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Adansonia grandidieri

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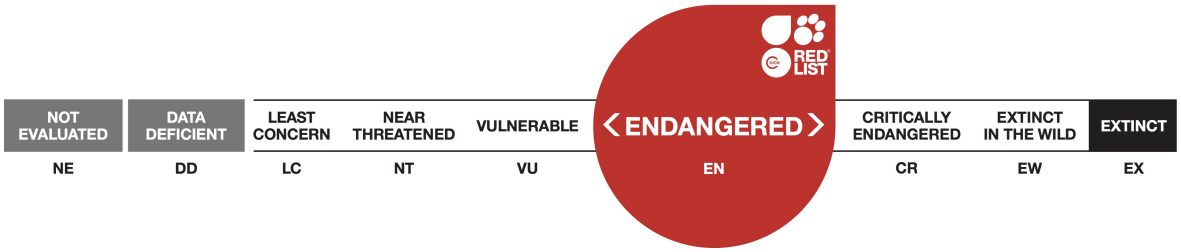

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Malvales	Bombacaceae

Taxon Name: *Adansonia grandidieri* Baillon

Taxonomic Notes:

Adansonia grandidieri Baillon (1893)

Assessment Information

Red List Category & Criteria: Endangered A4c ver 3.1

Year Published: 2016

Date Assessed: July 7, 2016

Justification:

Even though recent studies show this species has a larger range than previously thought, *Andansonia grandidieri* is listed as Endangered based on an inferred (for the past) and projected (for the future) population reduction of at least 50% using past and future habitat loss over a three-generation time period (1953 to 2116). Three generations is estimated to be 1,050 to 3,000 years (using generation length of other *Adansonia* species), but when projecting population reduction into the future, three generations is capped at 100 years from now i.e. the year 2116. Deforestation in the area where the species occurs has been intense since 1953 and this is likely to continue. In addition, the species has a naturally very low regeneration rate and there are many threats affecting the regeneration of the species especially grazing of seedlings by livestock, consumption of fruit by people and seed collection for use in the production of cosmetics.

Previously Published Red List Assessments

1998 – Endangered (EN) – http://dx.doi.org/10.2305/IUCN.UK.1998.RLTS.T30388A9533714.en

1998 – Insufficiently Known (K)

Geographic Range

Range Description:

Adansonia grandidieri is endemic to Madagascar. It was thought that the distribution of this species was very restricted, especially in the South West region of Madagascar, and that the presence of individuals was limited to the district of Befandriana South and Tsiribihina River (Baum *et al.* 1998), as this large tree had been collected from five locations distributed between Lac Ihotry, near Morombe, and Bereboka, north of Morondava. However, a recent study based on satellite image identification conducted by Vieilledent *et al.* (2013) showed that *A. grandidieri* is present in a larger area (around 26,232 km^2) and it is located along the Mangoky River and in the west part of the Menabe region covering about 4.5% of the area of Madagascar (Vieilledent *et al*. 2013).

