



TREES OF KIRINDY



CONTENTS

Rough pictorial guide to barks of Kirindy trees	2
Rough pictorial guide to other life-forms	3
SPECIES	
<i>Adansonia rubrostipa</i>	4
<i>Adansonia za</i>	5
<i>Adenia refracta</i>	6
<i>Baudouinia fluggeiformis</i>	7
<i>Berchemia discolor</i>	8
<i>Colvillea racemosa</i>	9
<i>Commiphora arophy</i>	10
<i>Commiphora grandiflora</i>	11
<i>Commiphora guillaumini</i>	12
<i>Cyphostemma laza</i>	13
<i>Delonix floribunda</i>	14
<i>Fernandoa madagascariensis</i>	15
<i>Foetidia asymetrica</i>	16
<i>Grewia cyclea</i>	17
<i>Hernandia voyroni</i>	18
<i>Hildegardia erithrosyphon</i>	19
<i>Neobeguea mahafaliensis</i>	20
<i>Stereospermum euphoroides</i>	21
<i>Tamarindus indica</i>	22
<i>Zanthoxylum tsihanimposa</i>	23
References	24

This guide was written by Pierre Binggeli, Peter Grubb and Rosie Trevelyan. Please note it is a work in progress. Further contributions of new photos, ids and descriptions are appreciated.

Smooth bark



Adansonia za



Foetida asymetrica



Neobeguea mahafaliensis

Smooth bark but peeling off



Adansonia rubrostipa



Commiphora arafy



Commiphora guillaumini



Delonix floribunda

Smooth with protuberances or spines



Zanthoxylum tsihanimposa

Fluted trunk



Baudouinia fluggeiformis

Intermediate bark



Hernandia voyroni

Rough bark – not peeling



Fernandoa madagascariensis



Berchemia discolor



Tamarindus indica

Rough bark – peeling



Grewia cyclea

Rough pictorial guide to other life-forms



Adenia refracta
(see species
description)



Aloe sp. Evergreen
succulent shrub.
Usually less than
0.50 m tall.



Amorphophallus.
Striking tuberous
plant.
Inflorescence/infrut
escence to ca 1m
tall.



Bambusa sp.
Large woody grass
found in the
vicinity of the main
river.

***Adansonia rubrostipa* Jum. & H. Perrier**

Adansonia fony Baill. ex H. Perrier

Malvaceae

Fony

Large overstory tree. Common in Kirindy forest.

Striking features

Bottle-shaped, usually with reddish, thin peeling bark.

Globular fruits.

Has longer, narrower leaflet than

A. za



Description

Stature: massive unbranched trunk which is cylindrical, bottle-shaped, or, rarely, tapering, usually with a distinct constriction beneath the branches. Crown is irregular, major branches are usually horizontal becoming erect distally.

Size: small to tall tree to 20 m.

Bark: thin, usually reddish brown and exfoliating (peeling).

Leaves: (3-)5-foliolate.

Flower: large showy flowers that produce loads of nectar, visited by long-tongued hawkmoths *Coelonia solanii*.

Fruit: large, reddish brown and spherical with a thin stalk.

Seed: variable to 16 mm.



Ecology

Status and distribution: Common and widespread along the West coast zone north to near Mahajanga.

Habitat requirements: In spiny forest and dry deciduous forest on well-drained calcareous soils and on karstic limestone. In Kirindy, on intermediate (red & yellow) soils.

Phenology: deciduous. In leaf November to April. Flowers February to April. Flowers are open 4 days, receptive for one day. Fruits ripe October-November.

Kirindy: Much more common in Kirindy forest than *A. za*.

Reproduction: The fruit has a tough, indehiscent pericarp. Hydrochory, a common feature in the genus, is unlikely because *A. rubrostipa* rarely occurs near rivers or streams.

Forestry at Kirindy

Not a timber species.

Uses

Although the fruits, seeds, and roots are edible, they are little used.

Fruits are sometimes sold in Toliara market.

Sought after edible fungus are said to grow on dead trunks.

Sources and further information

General: Baum (1995)

Botanical description: Baum (1995)

Forestry:

Kirindy: Baum (1995)

Herbarium specimen:

Adansonia za Baill.

