with homogeneous endosperm.

Dypsis procera

Dypsis procera, Masoala

Dypsis paludosa, Ambatovaky

Similar species:

D. paludosa – occurs in patches of peat swamp forest in the northeast coastal area and occasionally on slopes nearby. It usually has about 50 rachillae as opposed to *D. procera* that rarely has more than 18.

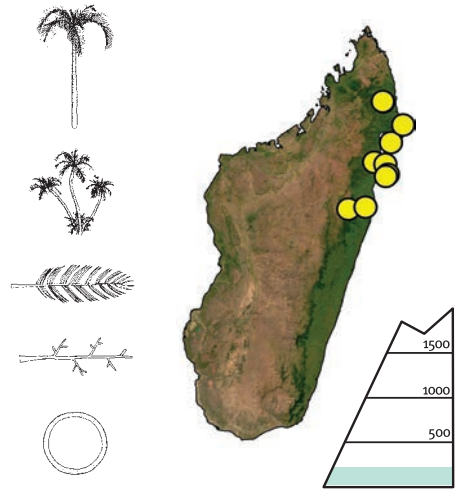
D. mirabilis – known from a few collections near Marojejy, is solitary rather than clustered and has unusual male flowers, distinctive in having 3 stamens and 3 staminodes joined to the big pistillode.

Dypsis fasciculata

Ovana

Look for:

- Solitary or clustering undergrowth palm, to 6 m tall.
- Leaves pinnate, with narrow grouped leaflets.
- Inflorescence among the leaves, branched to 2 orders.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland forest near the coast, often on white sands, rare inland; 5–225 m.

Solitary or clustering palm; stem to 6 m tall. **Leaves** ± 8, crownshaft well developed; sheath 13–24 cm; petiole 8–35 cm; rachis 70–90 cm; leaflets 11–23 per side, conspicuously grouped in 2s–6s, to 47 × 4 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae 20– 50 cm. **Fruit** green, 14 × 7.5 mm. **Seed** 10 × 4 mm, with homogenous endosperm.

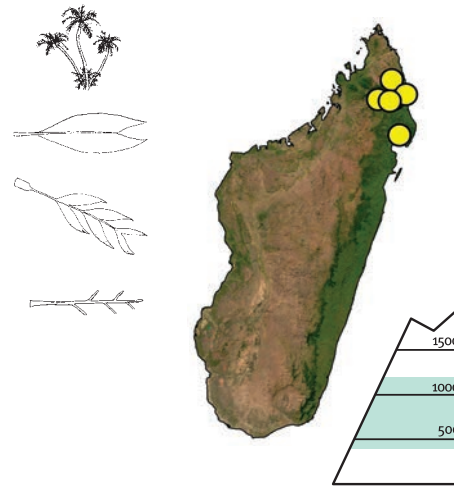
Similar species:

Can be distinguished from ***D. nodifera*** by fewer leaflets and inflorescence branched to only 2 orders.

Dypsis lokohoensis

Look for:

- Clustering undergrowth palm, to 3 m tall.
- Leaves entire bifid or pinnate.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Vulnerable. Only known from Marojejy.

Habitat
Humid lowland and lower montane rainforest on steep slopes; 400–1200 m.

Clustering palm; stem to 3 m tall. **Leaves** 4–9; sheath 6–12 cm; petiole 2–9 cm; leaf-blade entire bifid or divided into 3–9 subregular to grouped leaflets per side; rachis 8–33 cm; entire bifid leaf-blade to 24 cm, divided to 65%, with lobes 14–15 × 4 cm; pinnate leaf with leaflets to 30 × 6 cm. **Inflorescence** among the leaves or below the leaves, branched to 1 (or very rarely 2) orders, rachillae 7–23 cm. **Fruit** unknown.

Similar species:

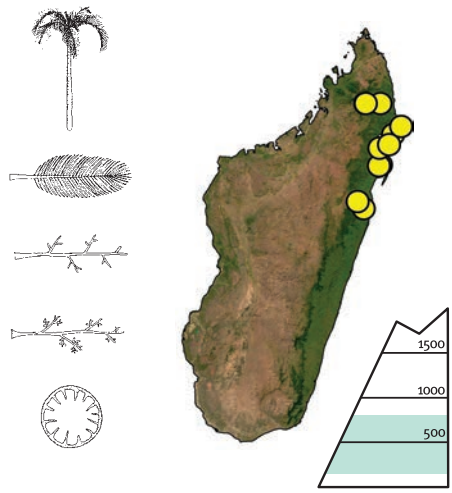
Unlikely to be confused with other species in the Marojejy area.

Dypsis perrieri

Besofina, kase, menamosona, ovotsiketry

Look for:

- Massive, stocky, litter-trapping palm, to 8 m tall.
- Trunk with dead leaves and persistent leaf sheath bases.
- Large torpedo-like peduncular bracts, densely covered in thick red fur.



Uses
Palm-heart eaten.

Conservation status
Vulnerable.

Habitat
Moist forest, on steep slopes, near waterfalls on rocks or in valley bottoms; 150–800 m.

Solitary palm; trunk to 8 m tall, with dead leaves and persistent leaf sheath bases; base of crown litter-trapping. **Leaves** 12–20; sheath ± 1 m, densely reddish furry outside; petiole 40–160 cm; rachis 3–3.5 m; leaflets 45–50 per side, to 107 × 5.5 cm. **Inflorescence** among to below the leaves, branched to 2 or 3 orders, rachillae 15–50 cm; peduncular bract large, torpedo-like (80–150 cm), densely reddish furry. **Fruit** ellipsoid, dull greenish brown, 15–19 × 12–16 mm. **Seed** slightly obovoid or ellipsoid, 14–16 × 11–12 mm, endosperm ruminate.

Dypsis perrieri, Marojejy

Dypsis perrieri, Marojejy

Dypsis perrieri, Marojejy

Similar species:

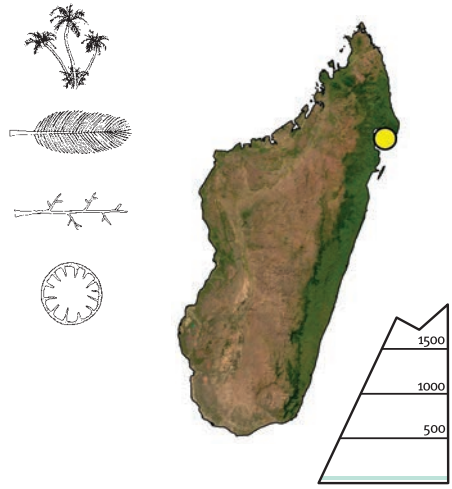
In habit resembles other litter-trapping species, e.g. *Masoala madagascariensis*; *Ravenea albicans* and *Dypsis marojejyi*. Easily distinguished when in flower because of the large torpedo-like peduncular bract, densely covered in thick red fur. Bract is very reminiscent in shape to that of *Beccariophoenix madagascariensis* but flowers, fruit and thick fur are very different.