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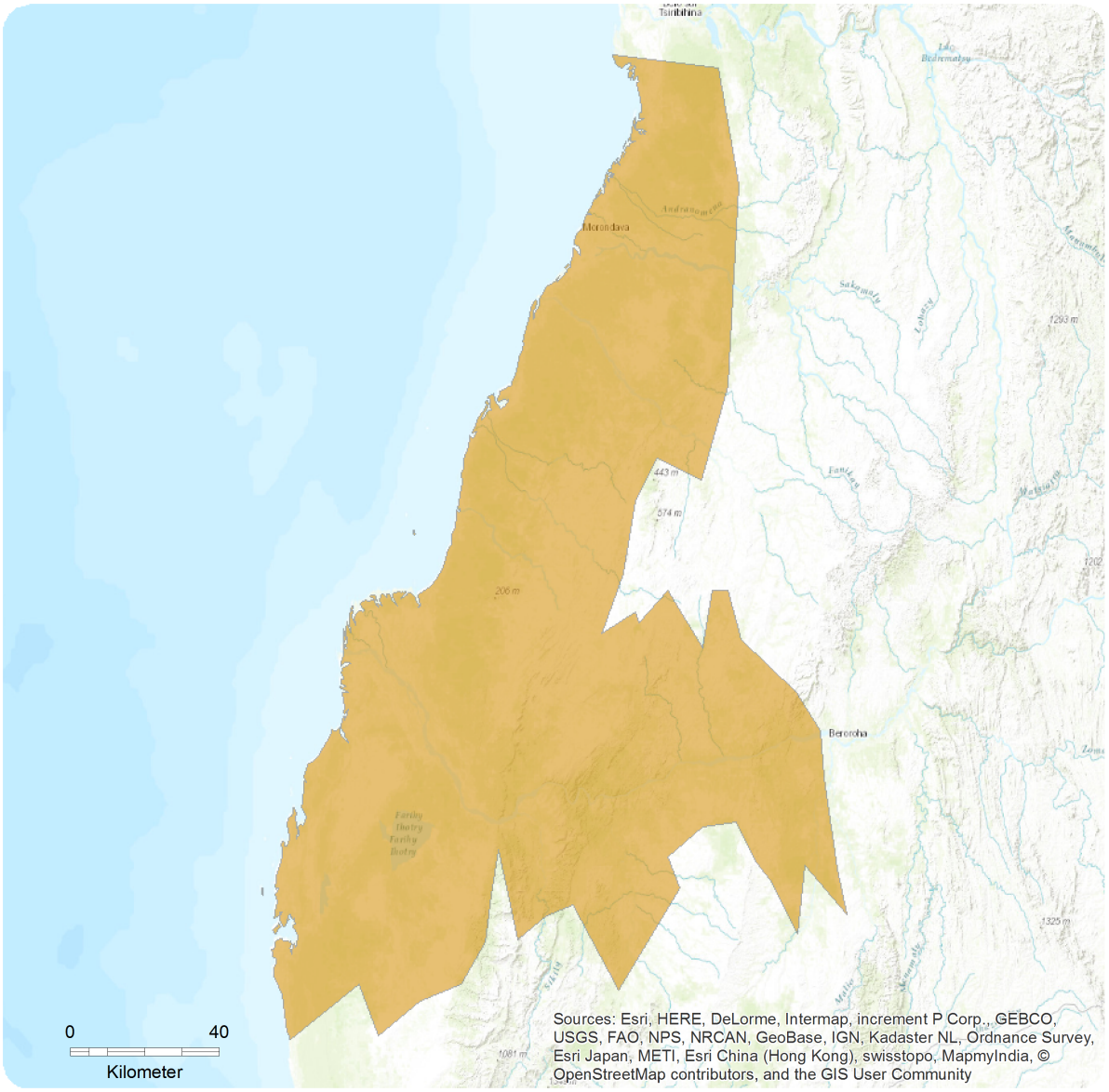
Country Occurrence:

Native: Madagascar

Distribution Map

Adansonia grandidieri



Range

Extant (resident)

Compiled by:

IUCN

NE DD LC NT VU EN ENDANGERED CR EW EX

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

According to a recent study by Madagasikara Voakajy this species occurs in three districts of Menabe Region (Mahabo, Manja and Morondava). The population size is different in the five known subpopulations, being lower in the northern part of this region (Andriafidison *et al*. in prep.).

A recent study shows that *Adansonia grandidieri* is represented by more than an estimated one million individuals (Vieilledent *et al.* 2013).

Population density in Andranomena is 37 individuals/ha in the Andranomena Special Reserve and 3 individuals/ha outside the protected area (Ranjevasoa 2003). In Bekonazy Morondava, the population density is 1.24 individuals/ha in the protected site and 0.98 individuals/ha in unprotected site (FANAMBY pers. comm.).

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

It probably occurred in dry deciduous forest, frequently close to bodies of water, but mature trees are now largely found in degraded agricultural lands where regeneration is poor.

Adansonia grandidieri is adapted to very dry areas with low annual precipitation, high mean annual temperature, high precipitation and temperature seasonality. Geology was not a significant factor explaining the distribution of *A. grandidieri* (Vieilledent *et al*. 2013).

Nocturnal lemurs are the main pollinators of *A. grandidieri* (Wickens and Lowe 2008). However, the Madagascar straw-coloured fruit bats, *Eidolon dupreanum* and *Rousettus madagascariensis* may also pollinate the flowers of the species (Andriafidison *et al*. 2006).