Malvaceae

Fony

Large overstorey tree. Uncommon in Kirindy forest.

Striking features

Trunk cylindrical or slightly tapering. Primary branches usually ascending. Elongated fruits. Has rounder (more ovate) leaflet compared with *A. rubrostipa*.



Description

Stature: massive unbranched trunk that is cylindrical or slightly tapering. It has a rounded crown consisting of large primary branches that are usually ascending and tapering.

Size: tall tree to 30 m.

Bark: smooth, grey and thick.

Leaves: 5-8-foliolate, ovate leaflet, rounder than *A. rubrostipa*.

Flower: large showy flowers that produce loads of nectar, visited by long-tongued hawkmoths *Coelonia solanii*, *Coelonia brevis* and *Coelonia mauritii*.

Fruit: fruit is elongated (10-30 cm long, 6-15 cm wide). Fruits often, but not always, have longitudinal ridges which serve to distinguish it from other members of the genus.

Seed: to 12 mm.



Ecology

Status and distribution: variable species. Common and widespread from extreme southern to northwestern Madagascar.

Habitat requirements: The species is frequently found along watercourses. In Kirindy, on intermediate (red & yellow) soils.

Phenology: deciduous. Flowering November to February. Flowers are open 4 days, receptive for one day. Ripe fruits from end of dry season.

Kirindy: Less common in Kirindy than *A. rubrostipa*.

Reproduction: The fruit has a tough, indehiscent pericarp. As it is frequently found along watercourses, it is likely to be water dispersed.

Forestry at Kirindy

Not a timber species.

Uses

Seeds are eaten and seedling roots are an edible vegetable. The trunk is sometimes hollowed out as a cistern for storing water and ranchers destroy trees so that their cattle can feed on the moist wood.

Sources and further information

General: Baum (1995)

Botanical description: Baum (1995)

Forestry:

Kirindy: Baum (1995)

Herbarium specimen:

Adenia refracta

Passifloraceae

Vahiranga

Striking features

Small bottle-shaped woody plant topped by a liana stem.



Description

Stature: woody plant with a bottle-shaped base and a climbing/sprawling stem.

Size: variable.

Bark: smooth.

Leaves: simple entire leaf.

Flower:

Fruit:

Seed:



Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy:

Reproduction:

Forestry at Kirindy

Uses

Sources and further information

General:

Botanical description: de Wilde (1970, 1971)

Forestry:

Kirindy:

Herbarium specimen:

***Baudouinia fluggeiformis* Baill.**

Fabaceae

Manjakabenitany

Striking features
fluted trunk

Widespread but highly variable tree species.



Description

Stature: markedly fluted trunk when mature.

Size: tree rarely more than 15 m high and 50 cm in diameter.

Bark: smooth, pale grey to whitish when young.

Leaves: alternate, simple, coriaceous, 10-50 x 8-45 mm.

Flower: star-shaped, hermaphrodite, yellow flowers (diam 0.8-1.5 cm) in axillary cymes.

Fruit: drupaceous, indehiscent, hard and woody. Contains 1-2 seeds.

Seed: roundish about 5 mm in size.



Ecology

Status and distribution: widespread in North, West and South in woodland and scrub.

Morphologically (e.g. a highly variable species).

Habitat requirements: sandy soils and alluviums, but also recorded in valley in limestone regions. Found up to 500 m a.s.l. In Kirindy, on intermediate (red & yellow) soils.

Phenology: usually deciduous.

Flowering: October-January.

Kirindy:

Reproduction:

Forestry at Kirindy

Uses

Very hard and resilient wood. Used as poles in house construction and cattle enclosures.



Sources and further information

General:

Botanical description: Abraham (1991) p 75. Philipson () p 67, Schatz (2005) p 180.