D. moorei – known only from Cap Est on Masoala, is very similar but has much longer petioles, inflorescence branching to 1 order only and with glabrous branches and with much longer peduncle.

Dypsis dransfieldii

Look for:

- Clustering palm, to 8 m tall.
- Stem in upper part with red-brown fur and fibrous leaf-sheaths.
- Long inflorescence among the leaves, branched to 2 orders, extending beyond leaves.



Uses
None recorded.

Conservation status
Endangered. Only known from Masoala.

Habitat
Littoral forest, on steep or level slope; 2–20 m.

Clustering palm, in tufts of 3–5; stem in upper part with red-brown fur, to 8 m tall, with short stilt roots. **Leaves** 6–12, dead leaves remain attached; sheath with thick reddish brown fur, 36–48 cm; petiole absent, but pseudopetiole appearing after disintegration of sheath material, 15–30 cm; rachis 1.3–1.7 m; leaflets 33–34 per side, to 62 × 3.2 cm. **Inflorescence** among the leaves, branched to 2 orders, 2–2.6 m, projecting way beyond leaves; rachillae 18–32 cm. **Fruit** ovoid, 15–20 × 12–14 mm. **Seed** ± 13 × 9 mm, endosperm ruminate.

Similar species:

Unmistakeable.

Dypsis dransfieldii, Masoala

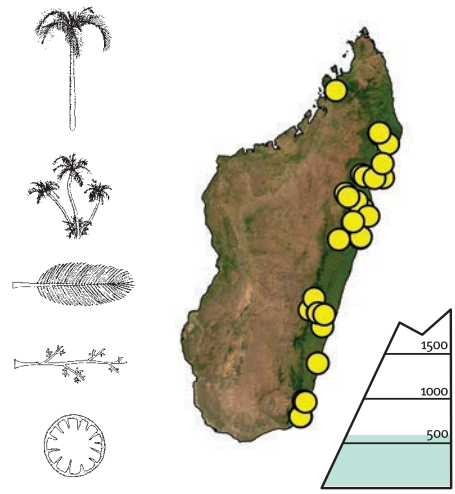
Dypsis dransfieldii, Masoala

Dypsis fibrosa

Vonitra, ravimbontro, vonitrandrambohitra

Look for:

- Solitary or clustering palm, to 9 m tall.
- Trunk usually branched 1–2 times, upper part covered in long fibres.
- Inflorescence among the leaves, branched to 3 orders.



Uses
Leaves used for thatching, inflorescence used as brooms. Formerly one of the main producers of palm fibre.

Conservation status
Not threatened.

Habitat
Moist upland forest or coastal hill forest on steep slopes or less often on ridge tops, also in littoral or peatswamp forest overlying white sand at low altitudes; 5–800 m.

Solitary or clustering palm, when clustering in groups of 2–6; trunk to 9 m tall, branched once or twice (rarely 3 times), rarely unbranched, upper part covered in fibres. **Leaves** 8–25, arching, dead leaves usually persisting; sheath 40–60 cm, with red-brown soft hairs; petiole 40–170 cm; rachis 1.4–2 m; leaflets 34–51 per side, to 71 × 4.3 cm. **Inflorescence** among the leaves, branched to 3 orders, rachillae 17–53 cm. **Fruit** black, obovoid to ± globose, 20–30 × 18–25 mm. **Seed** ellipsoid, 20–23 × 15–18 mm, endosperm ruminate.

Dypsis fibrosa, Masoala

Dypsis fibrosa, Tolagnaro

Dypsis crinita, Masoala

Similar species:

The following are all usually called *vonitra*: ***D. nossibensis*** – restricted to Nosy Be; is solitary and has unbranched stems. ***D. crinita*** – common along rainforest rivers in the northeast; is larger and has inflorescence branched to 2 orders only. ***D. utilis*** – very local in escarpment forest at Andasibe and Ranomafana; is even larger with inflorescence branched to 3 orders with much longer rachillae. ***D. antanambensis*** – known only from Mananara Avaratra; has distinctive short leaflets that diverge at a narrow angle from the rachis and inflorescence branched to 1 order only. ***D. pusilla*** – known only from areas around the Bay of Antongil; is a dwarf undergrowth *vonitra* with very short unbranched stems covered in short fibres and erect inflorescence branched to 1 order only. There seem to be two forms, one with narrow leaflets around the Bay of Antongil and one with broad leaflets on the east side of Masoala.

Dypsis fibrosa – similar species

Dypsis utilis, Mantadia

Dypsis antanambensis, Antanambe

Dypsis antanambensis, Antanambe

Dypsis pusilla, Antanambe

Dypsis pusilla, Antanambe

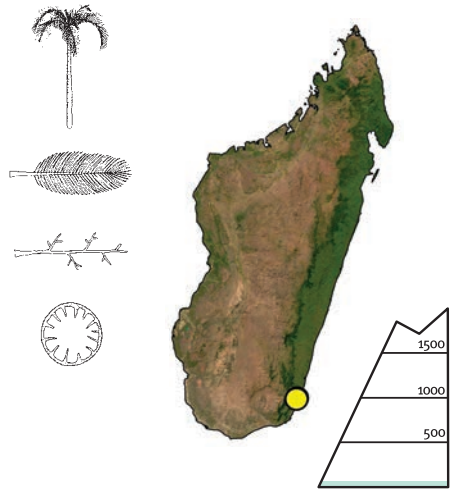
Dypsis pusilla, Antanambe

Dypsis aquatilis

Sinda

Look for:

- Stemless palm growing in water.
- Leaves forming a “shuttlecock”.
- Inflorescence with long stalks.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Growing partially submerged in slow-flowing rivers in southeast coastal lowlands.

Solitary, stemless palm. **Leaves** about 7, ± erect; sheath very short; petiole ± 75 cm; rachis 1.3 m; leaflets ± 26 per side, regular, in one plane, to 35 × 1.5 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae spreading, 10–15 cm long. **Fruit** (young) green, ellipsoid, 10 × 5 mm. **Seed** ellipsoid, endosperm ?ruminate.

