Building evidence for conservation globally

Journal of Threatened Taxa

10.11609/jott.2022.14.9.21751-21902
www.threatenedtaxa.org

26 September 2022 (Online & Print)
14(9): 21751–21902
ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)

Open Access

ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

No. 12, Thiruvannamalai Nagar, Saravanampatti - Kalapatti Road, Saravanampatti,
Coimbatore, Tamil Nadu 641035, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope
For Article Submission Guidelines, visit https://threatenedtaxa.org/index.php/JoTT/about/submissions
For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

continued on the back inside cover

Cover: ***Pipistrellus tenuis*** **recorded during the small mammalian fauna study, Manipur, India. © Uttam Saikia.**

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 September 2022 | 14(9): 21862–21869

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

https://doi.org/10.11609/jott.7458.14.9.21862-21869

#7458 | Received 21 May 2021 | Final received 09 July 2022 | Finally accepted 07 September 2022

OPEN ACCESS

COMMUNICATION

Woody plant wealth of Therikadu Reserve Forest, Tuticorin, India: a checklist

V. Muneeswaran [1] & M. Udayakumar [2]

[1,2] Department of Plant Science, Manonmaniam Sundaranar University, Abishekpatti, Tirunelveli, Tamil Nadu 627012, India

[1] muneesmsc2016@gmail.com, [2] udayakumar@msuniv.ac.in (corresponding author)

Abstract: A qualitative survey was conducted to record the woody plant wealth of Carnatic Umbrella Thorn Forest (CUTF) existing within the Therikadu Reserve Forest (TRF), Tuticorin district, southeastern Coast, Peninsular India. A sum of 35 man-days was spent on the field to prepare a woody plant checklist. All collected specimens were identified up to the species level with the help of floras. A sum of 105 species belonging to 83 genera in 37 families were recorded from the study area. The family Fabaceae represented by a large number of species (36 species) followed by Bignoniaceae (5) and Rubiaceae (4). Eight families represented by three species each, while 16 families represented by a single species each. CUTF acts as a home for one of the IUCN's endangered species, *Pterocarpus santalinus*. The reserve forest and sacred grove status are keeping TRF as an intact and relatively undisturbed ecosystem.

Keywords: Carnatic Umbrella Thorn Forest, CUTF, dry forest, endangered species, peninsular Indian forest, Tamil Nadu.

Tamil: தீபகற்ப இந்தியாவின் தென்கிழக்கு கடற்கரையில் அமைந்துள்ள தூத்துக்குடி மாவட்டத்தில் காணப்படும் கர்னாடிக் குடைவேல் முட்புதர் காட்டிலுள்ள கட்டைத்தன்மைவாய்ந்த தாவரங்களின் வளம் களஆய்வின் மூலம் கண்டறியப்பட்டது. முப்பத்தைந்து நாட்கள் களஆய்வு மேற்கொள்ளப்பட்டது. கண்டறியப்பட்ட அனைத்து தாவரங்களும் தாவரவளம் குறித்து வெளியிடப்பட்டுள்ள தரமான கையேடுகள் மூலம் உறுதிசெய்யப்பட்டன. களஆய்வின் மூலம் 105 சிற்றினங்கள், 83 பேரினங்கள் மற்றும் 37 தாவர குடும்பங்கள் பட்டியலிடப்பட்டுள்ளன. பேபேசி குடும்பம் 36 சிற்றினங்களுடன் அதிக அளவில் காணப்படுகின்றன, அதனை தொடர்ந்து பிக்னோனியேசி (5 சிற்றினங்கள்) மற்றும் ரூபியேசி (4 சிற்றினங்கள்) அதிக அளவில் காணப்படுகின்றன. எட்டு குடும்பங்கள் ஒவ்வொன்றும் தலா 3 சிற்றினங்களையும், 16 குடும்பங்கள் மிகவும் குறைவாக தலா ஒரு சிற்றினத்தையும் கொண்டுள்ளன. இந்த வகை காடுகள் அழிந்து வரக்கூடிய தாவரங்களின் பட்டியலிலுள்ள ஓர் மரவகைக்கு வாழிடமாக உள்ளது. இவ்வகை காடுகள் தமிழக அரசின் வனத்துறையால் பாதுகாக்கப்படுகின்றன, மேலும் கோவில்காடுகளாகவும் இவை உள்ளதால் இங்குள்ள உயிரினங்கள் நன்கு செழித்து வளர்ந்து, வெளிப்புற தொந்தரவுகளின்றி வாழ்கின்றன.

Editor: Anonymity requested.