Forestry:

Kirindy: Anon. (1993) no. 83

Herbarium specimen:

www.efloras.org

(photograph: Philipson, www.efloras.org)

***Berchemia discolor* R.Capuron**

Rhamnaceae

Tsiandala, sabe,
borodokandroy

Striking features

Leaves have strikingly parallel secondary veins (i.e. midrib to margin)



Description

Stature:

Size:

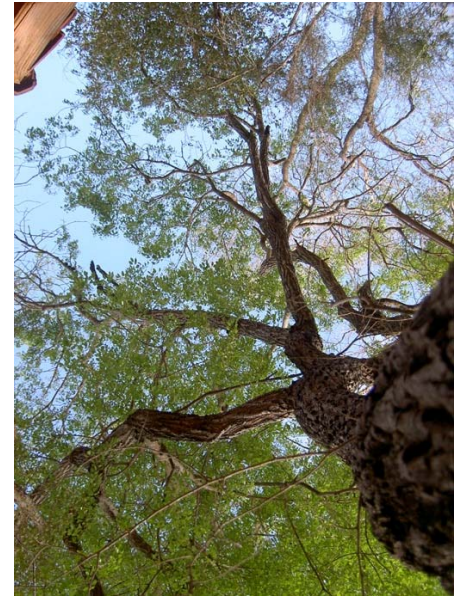
Bark:

Leaves: simple and entire (to 3 x 9 cm). Sub-opposite or opposite.

Flower:

Fruit: Drupe (1-2 cm long), yellowish when ripe. Kernel contains 2 hard seeds.

Seed:



Ecology

Status and distribution:

Habitat requirements: Light-demanding.

Phenology:

Kirindy: On brown soils and vertisol.

Reproduction:

Forestry at Kirindy

Uses

Fruits can be eaten fresh and a drink can be made from the pulp.

Wood is very hard and can be used for a variety of purposes.

Sources and further information

General:

Botanical description: Abraham (1991) p 113

Forestry:

Kirindy:

Herbarium specimen:

Colvillea racemosa Bojer ex Hook.

Fabaceae

Sarongaza

Striking features

Bark with horizontal ridges and numerous lenticels.

Tapering base.



Description

Stature: Tapering base.

Size: large tree to 20-30 m.

Bark: Brown-purplish bark with horizontal ridges and covered with lenticels.

Leaves: bipinnate

Flower: orange to red-orange.

Fruit: dehiscent legume up to 30 cm long containing 15 to 20 seeds.

Seed: blackish 15 x 8 mm.



Ecology

Status and distribution: Western zone from Toliara to North of Marondava and locally present further North.

Habitat requirements: acidic soils. Light demanding.

Phenology: deciduous. Flowering February to April. Fruiting May to December.

Kirindy:

Reproduction:

Forestry at Kirindy

Uses

Wood: coarse grain and of poor durability. Important timber species.

Sources and further information

General: Mad-trees

Botanical description: Abraham (1991),

Forestry: Grisa (1987)

Kirindy:

Herbarium specimen:

Commiphora arofy H. Perr.

Burseraceae

Arofy mena

Striking features



Description

Stature:

Size: large tree.

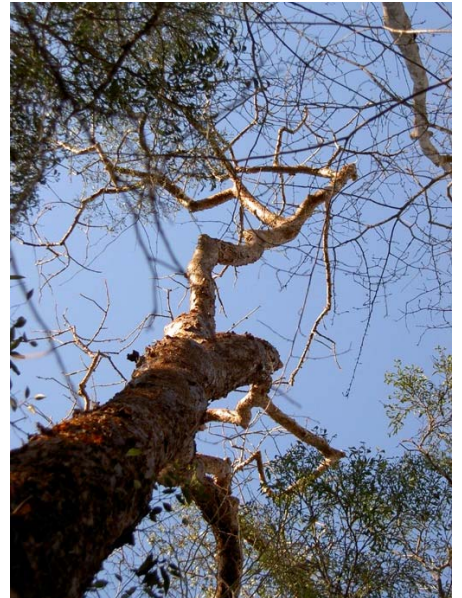
Bark:

Leaves: alternate, imparipinnate.

Flower: male and female flowers on separate inflorescences

Fruit: ovoid fleshy drupe to 1.5 cm containing a single seed.

Seed: covered by a thin aril.



Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy:

Reproduction:

Other: Gums & sap eaten by fork-marked lemurs (*Phaner furcifer*)

Forestry at Kirindy

Was an important timber species.

Uses

Wood has a fine grain and is fairly durable. Used for a variety of purposes.

Sources and further information

General:

Botanical description: Abraham (1991) p 27.