Dypsis aquatilis, Manentenina

Similar species:

Only ***Ravenea musicalis*** grows in a similar habitat, but has a well-defined erect trunk.

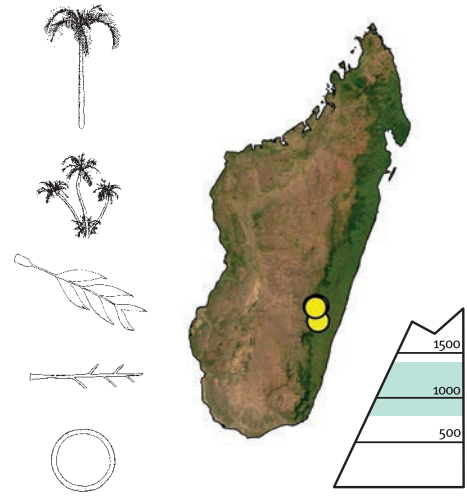
Dypsis aquatilis, Manentenina

Dypsis thermarum

Fanikara

Look for:

- Slender, solitary or clustering palm, to 2 m tall.
- Pinnate leaves with very few narrow, long leaflets.
- Very short rachillae covered in red-brown hairs.
- Orange fruit.



Uses
Stems used for making traps to catch crayfish.

Conservation status
Rare.

Habitat
Humid montane rainforest, on steep slopes; 800–1400 m.

Solitary or clustering palm, forming small clumps of up to 8 stems, to 2 m tall. **Leaves** ± 6; sheath 6–8 cm, whitish or pale yellow-green, forming a well-defined crownshaft; petiole 4–14 cm; rachis 8–14 cm; leaflets 2–5 per side, to 35 × 2.5 cm. **Inflorescence** branched to 1, or very rarely 2 orders, rachillae 1.5–4 cm, covered in red-brown hairs. **Fruit** orange, narrow, pointed at both ends, 11 × 4 mm. **Seed** 7 × 3.5 mm, endosperm homogeneous.

Dypsis thermarum, Ranomafana

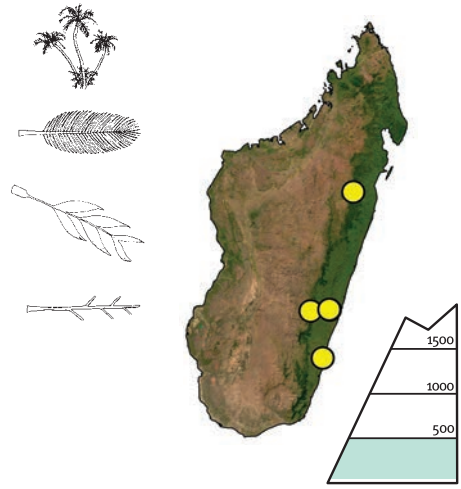
Similar species:

Distinguished from ***D. angusta*** by male flowers having 6 rather than 3 stamens. ***D. linearis*** from Soanierana-Ivongo has a small, sparsely branched inflorescence with fewer branches.

Dypsis angusta

Look for:

- Slender, clustering palm, to 2 m tall.
- Striped crownshaft with brown scales.
- Narrow regular leaflets.
- Sparsely branched inflorescence with short stocky rachillae.

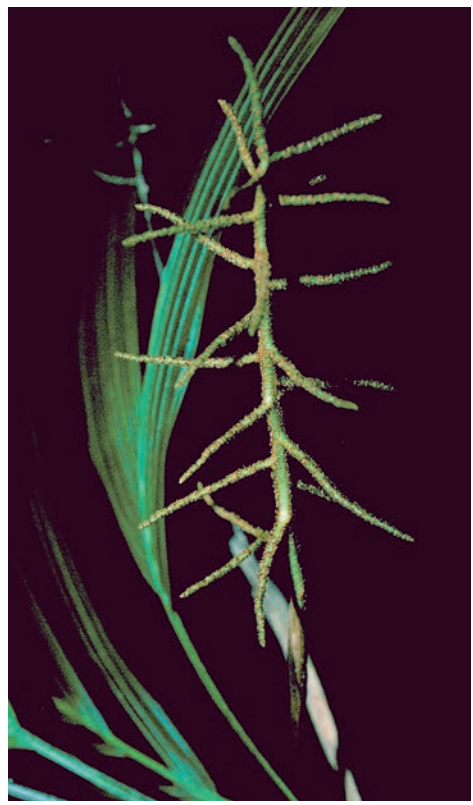


Uses
None recorded.

Conservation status
Endangered.

Habitat
Eastern rainforest; 45–500 m.

Slender, clustering palm, to 2 m or more tall. **Leaves** 4–6; sheath 5–7 cm, forming a crownshaft, striped, covered with chocolate brown scales; petiole 3–12 cm; rachis 10–29 cm; leaflets 2–3 or 7–9 per side, narrow, regular to 30 × 2.1 cm. **Inflorescence** among the leaves, shorter than leaves, sparsely branched to 1 (–2) orders, rachillae short and stocky, 2–7 cm. **Fruit** unknown.



Dypsis angusta, Vatovavy

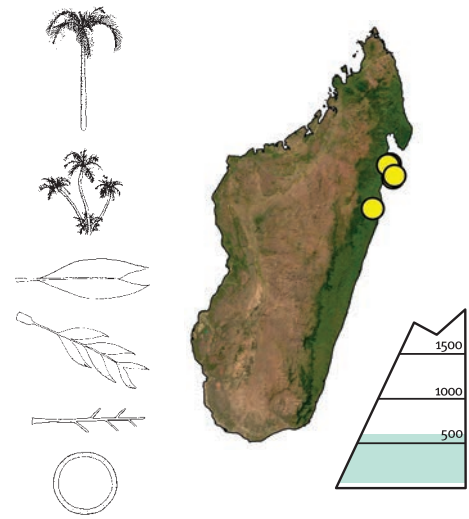
Similar species:

D. linearis is poorly known and possibly extinct and is not easily separated.
D. thermarum (see p. 141).

Dypsis glabrescens

Look for:

- Slender, solitary or clustering undergrowth palm, to 3 m tall.
- Entire bifid leaves or 2–4 pairs of leaflets.
- Inflorescence among the leaves, branched to 1 order.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Rainforest; tending to occur in valley bottoms; 50–600 m.