Date of publication: 26 September 2022 (online & print)

Citation: Muneeswaran, V. & M. Udayakumar (2022). Woody plant wealth of Therikadu Reserve Forest, Tuticorin, India: a checklist. *Journal of Threatened Taxa* 14(9): 21862–21869. https://doi.org/10.11609/jott.7458.14.9.21862-21869

Funding: Science and Engineering Research Board, Government of India, New Delhi (No. CRG/2019/003148 dt. 05 February 2020).

Competing interests: The authors declare no competing interests.

Author details: M. Udayakumar, an assistant professor, has been awarded INSPIRE Fellowship, Young Scientist, and Core Research Grant. His area of interests are forest ecology and angiosperm systematics. S. Muneeswaran is currently doing PhD under the guidance of MU in the field of forest ecology.

Author contribution: MU designed and conceptualized the study. MU and VM conducted field surveys, collection, identification and documentation of woody plants from study area. VM prepared the first draft of the manuscript and MU corrected it.

Acknowledgements: We thank the DFO, Thoothukudi district for the permission to conduct the field study and Mr. S. Nagaraj and J. Evitex Izayas for their help and support during the survey. The writing of this manuscript was supported by Science and Engineering Research Board, Ministry of Science and Technology, Government of India, New Delhi, India (No. CRG/2019/003148 dated 05 February 2020).

INTRODUCTION

Forests play a vital role in regulating the climate and provide a large number of ecosystem services to all living organisms including human beings (Montagnini & Jordan 2005). Thorn forest is one of the highly neglected forest ecosystems; information related to biodiversity wealth, carbon stock, and sequestration are very limited. Thorn forests act as a home for a large number of woody plant species (liana, shrub, and tree). The forests flourish in the larger part of dried regions in India. Thorn forest covers 16,491 km^2 of the geographical area in India. Indian states namely, Punjab, Haryana, Rajasthan, Gujarat, Tamil Nadu, Karnataka, Madhya Pradesh and Uttar Pradesh are endowed with thorn forest vegetation (Champion & Seth 1968). The thorn forest is characterized by short thorny bush and shrub vegetation and experiences dry season for about six to nine months in a year. Plants are leafless for the most part of the year, usually have very thin leaves protected by sharp structures such as spines, thorns or prickles. Sharp structures are part of the structural defence, protecting photosynthetic tissue from herbivores. Besides, the roots are predatory in nature and spreading near the soil surface as concentrations of essential macro and micronutrients are very limited in dry forests (e.g., Udayakumar & Sekar 2017). A type of thorn forest occurring in Dharmapuri, Kanyakumari, Krishnagiri, Madurai, Thoothukudi, Tirunelveli and Ramanathapuram districts has been designated as Carnatic Umbrella Thorn Forest by Champion & Seth (1968). A checklist of the species at national, state, district and ecosystem level is highly useful to estimate the plant wealth and habitat of species (Udayakumar & Parthasarathy 2012). Earlier, Nair & Srinivasan (1981) found *Acacia planifrons* and *Borassus flabellifer* as dominant species of CUTF in Ramanathapuram district, Tamil Nadu. Singh et al. (1999) found CUTF as one of the homes for slender Loris. Venkatesh et al. (2021) designated CUTF as the important habitat for mammalian small carnivores. Selvakumari & Rajakumar (2012) recorded wild edible plants from CUTF, Tuticorin. Recently, Venu & Velmayil (2021) investigated geochemistry, minerology and texture of Teri sediments. Information on plant diversity of CUTF in Tamil Nadu is scarce hence this study was conducted to record the woody plant wealth of Therikadu Reserve Forest located in Thoothukudi district, southern India.

MATERIALS AND METHODS

Study area

Therikadu forest ecosystem is protected as a reserve forest by the Department of Forests, Government of Tamil Nadu since 21 July 1982. Study area located in Tiruchendur taluk of Tuticorin district in Tamil Nadu. The geographical coordinates of the study area are 8.73345–8.74976 N & 77.98351–78.07294 E (Image 1). The altitude of the study area is 30 m, while the mean annual rainfall and minimum & maximum temperature are 750 mm and 28 & 32^{0}C. The study area receives a major proportion of the rainfall during the north-east monsoon (October to December), (Thoothukudi District Website 2021).