Forestry: Grisa (1987)

Kirindy:

Herbarium specimen:

Commiphora grandiflora

Burseraceae

Striking features



Description

Stature:

Size:

Bark:

Leaves:

Flower:

Fruit:

Seed:



Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy:

Reproduction:

Forestry at Kirindy

Uses



Sources and further information

General:

Botanical description:

Forestry:

Kirindy:

Herbarium specimen:

Commiphora guillaumini H. Perr.

Burseraceae

Arofy be ravina

Striking features

Fine brown outer bark peeling to reveal green bark.



Description

Stature:

Size: large tree.

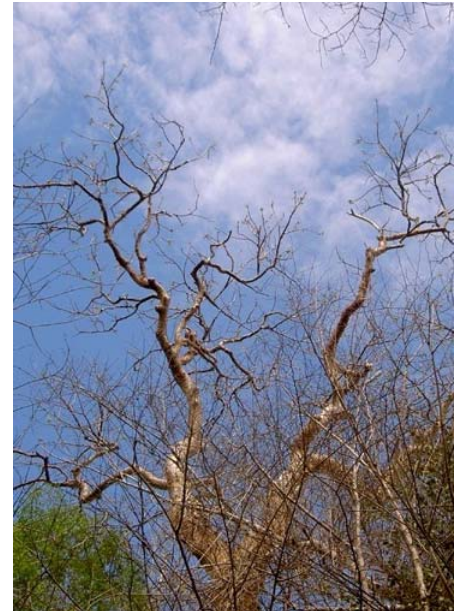
Bark: Fine brown outer bark peeling to reveal green bark.

Leaves: alternate, imparipinnate to 25 cm.

Flower: dioecious, male inflorescences are larger than females.

Fruit: ovoid fleshy drupe to 1.5 cm containing a single seed.

Seed: seeds are about 1 cm in diameter and partly enveloped by a fleshy red aril-like endocarp.



Ecology

Status and distribution:

Habitat requirements:

Phenology: Flowering October to November. Fruiting January April.

Kirindy: Common in CS7 (3.4% of stems ≥ 5 cm). In Kirindy, on intermediate (red & yellow) soils.

Reproduction: Pollination mostly by insects but birds also visit flowers.

Fruits are bird-dispersed but poorly so resulting in clumping of individuals.

Forestry at Kirindy

Was an important timber species.

Uses

Wood has a fine grain and is fairly durable. Used for a variety of purposes.

Sources and further information

General:

Botanical description: Abraham (1991) p 25.

Forestry: Grisa (1987)

Kirindy: Bleher & Böhning-Gaese (2001), Farwig *et al.* (2004). Ganzhorn (2003)

Herbarium specimen:

Cyphostemma laza

Vitaceae

Laza

Striking features



Description

Stature: Caudiciform vine

Size: Up to 5m

Bark: Pale, peeling

Leaves: Light green with 7-9 lanceolate leaflets

Flower: Brownish-green

Fruit: Spherical (1.2cm diameter), rather grape-like, black-purple when ripe

Seed:



Ecology

Status and distribution:

Habitat requirements:

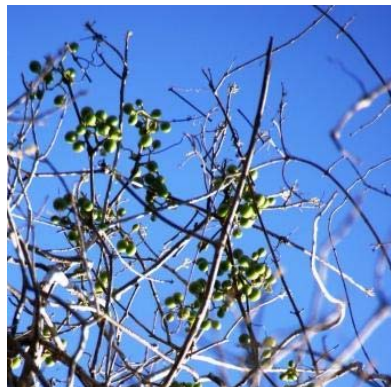
Phenology:

Kirindy:

Reproduction:

Forestry at Kirindy

Uses



Sources and further information

General:

Botanical description: Descoings (1962)

Forestry:

Kirindy:

Herbarium specimen:

***Delonix floribunda* (Baill.) Capuron**

Delonix adansonoides (R. Vig.) Capuron

Large forest tree that is bottle-shaped and often found along main tracks.

Fabaceae

Manarifotsy, manarifoty

Striking features

slightly constricted at base.
smooth red-brown bark peeling off
in thin large sheets.
bright yellow flowers that litter the
forest floor around the base of trees.
brown, transparent resin.