Solitary or clustering palm, to 3 m tall. **Leaves** 5–6; sheath 6–8 cm, striped; petiole 1–12 cm; rachis 9–19 cm; leaf-blade entire bifid to 33 cm, split to almost $^{2}/_{3}$ of length, or with 2–4 leaflets per side, to 26 × 2.8 cm. **Inflorescence** among the leaves, branched to 1 order, rachillae 4–7 cm. **Fruit** red, ovoid, 13–15 × 10–11 mm. **Seed** 10 × 6 mm, endosperm homogeneous.

Dypsis glabrescens, Mananara Avaratra

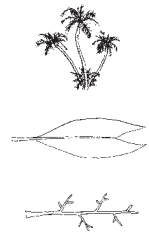
Similar species:

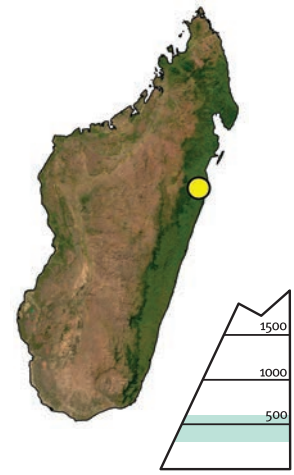
Distinguished from other small species by short inflorescence rachis with few rather uniform and relatively long rachillae that generally diverge at an acute angle.

Dypsis delicatula

Look for:

- Slender, clustering palm, to 1 m tall.
- Leaves entire bifid.
- Inflorescence among the leaves, branched to 2 orders.





Uses
None recorded.

Conservation status
Endangered.

Habitat
Lowland rainforest, on ridge tops, mid-slopes and valley bottoms; 300–600 m.

Clustering palm, to 1 m tall. **Leaves** 6–19, entire bifid; sheath 1–4 cm; petiole absent or to 3 cm; rachis 8–14 cm; leaf blade 10–18 cm, divided to $^1/_5$ to $^1/_4$. **Inflorescence** very slender, among the leaves, branched to 2 orders, rachillae very slender c. 0.3 mm diam. **Fruit** unknown.

Dypsis delicatula

Similar species:

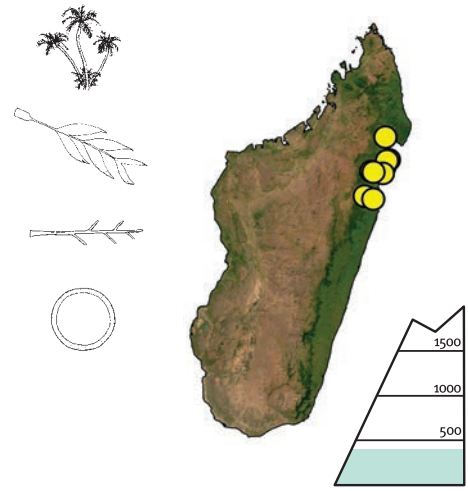
D. viridis, but can be distinguished from this by the very slender rachillae.

Dypsis delicatula, Betampona

Dypsis viridis

Look for:

- Slender, clustering undergrowth palm, to 1.5 m tall.
- Leaves with 2–7 leaflet pairs, irregular.
- Inflorescence branched to 1 order, longer than leaves.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland and hill rainforest on ridges; up to 400 m.

Clustering palm; stem to 1.5 m tall, very pale ivory-coloured but often with green vertical stripe. **Leaves** ± 6–7; sheath 5–6 cm, pale ivory-coloured; petiole 3–7 cm; rachis ± 11 cm; leaflets 2–7 per side, rather irregular, to 20 × 3.5 cm. **Inflorescence** branched to 1(2) orders, rachillae 1.2–6 cm. **Fruit** red, ellipsoid, 10 × 5 mm. **Seed** 7 × 5 mm, endosperm homogeneous.

Dypsis viridis, Antanambe

Similar species:

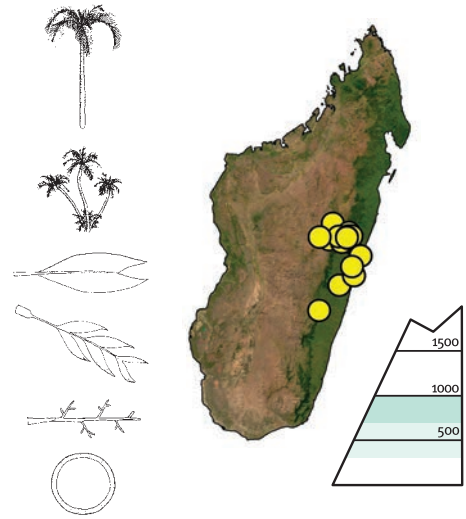
D. delicatula – see page left.

Dypsis hildebrandtii

Tsirika

Look for:

- Slender, solitary or clustering undergrowth palm, to 2 m tall.
- Leaves entire bifid or with 2 leaflet pairs.
- Inflorescence branched to 2 orders, bearing numerous very hairy rachillae.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Montane forest, hill slopes and ridges; usually 700–1000 m, rarely as low as 300 m.

Solitary or clustering palm; stem to 2 m tall, rarely to 4 m tall. **Leaves** 4–10; sheath 5–10 cm, forming a well- or ill-defined crownshaft; petiole absent or to 3 cm; rachis 6–30 cm; blade entire bifid, to 21 × 9 cm or with 2 (rarely 4) leaflets per side, to 22 × 3 cm, occasionally leaves of two types on same crown; young leaves tinged reddish. **Inflorescence** among the leaves, occasionally also below the leaves on same plant, branched to 2 orders, rachillae very numerous, 20–50, 1.5–4(–7) cm, covered with grey and brown hairs. **Fruit** red, ellipsoid to thick in the middle, tapering towards both ends, 10 × 5.5 mm. **Seed** 8 × 3.5 mm, endosperm homogeneous.

Similar species:

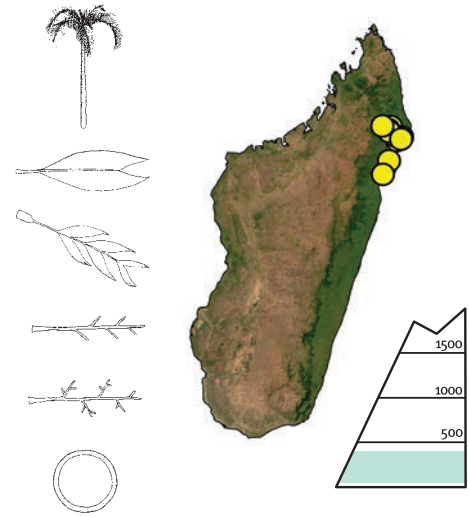
D. bosseri – from Mahavelona, is distinguished by being much larger in all its parts, except for the congested inflorescence. ***D. furcata*** – from Mahanoro, lower Mangoro, has very deeply bifid entire leaves. ***D. lanuginosa*** – from Lower Mangoro, has large entire bifid leaves and rachillae densely covered with woolly hairs.