Field survey

As a part of the establishment of 50 ha forest dynamics plot in Therikadu Reserve Forest a qualitative survey was conducted to record the woody plant diversity. A sum of 35 man-days spent on the field to record woody plant wealth of TRF. About 10 sacred groves are located within the TRF. TRF housed large number of temples and local deities, among them Arunchunaikaththa ayyanar and Karukkuvel ayyanar temples (Tamil) are notable and visited by large number of people during festival seasons. All the woody plants, viz., shrubs, lianas and tree growing in TRF were collected and identified up to species level with the help of regional floras and available checklists (Gamble & Fischer 1921–1935; Nair & Henry 1983; Matthew 1991). Author citation followed The Plant List (http://theplantlist.org) and POWO (2021).

Reproductive phenophase of trees

A total of 525 individuals, five individuals each per species were marked with paint to record flowering, and fruiting phenophases of trees. All the marked individuals were observed monthly (during first week of the month) for the period of two years. Woody plants which had flowers and fruits (young, mature and dried) were considered as 'reproducing'.

RESULTS AND DISCUSSION

Species richness and lifeform

The qualitative plant survey allowed us to record a sum of 105 woody plant species spread in 83 genera and 37 families. The most speciose family in the study area is Fabaceae (36 species) followed by Bignoniaceae (5), and Rubiaceae (4). Ten families had two species each,

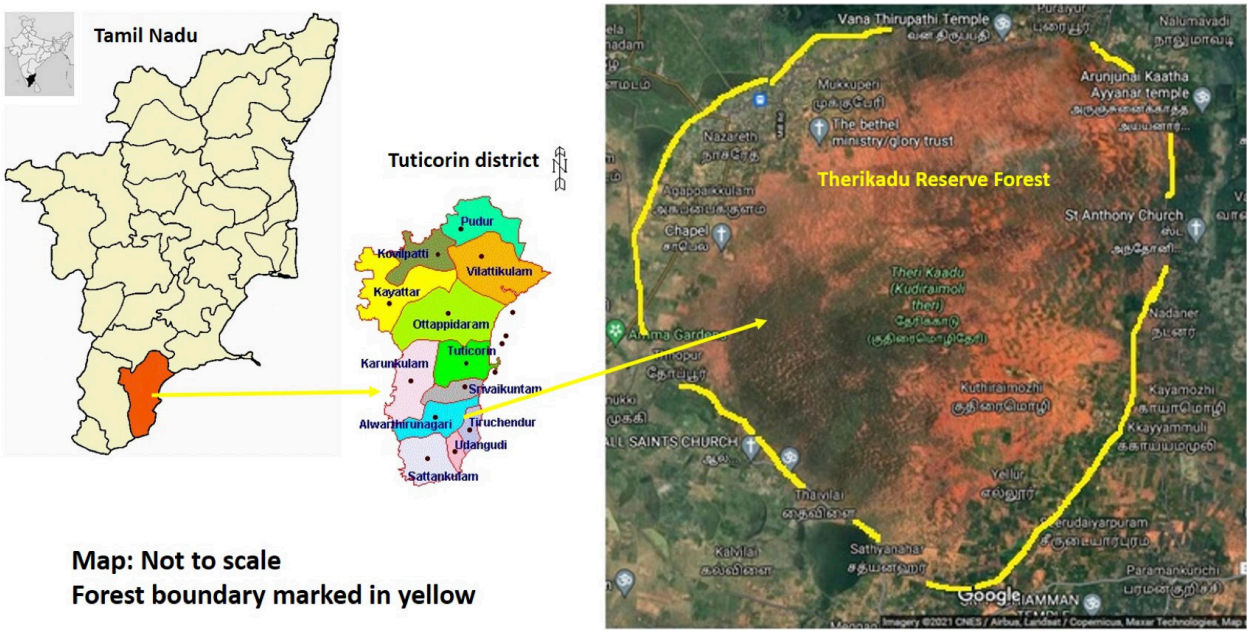

Image 1. Map of study area wherein qualitative study was conducted to record woody plant wealth.

eight families represented by three species each, while 16 families represented by just single species' each in CUTF (Table 1; Image 2, 3).

Of 105 woody species 78 are trees, 17 are shrubs and 10 lianas. One-third of the recorded species are introduced to the ecosystem by the forest department. The study area also had a significant number of economically important and cultivated species (Table 1). The forest department planted this species, and they are growing well within TRF.

Acacia planifrons, *Borassus flabellifer*, *Dalbergia spinosa*, *Dodonaea viscosa*, *Morinda coreia*, and *Tecomella undulata* are commonly present in the study area. Non-native species such as *Acacia auriculiformis*, *A. holosericea*, *A. melanoxylon, Cordia sebestena, Eucalyptus tereticornis, Millingtonia hortensis, Spathodea companulata, Senna siamea, Tabebuia rosea*, and *Tectona grandis* were planted by the forest department to enhance the green cover. Eleven non-native fruit yielding trees including *Anacardium occidentale*, *Annona squamosa*, *Carica papaya*, *Cocos nucifera*, and *Psidium guajava* were planted in and around the sacred groves.