Description

Stature: stem slightly constricted at base. Crown often umbrella-shaped.

Size: large tree to 15 m.

Bark: smooth red-brown bark peeling off in thin large papery sheets. Slash exudes a brown, transparent resin.

Leaves: the alternate leaves are bipinnately paripinnate.

Flower: large, bright yellow, nectariferous flowers on axillary racemes.

Fruit: large woody pod (16-25 x 2.5-3.5 cm) containing 14-23 seeds.

Seed: ellipsoidal, 10-12 x 7-9 x 7-9 mm.



Ecology

Status and distribution: common in the coastal zone of the West and Southwest. Heavily exploited for charcoal production in SW where it may become threatened.

Habitat requirements: light-demanding species that is often found along main tracks. Generally found on limestone and sand.

Phenology: deciduous. Flowering: September-December, usually prior to leafing.

Kirindy: Flowered early November in 2008. An unusual aggregation of large trees can be found in CS7 at N19.

Reproduction: flowers visited by sunbirds.

Uses

Light and soft wood. Wood properties of limited value. Trunks are hollowed out to make canoes and resin is used as glue.

Can be used as a 'living fence' and is propagated by cuttings. Often planted as an ornamental.



Foliage of a young individual

Sources and further information

General: Du Puy et al. (1995)

Botanical description: Abraham (1991) p 59.

Forestry:

Kirindy: Anon. (1993) no. 35.

Herbarium specimen:



flowers on forest floor

***Fernandoa madagascariensis* (R. Capuron)**

Fernandoa grevei R. Capuron

Bignoniaceae

Somotsoy

Striking features

Rough dark bark that is deeply fissured.



Description

Stature:

Size: large tree.

Bark: dark brown to light brown, deeply fissured.

Leaves: imparipinnate, often clustered at the end of twigs.

Flower:

Fruit: Dehiscent capsule.

Seed: numerous, compressed, with hyaline wings.



Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy: On very dry soils.

Reproduction: Wind-dispersed.

Forestry at Kirindy

Uses

Sources and further information

General: Bidgood (1994)

Botanical description: Abraham (1991) p 101

Forestry:

Kirindy:

Herbarium specimen:

Foetidia asymetrica H. Perrier

Large tree easily identified thanks to its ascending main branches, dense thin shoots and light coloured bark.



Description

Stature: dense crown with ascending main branches, ramified branchlets and numerous thin shoots.

Size: large tree.

Bark: fairly smooth and horizontally striated. Mosaic of mainly whitish and pinkish patches.

Leaves: simple, entire and sessile (to 8 x 2.5 cm). Alternate and grouped in batches of 7 to 12 leaves per shoot.

Flower: solitary large flowers with numerous stamens but lacking petals.

Fruit: woody fruits crowned by a wing-like structures.

Seed:

Ecology

Status and distribution: endemic species recorded in 1954 in the Flore de Madagascar as rare. Then only known from two locations.

Habitat requirements:

Phenology: deciduous.

Kirindy: In Kirindy, on intermediate (red & yellow) soils.

Reproduction:

Uses

Wood is light and heavy. It is affected by changes in humidity.

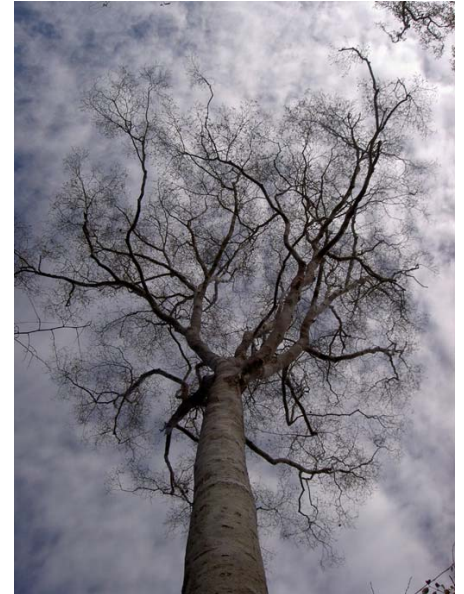


Lecythidaceae

Menambaho

Striking features

asymmetry of the leaves (the blade on one side of the midrib much narrower than the other)
light-coloured, smooth bark.
ascending main branches.
branches with many thin shoots.
Woody 'winged' fruits.