Dypsis hildebrandtii, Andasibe

Dypsis mocquerysiana

Look for:

- Slender, solitary undergrowth palm, to 2 m tall.
- Leaves entire bifid or with 2 broad leaflets on one or both sides of rachis.
- Leaf blade strongly folded.
- Inflorescence held erect above the leaves, with many short branches.



Uses
None recorded.

Conservation status
Vulnerable.

Habitat
Lowland rainforest, usually in humid valley bottoms; 50–400 m.

Solitary palm, to 2 m tall. **Leaves** 4–8; sheath to 10 cm, densely covered dark brown hairs; petiole absent or to 6 cm, densely covered with hairs as sheath; midrib/rachis 8–19 cm; blade entire bifid, to 50 cm, bifid for 50% to almost 80% of length or with 2 broad leaflets on one or both sides of rachis. **Inflorescence** held erect above the leaves, branched to 1–2 orders; rachillae numerous, ± 90, short, rarely exceeding 4 cm. **Fruit** bright red, narrowly ovoid, 13 × 5.5 mm. **Seed** 11 × 4 mm, endosperm homogeneous.

Dypsis mocquerysiana

Similar species:

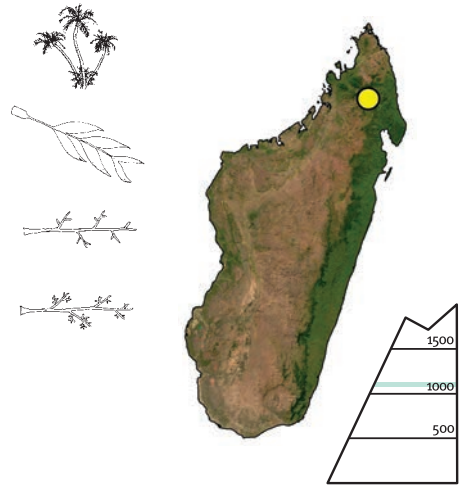
The inflorescence shape is highly characteristic.

Dypsis mocquerysiana, Masoala

Dypsis cookei

Look for:

- Slender, clustering palm, to 2 m tall.
- Leaves with thick dark metallic blue-green leaflets.
- Inflorescence among the leaves, crimson-purple throughout, branched to 2–3 orders.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Humid lower montane forest on steep slope; 1100 m.

Clustering palm, to 2 m tall; stem green and smooth. **Leaves** 6–7, dark metallic green; sheath pale green, tinged purple when young, ± 7 cm; petiole 1–2 cm; rachis 15–20 cm; leaflets 6–8 per side, to 20 × 0.8 cm. **Inflorescence** among the leaves, crimson-purple throughout, branched to 2–3 orders; rachillae 2–4 cm. **Fruit** unknown.

Dypsis cookei, Marojejy

Similar species:

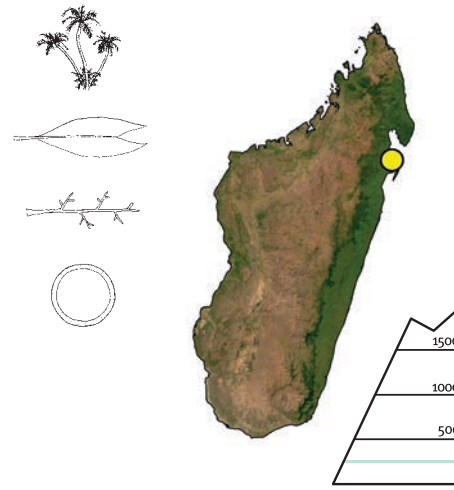
Unmistakeable.

Dypsis cookei, Marojejy

Dypsis beentjei

Look for:

- Clustering, stemless palm.
- Leaves entire bifid, dark green with central pale yellow band.
- Inflorescence among the leaves, partially hidden among leaf litter, branched to 2 orders.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Rainforest, waterlogged alluvial flat beside river, on ultramafic bedrock; ± 250 m.

Clustering palm, with stems underground, forming tufts in forest undergrowth. Leaves ± 9, ± erect; sheath 7–9 cm; petiole to 55 cm or more; leaf-blade entire bifid to 60 × 10 cm, lobes to 19 cm and tapering to shallowly lobed tip, mid-line pale cream coloured. **Inflorescence** among the leaves, partially hidden among leaf-litter, branched to 2 orders; rachillae 3–5 cm. **Fruit** scarlet, irregularly ovoid to ellipsoid, to 17 × 10 mm. **Seed** irregularly ellipsoid, 9–10 × 5 mm, endosperm homogeneous.

Dypsis beentjei, Antanambe

Similar species:

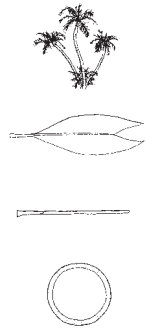
Unlikely to be confused with other species.

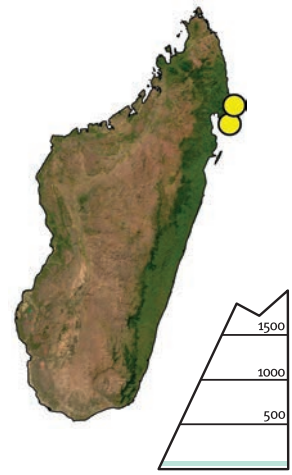
Dypsis beentjei, Antanambe

Dypsis acaulis

Look for:

- Almost stemless palm.
- Leaves entire bifid, white on undersurface.
- Inflorescence among the leaves, unbranched.





Uses
None recorded.

Conservation status
Endangered.

Habitat
Lowland rainforest; 40 m.

Very short stemmed, densely clustering palm. **Leaves** entire, bifid; sheath 6 cm, open to the base, covered with reddish-brown fur and dark brown scales; petiole ± 26 cm; midrib 18 cm, leaf-blade to 45 cm, lobes ± 28 cm, dark green on upper surface, chalky white on under surface. **Inflorescence** among the leaves, unbranched, to ± 22 cm, rachilla/spike ± 9 cm. **Fruit** bright red, thick in the middle, tapering towards both ends, 20 × 6 mm. **Seed** 15 × 4 mm, endosperm homogeneous.

Dypsis acaulis

Similar species:

Unlike any other species in the genus because of the white undersides to the leaves.