Woody plant richness recorded from the study area is higher than in similar CUTF ecosystem (44 species including 17 trees, 8 lianas, and 19 shrubs) flourishing within Hosur Forest Division (Tiwari & Ravikumar 2018a) and Dharmapuri district of Tamil Nadu, India (21 trees, 7 lianas, and 25 shrubs) (Tiwari & Ravikumar 2018b). The CUTF of Thoothukudi endowed with a greater number of species than in other dry forests of Tamil Nadu. For example, Nagaraj & Udayakumar (2021) and Evitex-Izayas & Udayakumar (2021) recorded 18 (14 genera and 11 families) and 26 species (19 genera and 15 families) from southern thorn forest ecosystems in Vallanadu blackbuck sanctuary and Uthumalai reserve forest, respectively. The STF in Krishnagiri and Dharmapuri districts endowed with a sum of 52 woody species each (Tiwari & Ravikumar 2018a,b).

However, species richness of TRF is similar to that of southern dry mixed deciduous forest, Hosur, Tamil Nadu (56 trees, 7 lianas, and 42 shrubs, total 105 species; Tiwari & Ravikumar 2018a). Conversely, species richness of study area is lower than that of the tropical dry evergreen forest (TDEF) of Coromandel Coast, Tamil Nadu (86 trees and 44 lianas; as in Udayakumar & Parthasarathy 2012). The study also designated 149 woody species as core TDEF species.

Reproductive phenology of woody plants

Among 105 woody species, 23 species started to produce flowers and fruits during the month of February, gradually the number reduced in to one during the month of August. Notably, one-fourth of all the recorded species flowered and fruited throughout the year (Table 1). The length of the reproductive phenophase varied from two to twelve months. A sum of 26 species had 12 months of reproductive phenophase, three species had 10 months, while two species had just three months in study area. The mean length of reproductive

Table 1. Binomial, family, life form, flowering and fruiting seasons of woody plants recorded from CUTF of Therikadu Reserve Forest, southern India. (Introduced species are marked with an asterisk '*' symbol).