Sources and further information

General:

Botanical description: Abraham (1991) p 79. Flore de Madagascar No 149.

Forestry:

Kirindy: Anon. (1993) no. 254.

Herbarium specimen:



Grewia cyclea Capuron

Tiliaceae

Latabarika

Common forest tree.

Striking features

oboval to circular brown leaves
conspicuous on forest floor in
November.
basal sweep.



Description

Stature: basal sweep often marked.

Size: medium-size.

Bark: rough bark that flakes off revealing some smooth patches.

Leaves: oboval to circular to 7 x 12 cm with long petiole (to 5cm). Three main veins at base.

Flower: hermaphrodite in inflorescences.

Fruit: small and round. Indehiscent 1-4 lobed drupe.

Seed:



Ecology

Status and distribution: large Old-world genus contains ca. 86 spp in Madagascar.

Habitat requirements:

Phenology: deciduous.

Kirindy: In Kirindy, on intermediate (red & yellow) soils.

Reproduction:



Uses

When fresh the wood is foul smelling. Wood is easily worked and widely used in cabinet-making.



Sources and further information

General:

Botanical description: Abraham (1991) p 53, Schatz (2005) p 245.

Forestry: Grisa (1987)

Kirindy: Anon. (1993) no. 45.

Herbarium specimen:



***Hernandia voyroni* (Jumelle) R. Capuron**

Hernandiaceae

Hazomalany

Striking features



Description

Stature: many horizontal small diameter branches in crown.

Size: Large tree to 25m high and a meter in diameter.

Bark: thick and whitish with vertical cracks.

Leaves: simple, entire leaves clustered at the end of shoots. Strong odour.

Flower: axillary inflorescence.

Fruit: drupe with two wings.

Seed:



Ecology

Status and distribution: In Madagascar found along the eastern seaboard between the Betsiboka and Onilahy rivers.

Habitat requirements: Shade-loving

Phenology: adults are deciduous.

Flowering February to March and fruiting March to July. Fruit fall August to September.

Kirindy:

Reproduction:

Forestry at Kirindy

Important timber tree.

Uses

Valuable timber. Highly durable wood used for a variety of purposes including in canoe building and furniture making.

Sources and further information

General: Mad-trees

Botanical description: Abraham (1991),

Forestry: Grisa (1987)

Kirindy:

Herbarium specimen:

Hildegardia erithrosyphon (Baill.) Kosterm.

Malvaceae

Vonoa

Striking features

massive leaves.
larger trees have buttresses.
thick branches.

Large buttressed tree that can be readily identified at the end of the dry season thanks to a carpet of massive leaves.



Description

Stature: buttresses on larger trees. It has a swollen trunk and thick branches.

Size: large tree to 20 m high and diameter of 1.5 m..

Bark:

Leaves: large palmate leaf with leaf blade to 30 cm long and petiole to 25 cm.

Flower: large inflorescences.

Fruit: cluster of large 1-seeded samaras (1-5).

Seed:



Dead leaf (leaf blade to ca 30 cm) on forest floor with a stiff stalk.

Ecology

Status and distribution: genus of 8 species in Cuba, Africa, SE Asia and China. Madagascar has 3 endemics.

Hildegardia erithrosyphon is widespread in dry deciduous forests and thickets in West and South.

Habitat requirements: appear to tolerate various substrates to an altitude of 600 m.

Phenology:

Kirindy: In Kirindy, on intermediate (red & yellow) soils.

Reproduction: wind-dispersed.

Forestry at Kirindy

Uses

The spongy wood is little used.

Bark used in rope making.



Sources and further information

General:

Botanical description: Abraham (1991) p , Schatz (2005) p 249, Flore de Madagascar No 131.

Forestry:

Kirindy: Anon. (1993) no. 122.

Herbarium specimen:

Neobeguea mahafaliensis Leroy

Meliaceae

Handy, hazolava

Striking features

smooth bark with mosaic of brown and cream patches



Description

Stature: irregular crown with tortuous branches.

Size: large tree to 20 m, but often only to around 12 m.