Dypsis acaulis, Masoala

Poorly known species

Dypsis canescens, ***D. ramentacea***, ***D. plurisecta*** and ***D. thouarsiana*** are all imperfectly known species. See Palms of Madagascar for further discussion.

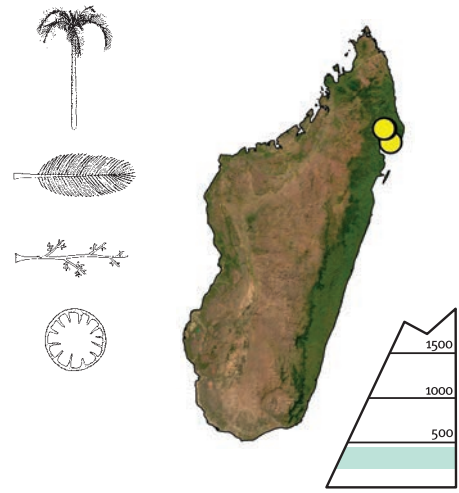
Dypsis crinita, Mananara Avaratra

Lemurophoenix halleuxii

Hovitra varimena

Look for:

- Massive tree palm, to 20 m tall.
- Massive greyish-pink crownshaft.
- Bifid leaflet tips.
- Massive inflorescence below the leaves, branched to 3 orders.
- Chestnut-brown corky fruits.



Uses
None recorded.

Conservation status
Endangered.

Habitat
Primary rainforest, on steep slopes, 200–450 m.

Massive solitary unarmed tree palm, to 20 m tall; trunk ± 1 m diameter at base, ringed with leaf scars; crownshaft well developed, to 1.5 m. Leaf sheath greyish-pink when newly exposed, bearing white wax and dark brown scales. Petiole ± 25 cm, covered with cauducous chocolate brown scales, rachis to 4 m long, leaflets ± 60 per side, regular, bifid near the tip, to 95 × 6 cm. **Inflorescence** massive, to 2 m long, below the leaves, branched to 3 orders, rachillae to 40 cm. **Fruit** chestnut brown, ± 5 cm diameter at maturity, globose, outer skin cracked polygonally into low corky warts. **Seed** with shallowly and sparsely ruminate endosperm.

Lemurophoenix halleuxii, Sahavary

Lemurophoenix halleuxii, Sahavary

Lemurophoenix halleuxii, Sahavary

Lemurophoenix halleuxii, Sahavary

Similar species:

In flower or fruit, unlike any other Madagascar palm; sterile it could be confused with one of the larger species of *Dypsis*.

Masoala key

1 Leaves pinnate, with ± equal leaflets ..... *M. madagascariensis*
Leaves irregularly divided, basal segments large and multifold ..... *M. kona*

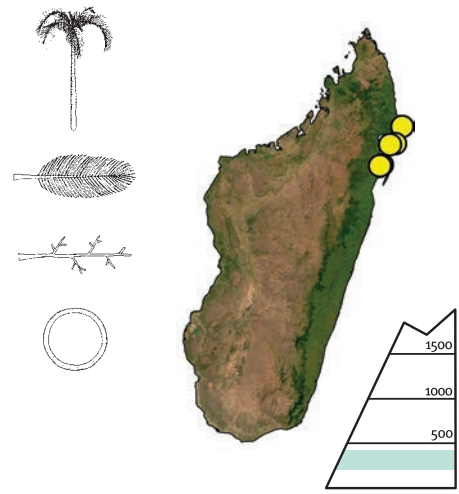
Masoala madagascariensis, Masoala

Masoala madagascariensis

Hovotralanana, kase, mandanozezika

Look for:

- Squat, litter-trapping palm, to 10 m tall.
- Aerial roots penetrating litter.
- Leaf sheaths with large ear-like lobes at the top.
- Inflorescence among the leaves, branched to 2 orders.



Uses
Used for thatch; palm-heart edible.

Conservation status
Vulnerable.

Habitat
Lowland rainforest; dry hillside to swampy valley bottom, occasionally on ultramafic soils; 200–420 m.

Solitary, litter-trapping palm, to 10 m tall. **Leaves** 20–31, held like a shuttlecock, stiff, 3–4 m long, litter-trapping with aerial roots penetrating the litter; sheath 45–50 cm, open, bright green, smooth or with scattered brown scales, with large lateral ear-like lobes; petiole to 80 cm or absent; rachis ± 4 m; leaflets 55–70 per side, to 117 × 5.6 cm. **Inflorescence** among the leaves, branched to 2 orders, rachillae 20–43 cm. **Fruit** yellowish-brown, subglobose, 24–25 × 18–19 mm. **Seed** depressed globose, 10–11 × 12–15 mm, endosperm homogeneous.

Similar species:

Without inflorescence this could be confused with some forms of ***Marojejya insignis***, but the leaves of the latter nearly always have at least some wide leaflets.

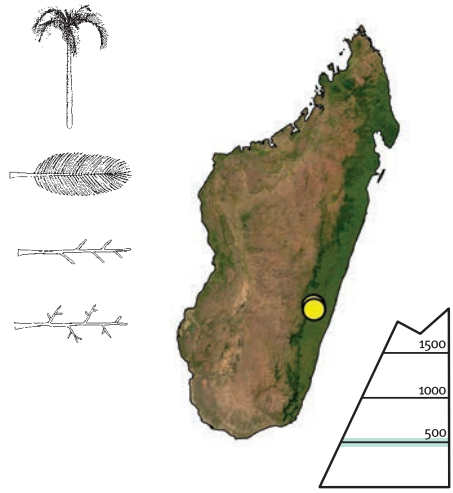
Masoala madagascariensis, Masoala

Masoala kona

Kona, kogne

Look for:

- Squat, litter-trapping palm, to 9 m tall.
- Trunk with persistent leaf bases.
- Leaf sheath with dense red-brown fur.
- Inflorescence among the leaves, branched to 1 or 2 orders.



Uses
Leaf when stuck in bamboo pole thought by some to ward off thunder-clouds.

Conservation status
Endangered.

Habitat
Mid-altitude low-canopy rainforest; steep to slight mid-slopes or near ridge crests, on sandy/quartz soils; 450–550 m.

Solitary, litter-trapping palm, trunk to 9 m tall, with persistent leaf bases. **Leaves** 13–17, held almost upright, plus 5–15 dead ones; sheath 28 cm, yellow-brown to red-brown with dense red-brown fur beneath; petiole absent; rachis 2.8–4.5 m; leaflets 6–15 per side, to 250 × 24 cm. **Inflorescence** among the leaves, branched to 1 or 2 orders, rachillae 22–60 cm. **Fruit** ellipsoid, 25–40 × 12–14 mm.

