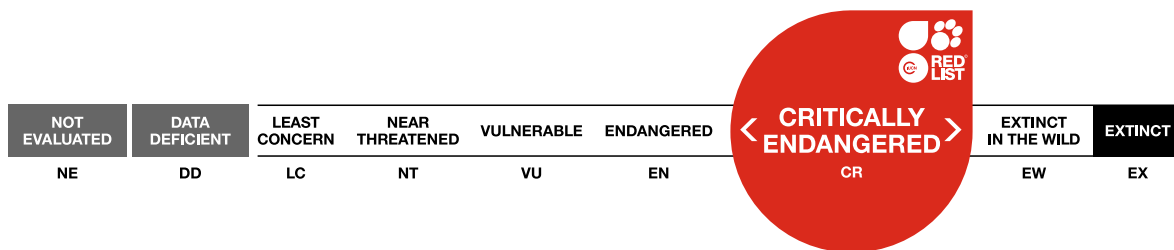




Madhuca balakrishnanii, Thekkan Attilipa

Assessment by: Amitha Bachan, K.H. & Devika, M.A.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Ericales	Sapotaceae

Scientific Name: *Madhuca balakrishnanii* E.S.S.Kumar, Shailaj. & Shareef

Common Name(s):

- Malayalam: Thekkan Attillipa

Taxonomic Source(s):

POWO. 2021. Plants of the world. England Available at: <http://powo.science.kew.org/>. (Accessed: 31 agosto 2021).

Identification Information:

Madhuca balakrishnanii is an evergreen tree up to 8 m high, with slightly fissured, fluted bark. The species can be distinguished from the allied taxa *M. diplostemon* and *M. insignis* with its hairy young shoots, fairly long stipules, sparsely hairy pedicels, inner sepals rufous hairy abaxially, shorter corolla tube, fairly long densely hairy staminal filaments, shorter style and ovoid fruit (Santhosh Kumar *et al.* 2021).

Assessment Information

Red List Category & Criteria: Critically Endangered A2c; B1ab(iii)+2ab(iii); D [ver 3.1](#)

Year Published: 2023

Date Assessed: January 31, 2022

Justification:

Madhuca balakrishnanii is a medium sized evergreen tree up to 8 m high, which occupies in an elevation of 40 m in the degraded riparian vegetation. The species occurs in one location with three mature individuals and its AOO is 4 km². Germinated seedlings have been observed in the habitat, though. The habitat is heavily fragmented and more than 80% of suitable habitat has been converted for agriculture and development purpose in the last three generations of the species (60 years). Both *ex situ* and *in situ* conservation measures are necessary. Site specific conservation and recovery plans are also necessary along with the identification of potential areas for species reintroduction. Overall, the species is assessed here as Critically Endangered.

Geographic Range

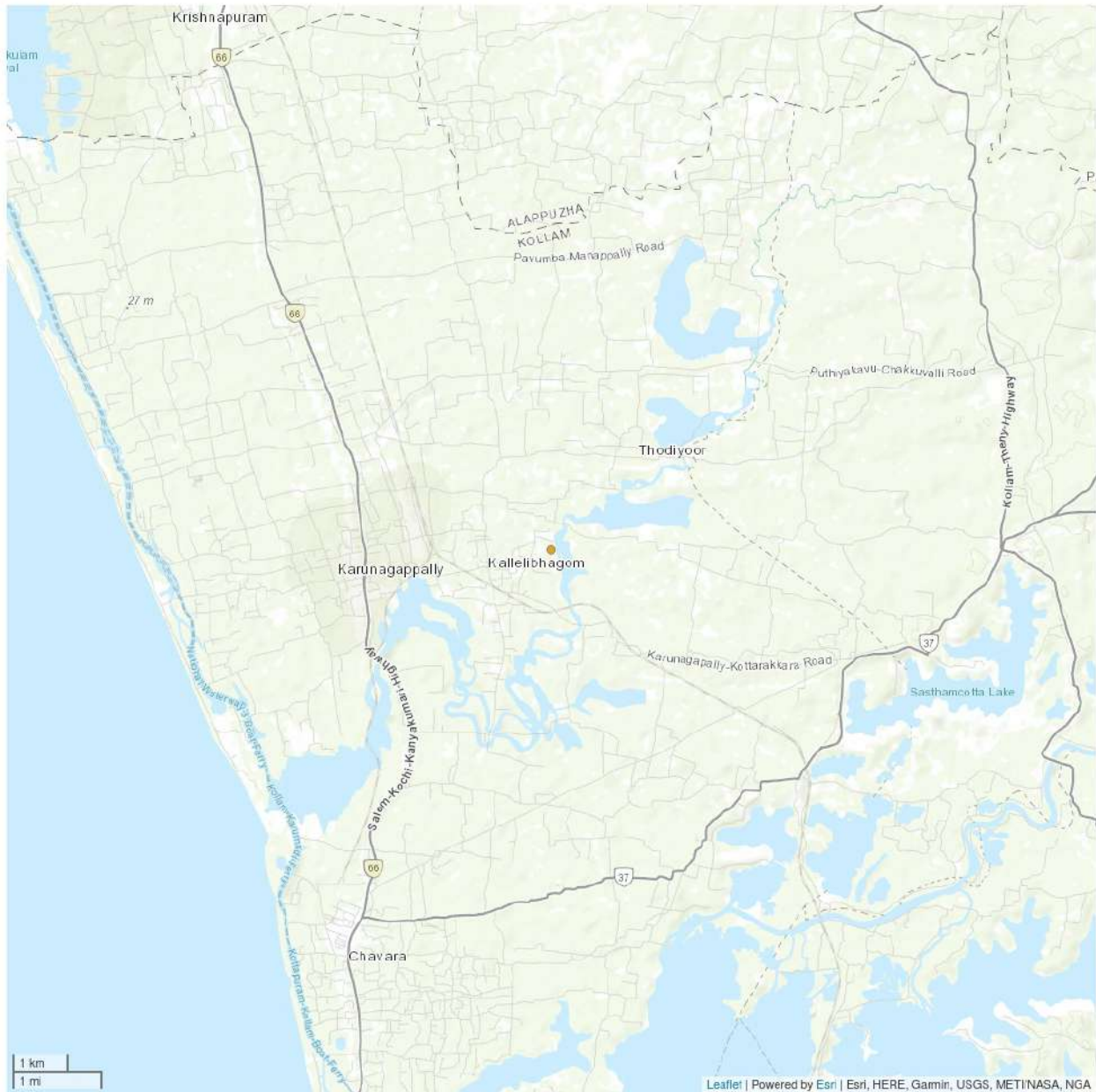
Range Description:

The species occurs in the Kollam district of Kerala, India.

Country Occurrence:

Native, Extant (resident): India (Kerala)

Distribution Map

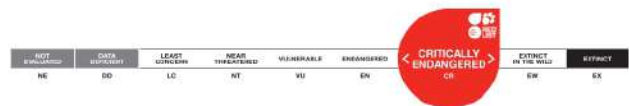


Legend

■ EXTANT (RESIDENT)

Compiled by:

GTA 2023



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

Population

This species was reported for the first time from a highly fragmented riparian habitat (Santhosh Kumar *et al.* 2021). At present, the population consists of only three mature individuals in a human dominated area, although several seedlings have been observed. The habitat is heavily fragmented and more than 80% of suitable habitat has been converted for agriculture and development purpose in the last three generations of the species (60 years), thus a population decline of a similar value is suspected.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Madhuca balakrishnanii is an evergreen tree up to 8 m high, found at an altitude of 40 m. The species occurs in riparian vegetation along the lower plains of human inhabitation. There are only three mature individuals in its habitat (Santhosh Kumar *et al.* 2021). The habitat has been heavily degraded due to conversion for agricultural and developmental purposes. Some of its associated species include *Hopea parviflora*, *Holigarna arnottiana*, *Artocarpus hirsutus*, *Mangifera indica* and *Vateria indica*. The flowering period is from January to May.

Systems: Terrestrial

Use and Trade

The genus is generally used for making fishing gear, the buds and fruits for fish bait and the timber for firewood. There is no other use and trade information for this species.

Threats (see Appendix for additional information)

Madhuca balakrishnanii was reported for the first time from remnants of riparian vegetation in the lower plains of Kollam district (Santhosh Kumar *et al.* 2021). The habitat is heavily fragmented and degraded due to conversion for agriculture and development purposes since it falls within a heavily populated area.

Conservation Actions (see Appendix for additional information)

The present distribution of the species is restricted to one location in a heavily degraded, human-dominated riparian habitat. It is represented by only three mature individuals. The land custodian has been made aware of its importance. *Ex situ* propagation is in place, but site specific conservation and recovery plans are necessary along with identification of potential areas for species reintroduction.

Credits

Assessor(s): Amitha Bachan, K.H. & Devika, M.A.

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Contributor(s): Nandu Krishnan, R.

Authority/Authorities: IUCN SSC Global Trees Specialist Group

Bibliography

IUCN. 2001. *IUCN Red List Categories and Criteria: Version 3.1*. Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.

IUCN. 2023. The IUCN Red List of Threatened Species. Version 2023-1. Available at: www.iucnredlist.org. (Accessed: 11 December 2023).

Santhosh Kumar, E.S., Shailajakumari, S. and Shareef, S.M. 2021. *Madhuca balakrishnanii* (Sapotaceae), a new species from Kerala, India. *Phytotaxa* 510(1): 78-82.

Citation

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External Resources

For [Supplementary Material](#), and 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 -> 1.6. Forest - Subtropical/Tropical Moist Lowland	Resident	Suitable	Yes

Plant and Fungal growth forms

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

Plant and Fungal growth forms
TS. Tree - small

Use and Trade

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

End Use	Local	National	International
2. Food - animal	Yes	No	No
7. Fuels	Yes	No	No
11. Other household goods	Yes	No	No

Threats

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

Threat	Timing	Scope	Severity
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Majority (50-90%)	Slow, significant declines
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Majority (50-90%)	Slow, significant declines

Conservation Actions in Place

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

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No

Conservation Action in Place
In-place land/water protection
Conservation sites identified: Yes, over entire range
Percentage of population protected by PAs: 0
Area based regional management plan: No
Occurs in at least one protected area: No
Invasive species control or prevention: No
In-place species management
Subject to ex-situ conservation: Yes
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management / trade controls: No

Conservation Actions Needed

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

Conservation Action Needed	Notes
2. Land/water management -> 2.3. Habitat & natural process restoration	-
3. Species management -> 3.2. Species recovery	-
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction	-
3. Species management -> 3.4. Ex-situ conservation -> 3.4.2. Genome resource bank	-

Research Needed

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

Research Needed	Notes
2. Conservation Planning -> 2.1. Species Action/Recovery Plan	-
2. Conservation Planning -> 2.2. Area-based Management Plan	-
3. Monitoring -> 3.4. Habitat trends	-

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 4
Estimated extent of occurrence (EOO) (km ²): 4
Number of Locations: 1
Lower elevation limit (m): 40
Upper elevation limit (m): 50
Population
Number of mature individuals: 3
No. of subpopulations: 1
All individuals in one subpopulation: Yes
No. of individuals in largest subpopulation: 3
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 20

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