Flower biology and phenology of this species plays an important role in attraction and behaviour of pollinators (Rasoamanana *et al*. 2015).

Systems: Terrestrial

Use and Trade

The fruit of *Adamsonia grandidieri* are consumed locally and are considered to have the best taste among all baobab fruits, they are also used to make juice (Baum 1995). The fruit pulp has high energetic value, over 300 kcals for 100 g fresh matter (Rakotonindrainy 2008). The pulp is rich in protein, calcium and phosphorous (Diop *et al*. 2005, Wickens and Lowe 2008, De Caluwé *et al*. 2009). The seeds are rich in lipids (Gaydou *et al.* 1983, Andrianaivo-Rafehivola *et al*. 2012) and are used by the population for cooking (Baum 1995). Bark is used in traditional medicine to treat hypocalcemia (Sandratriniaina 2015). The bark fibres, locally called *hafotse* are used as ropes for fixing walls and roofs of houses and for making traditional Sakalava and Mikea boxes, baskets and mats (Baum 1996, Wickens and Lowe 2008).

The species is also used on a larger scale for production of cosmetics; oil is extracted from seeds collected by Renala Naturals, which is a social enterprise that establishes sustainable supply chains in Madagascar.

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With one exception, all records of use are for domestic consumption either locally or regionally. However, recent information sent to the CITES Secretariat in light of the proposal to include *A. grandidieri* in Appendix II at the 17th Conference of the Parties of CITES indicated that 4,000 kg were reportedly exported from Madagascar to France by Renala Naturals in 2014 (the seed was collected under a permit issued by the forestry department). It remains to be seen whether this is a once-off export or the start of regular and increasing international trade in seed or derivatives of this species.

Threats (see Appendix for additional information)

There are various threats causing habitat degradation for this species. The expansion of human settlements and agriculture are direct threats to *Adansonia grandidieri*. Water pollution caused by the sugar industry Sucoma could be disturbing the physiology of this tree, especially in the subpopulation situated in the northern part of the Menabe Region (Morondava district). Traditional agricultural techniques such as the use of fire and slash and burn (*Tavy*) are considered major threats. Frequent and repeated fires harm young plants of this species. Grazing by livestock is also a threat as cattle and goats graze and trample the young plants, thus impacting the already naturally low recruitment. Excessive bark extraction, increased use of fire and conversion of forest into agricultural lands pose the greatest threats. However, this species appears to be tolerant of some forest disturbance.

In its area of occurrence, ecological studies indicate that the population is old and has a very low rate of natural regeneration (Wilson 1988, Razanameharizaka 2009).

The increased and possibly unsustainable exploitation of this species may be a threat affecting future recruitment. There are currently no laws controlling this exploitation. *Adansonia grandidieri* is the most widely used baobab species in the Menabe region (Raveloson *et al.* 2014).

Conservation Actions (see Appendix for additional information)

This species occurs within Andranomena Special Reserve and Kirindy Mitea and Menabe National Parks. The species has been proposed for inclusion in CITES Appendix II.

Credits

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External Resources

For Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.5. Forest - Subtropical/Tropical Dry	-	Suitable	-
14. Artificial/Terrestrial -> 14.1. Artificial/Terrestrial - Arable Land	-	Marginal	-

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.1. Shifting agriculture	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.4. Scale Unknown/Unrecorded	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.1. Intentional use (species is the target)	Ongoing	-	-	-

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	Stresses:	2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.2. Intentional use: (large scale) [harvest]	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.1. Increase in fire frequency/intensity	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.4. Type Unknown/Unrecorded	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Land/Water Protection and Management
Occur in at least one PA: Yes
Area based regional management plan: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
2. Conservation Planning -> 2.2. Area-based Management Plan
2. Conservation Planning -> 2.3. Harvest & Trade Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.2. Harvest level trends
3. Monitoring -> 3.3. Trade trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km²): 90
Estimated extent of occurrence (EOO) (km²): 26232
Continuing decline in extent of occurrence (EOO): Yes
Lower elevation limit (m): 0
Upper elevation limit (m): 50
Population
Number of mature individuals: 1000000
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 350-1000

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