Masoala kona, Ifanadiana

Similar species:

Without inflorescence this could be confused with ***Marojejya insignis***.

Masoala kona, Ifanadiana

Marojejya key

1 Leaves entire (sometimes tattered with age); seed grooved and ridged ..... *M. darianii*
Leaves pinnate; seed smooth ..... *M. insignis*

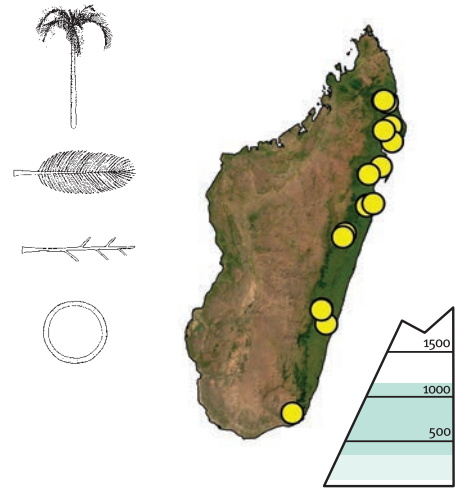
Marojejya insignis, Andohahela

Marojejya insignis

Beondroka, betefoka, besofina, fohitanana, hovotralanana, kona, mandanzezika, maroalavehivavy, menamoso, vakaka

Look for:

- Massive litter-trapping palm.
- ± pinnate leaves to 5 m long.
- Inflorescence hidden amongst leaf bases, branched to 1 order.



Uses
Palm-heart eaten.

Conservation status
Vulnerable.

Habitat
Lowland to mid-altitude rainforest; ridge top or steep slopes; (70–)350–1150 m.

Solitary palm, trunk to 8 m tall, covered in sheath/petiole remnants, often with zigzag roots of other plants visible. **Leaves** 15–20, 4–5 m long, held like a shuttlecock; sheath 40–94 cm, smooth, with or without ear-like lobes; petiole 0–143 cm; rachis 3–6 m; *either* with leaf entire in lower quarter and more pinnate in upper part with 30–60 leaflets per side, *or* regularly pinnate with 59–84 leaflets per side, to 120 × 5 cm. **Inflorescence** among the leaves, hidden among sheaths, branched to 1 order, rachillae 5–20 cm long, closely packed; male flowers crimson, female flowers green to cream. **Fruit** dark red turning black, irregularly obovoid, 18–21 mm long. **Seed** subglobose, 9–15 mm, with homogenous endosperm.

Marojejya insignis, Andohahela

Similar species:

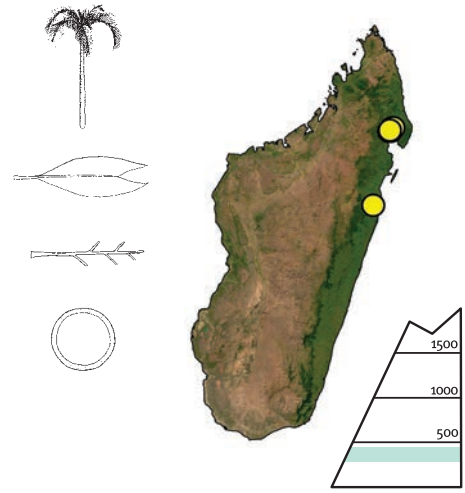
Without inflorescence could be confused with species of *Masoala*.

Marojejya darianii

Ravimbe

Look for:

- Solitary, medium sized tree palm.
- ± entire leaves, to 5 m long.
- Leaf sheath with white scales and ear-like lobes.
- Inflorescence hidden amongst leaf bases, branched to 1 order.



Uses
None recorded.

Conservation status
Critical.

Habitat
Upland swamp in valley bottom and flat moist area in lowland rainforest; 290–450 m.

Solitary palm, to 15 m tall; trunk when young covered in leaf bases. **Leaves** 20–30, held upright, entire, bifid, pinnately ribbed; sheath bright green with 2 conspicuous large rounded ear-like lobes; petiole absent; rachis covered in white scales beneath. Blade 3.5–5 × 1–1.2 m. **Inflorescence** among the leaves, branched to 1 order; rachillae 10–25 cm long, closely packed. **Fruit** red, obovoid, 20–25 × 15–22 mm. **Seed** obovoid, 20–23 × 12–15 × 10–12 mm; endosperm homogeneous but seed with wavy grooves.

Marojejya darianii, Sahavary

Marojejya darianii, Sahavary

Marojejya darianii, Sahavary

Marojejya darianii, Sahavary

Similar species:

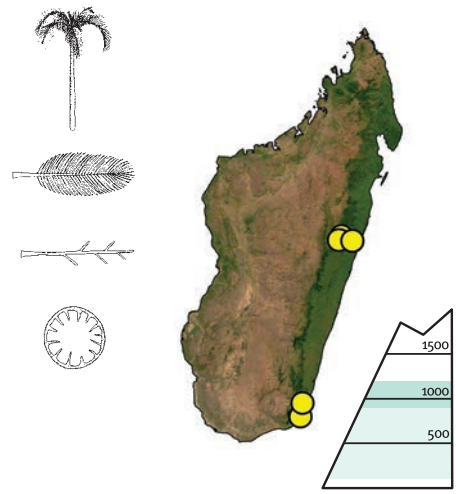
Unlikely to be confused with any other palm.

Beccariophoenix madagascariensis

Manarano, manara, maroala, sikomba

Look for:

- Solitary canopy palm, to 12 m tall.
- Trunk with raised step-like rings.
- Torpedo-like inflorescence buds.
- Purple-brown egg-shaped fruit.



Uses
Young leaflets used to make hats. Used in house construction. Palm-heart eaten.

Conservation status
Critical.

Habitat
Submontane rainforest, ridge top and sides of crest, (100–) 900–1200 m; also in white sand forest, ± 20 m.

Solitary palm, to 12 m tall; trunk with step-like rings; wood hard. **Leaves** 11–30, straight, 3.5–5 m long, pinnate; sheath 80–160 cm; true petiole absent; 100–130 leaflets per side, regular, to 176 × 4.5 cm. **Inflorescence** massive, among the leaves, several per tree, torpedo-like in bud, when open branched to 1 order, rachillae 40–60 cm. **Fruit** purple-brown, furry, ovoid, 35 × 25 mm. **Seed** endosperm deeply ruminate.