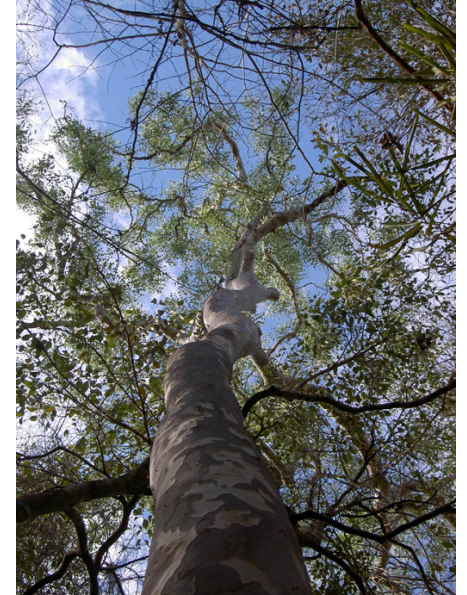
Bark: thin and smooth, patchwork of brown to cream patches where bark has flaked off.

Leaves: large imparipinnate leaves.

Flower: in compound inflorescence.

Fruit: dehiscent globular fruit (2-3 cm in diameter) with 3 compartments.

Seed: 3-4 winged seeds per compartment.



Ecology

Status and distribution: forest in southwestern region North to Belo Antsalova. Light demanding.

Habitat requirements: sandy soils with good drainage.

Phenology: deciduous. Flowering September-October. Fruiting June-July.

Kirindy: On very dry soils.

Reproduction: wind-dispersed.

Forestry at Kirindy

Timber tree with fairly fine grain. Durable timber.

Uses

Used for many purposes including flooring and luxury furniture.

Bark used as an aphrodisiac and in traditional medicine against kidney complaints.

Sources and further information

General:

Botanical description: Abraham (1991) p

Forestry: Grisa (1987)

Kirindy:

Herbarium specimen:

Stereospermum euphoroides

Bignoniaceae

Mangarahara

Striking features



Description

Stature:

Size: Can reach 20-30m

Bark:

Leaves: Opposite

Flower:

Fruit:

Seed:

Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy: On very dry soils.

Reproduction:

Forestry at Kirindy

Uses Has medicinal uses against malaria

Sources and further information

General: Rasoanaivo et al (1992)

Botanical description:

Forestry:

Kirindy:

Herbarium specimen:



***Tamarindus indica* (Jumelle) R. Capuron**

Caesalpiniaceae

Kily

Large tree found mainly close to the main river.

Striking features



Description

Stature:

Size: large tree to 30 m and stem diameter of 1 m.

Bark: rough and grey-brown.

Leaves: alternate, pinnate to 12 cm.

Flower: 5 to 10 large flowers in a cyme. Large, yellow speckled with red.

Fruit: Legume to 15 cm long containing 1-10 seeds.

Seed: shiny brown and surrounded by an acidic pulp.

Ecology

Status and distribution: Western part of Madagascar. Also present in NE Africa and invasive in other parts of the world. Status in Madagascar unclear.

Habitat requirements: good drainage.

Phenology: deciduous in drier areas.

Kirindy: Deciduous. Particularly found along stream banks.

Reproduction:

Forestry at Kirindy

Uses

Widely used as a shade tree.

Fruits widely eaten.

Wood has a variety of uses but is specially sought after to make charcoal.

Sources and further information

General: mad-trees

Botanical description: Abraham (1991) p 49

Forestry:

Kirindy:

Herbarium specimen:

Zanthoxylum tsihanimposa R.Capuron

Rutaceae

Monongo a grosses branches

Striking features

Smooth trunk dotted with sharp spines.



Description

Stature:

Size:

Bark:

Leaves: paripinnate to 35 cm long.
12 to 26 pairs of opposite leaflets.
Strong smell like that of grated carrots or lemon.

Flower:

Fruit:

Seed:



Ecology

Status and distribution:

Habitat requirements:

Phenology:

Kirindy: In Kirindy, on intermediate (red & yellow) soils.

Reproduction:

Forestry at Kirindy

Uses

Sources and further information

General:

Botanical description: Abraham (1991) p

Forestry: Grisa (1987)

Kirindy:

Herbarium specimen:

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