Beccariophoenix madagascariensis, Mantadia

Beccariophoenix madagascariensis, Mantadia

Beccariophoenix madagascariensis, Sainte Luce

Beccariophoenix madagascariensis

Beccariophoenix madagascariensis, Ranomafana Est

Similar species:

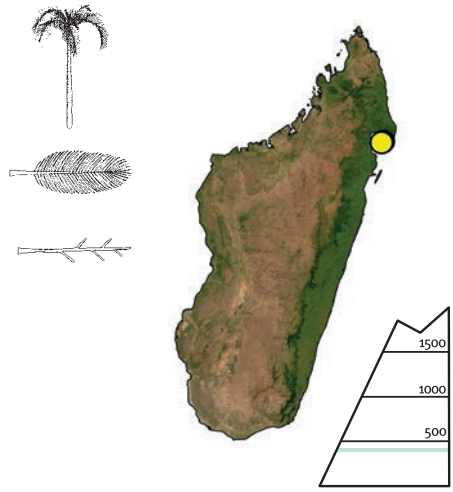
***B.* sp.** – known from remote valleys on the plateau southwest of Antsirabe, differs in having inflorescence below the leaves, much thinner inflorescence bracts and round fruit, flattened at top and bottom. It will be named soon.

Voanioala gerardii

Voanioala

Look for:

- Solitary canopy palm.
- Trunk with raised step-like rings.
- Petiole absent.
- Grooved inflorescence bract.
- Large fruits with bony grooved nut.



Uses
Palm-heart eaten.

Conservation status
Critical.

Habitat
Primary forest in swampy valley bottom and on gentle slopes; ± 400 m.

Solitary palm, trunk to 20 m tall, with raised step-like rings, with a large root boss. **Leaves** 15–20, to 5 m long; sheath tubular at first, fibrous, disintegrating to leave a massive rectangular leaf base, forming an apparent petiole to 1.5 m; true petiole absent; leaflets ± 70 on each side, to 150 × 7 cm, leaflet tips uneven. **Inflorescence** between the leaves, to 1.5 m long, branching to 1 order; major bract deeply grooved; rachillae ± 60, to 50 cm long. **Fruit** large, reddish, 7–8 × 4–5 cm; inner fruit wall layer deeply grooved with 3 eyes at the base and irregular on the inside. **Seed** ellipsoid, 4 × 2 cm; endosperm homogeneous but penetrated irregularly by the fruit wall.

Voanioala gerardii, Masoala

Voanioala gerardii, Masoala

Voanioala gerardii

Voanioala gerardii

Similar species:

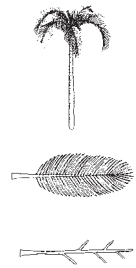
Unmistakeable when in flower or fruit.

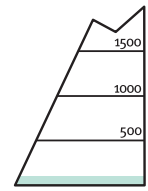
Cocos nucifera

Voaniho

Look for:

- Solitary palm around villages.
- Fruit very large.
- Nut with 3 eyes and liquid.



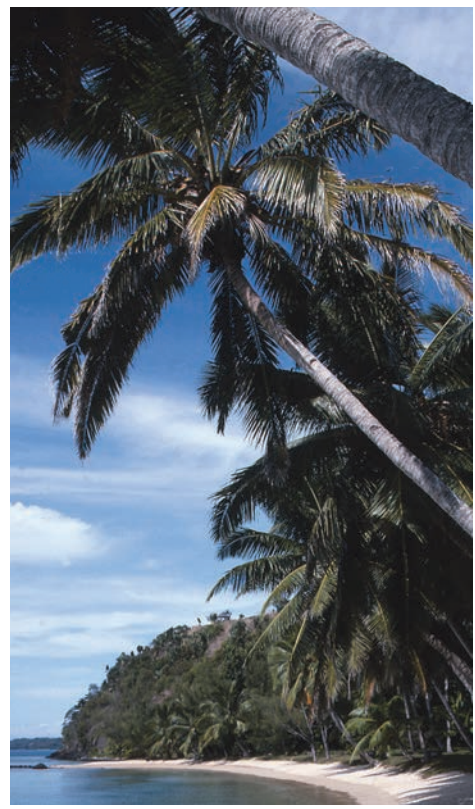


Uses
Leaflets used to make baskets. Fruits edible.

Conservation status
Not threatened.

Habitat
Riverine vegetation; seasonally inundated plains in the lowlands; along beaches.

The coconut; solitary palm, to 20 or 30 m tall. **Leaves** many, arching, 4–5 m long. **Inflorescence** among leaves, to 1.5 m long, branched to 1 order, rachillae to 35 cm long. **Fruit** to 25 × 20 cm, with massive fibrous layer surrounding the hard nut.



Cocos nucifera, Sainte Marie

Similar species:

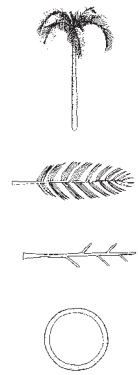
Unmistakeable.

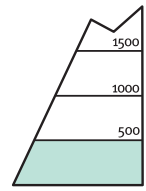
Elaeis guineensis

Tsingilo

Look for:

- Solitary robust palm, to 20 m tall.
- 40–50 leaves in crown with spines near base.
- Fruit bright orange.





Uses
Most important oil crop of the tropics. In Madagascar of limited importance.

Conservation status
Not threatened.

Habitat
Village margins, valley bottoms, up to ± 500 m as a naturalized plant.

Solitary robust palm, to 20 m tall; trunk with basal swelling and covered in remains of leaf bases when young. **Leaves** ± 40–50, to 7.5 m long; leaf base long persistent with coarse brown fibres and upward pointing fibre spines; apparent petiole to 1.2 m long, armed with bulbous-based spines in upper part; leaflets 100–150 on each side, irregular in 2 planes, to 120 × 8 cm. **Inflorescence** separate male and female borne on same tree, branched to 1 order, condensed. **Fruit** bright orange, ± 3 × 2 cm. **Seed** ± 2 × 1.5 cm.

Similar species:

Unmistakeable.

Further reading

Dransfield J. & Beentje H.J. 1995. The palms of Madagascar. Royal Botanic Gardens Kew & the International Palm Society.

Goodman S.M. & Benstead J.P. 2003. The natural history of Madagascar. University of Chicago Press.

Uhl N.W. & Dransfield J.D. 1987. Genera Palmarum. A classification of palms based on the work of Harold E. Moore Jr., L.H. Bailey Hortorium and International Palm Society, Allen Press, Kansas.

Index of local names

Index of scientific names