	Botanical name	Family	Life form	Flowering and fruiting seasons
1	*Abrus precatorius* L.	Fabaceae	Liana	Throughout the year
2	**Acacia auriculiformis* Benth.	Fabaceae	Tree	February–June
3	**Acacia chundra* (Rottler) Willd.	Fabaceae	Tree	Throughout the year
4	*Acacia horrida* (L.)Willd.	Fabaceae	Tree	July–November
5	**Acacia holosericea* G.Don	Fabaceae	Tree	June–October
6	*Acacia nilotica* (L.) Delile	Fabaceae	Tree	July–December
7	*Acacia planifrons* Wight & Arn.	Fabaceae	Tree	February–March
8	**Acacia senegal* (L.) Willd.	Fabaceae	Tree	July–February
9	**Acacia melanoxylon* R.Br.	Fabaceae	Tree	February–October
10	*Aegle marmelos* (L.) Correa	Rutaceae	Tree	Throughout the year
11	*Ailanthus excelsa* Roxb.	Simaroubaceae	Tree	January–April
12	*Albizia amara* (Roxb.) B.Boivin	Fabaceae	Tree	September–June
13	*Albizia lebbeck* (L.) Benth.	Fabaceae	Tree	February–May
14	**Anacardium occidentale* L.	Anacardiaceae	Tree	March–May
15	**Annona squamosa* L.	Annonaceae	Tree	April–July
16	*Anogeissus latifolia* (Roxb.ex DC.) Wall. ex Guillem. & Perr.	Combretaceae	Tree	August–February
17	*Azadirachta indica* A.Juss.	Meliaceae	Tree	April–July
18	*Barringtonia acutangula* (L.) Gaertn.	Lecythidaceae	Tree	February–April
19	**Bauhinia malabarica* Roxb.	Fabaceae	Tree	November–April
20	*Bauhinia racemosa* Lam.	Fabaceae	Tree	September–January
21	**Borassus flabellifer* L.	Arecaceae	Tree	March–June
22	**Caesalpinia pulcherrima* (L.) Sw.	Fabaceae	Tree	February–June
23	*Canthium coromandelicum* (Burm.f.) Alston	Rubiaceae	Shrub	January–June
24	**Carica papaya* L.	Caricaceae	Shrub	Throughout the year
25	**Cassia fistula* L.	Fabaceae	Tree	March–February
26	**Casuarina equisetifolia* L.	Casuarinaceae	Tree	June–December
27	*Catunaregam spinosa* (Thunb.) Tirveng.	Rubiaceae	Shrub	February–December
28	*Ceiba pentandra* (L.) Gaertn.	Malvaceae	Tree	February–June
29	*Cissus quadrangularis* L.	Vitaceae	Liana	February–October
30	*Cissus vitiginea* L.	Vitaceae	Liana	June–November
31	*Cissus heyneana* Planch.	Vitaceae	Liana	July–November
32	**Citrus aurantiifolia* (Christm.) Swingle	Rutaceae	Shrub	Throughout the year
33	**Citrus limon* (L.) Osbeck	Rutaceae	Shrub	February–September
34	**Cocos nucifera* L.	Arecaceae	Tree	Throughout the year
35	*Coccinia grandis* (L.) Voigt	Cucurbitaceae	Liana	Throughout the year
36	*Cocculus hirsutus* (L.) W.Theob.	Minispermaceae	Liana	July–March
37	*Commiphora berryi* (Arn.) Engl.	Burseraceae	Shrub	Throughout the year
38	**Cordia sebestena* L.	Boraginaceae	Shrub	Throughout the year
39	*Ctenolepis garcini* (L.) C.B.Clarke	Cucurbitaceae	Liana	September–April
40	*Crateva religiosa* G.Forst.	Capparaceae	Tree	January–August
41	*Dalbergia spinosa* Roxb.	Fabaceae	Shrub	March–August
42	*Dalbergia sissoo* DC.	Fabaceae	Tree	February–May
43	*Delonix elata* (L.) Gamble	Fabaceae	Tree	April–August
44	**Delonix regia* (Hook.) Raf.	Fabaceae	Tree	April–August
45	*Dichrostachys cinerea* (L.) Wight & Arn.	Fabaceae	Tree	February–June
46	*Dichrostachys santapaui* Sebast. & Ramam.	Fabaceae	Tree	May–December
47	*Erythrina variegata* L.	Fabaceae	Tree	April–July

	Botanical name	Family	Life form	Flowering and fruiting seasons
48	**Eucalyptus tereticornis* Sm.	Myrtaceae	Tree	April–August
49	*Ficus benghalensis* L.	Moraceae	Tree	February–June
50	*Ficus mollis* Vahl	Moraceae	Tree	May–August
51	*Ficus religiosa* L.	Moraceae	Tree	March–May
52	*Flacourtia indica* (Burm.f.) Merr.	Salicaceae	Shrub	December–August
53	*Flueggea virosa* (Roxb.ex Willd.) Royle	Phyllanthaceae	Shrub	October–January
54	**Gliricidia sepium* (Jacq.) Walp.	Fabaceae	Tree	February–May
55	*Gmelina arborea* Roxb.	Lamiaceae	Tree	Throughout the year
56	*Guettarda speciosa* L.	Rubiaceae	Tree	February–June
57	*Hardwickia binata* Roxb.	Fabaceae	Tree	June–April
58	*Holoptelea grandis* (Hutch.) Mildbr.	Ulmaceae	Tree	February–March
59	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Tree	April–June
60	*Lawsonia inermis* L.	Lythraceae	Shrub	January–June
61	**Lysiloma latisiliquum* (L.) Benth.	Fabaceae	Tree	Throughout the year
62	**Leucaena leucocephala* (Lam.) de Wit	Fabaceae	Tree	Throughout the year
63	*Madhuca longifolia* (J.Koenig ex L.) J.F.Macbr.	Sapotaceae	Tree	October–April
64	*Mangifera indica* L.	Anacaridiaceae	Tree	January–June
65	**Manilkara zapota* (L.) P.Royen	Sapotaceae	Tree	February - June
66	*Melia azedarach* L.	Meliaceae	Tree	March–September
67	**Millingtonia hortensis* L.f.	Bigononiaceae	Tree	February–May
68	*Morinda coreia* Buch.-Ham.	Rubiaceae	Tree	Throughout the year
69	*Moringa oleifera* Lam.	Moringaceae	Tree	March–October
70	**Muntingia calabura* L.	Muntingiaceae	Tree	Throughout the year
71	**Nyctanthes arbor-tristis* L.	Oleaceae	Tree	Throughout the year
72	*Pandanus odorifer* (Forssk.) Kuntze	Pandanaceae	Shrub	October–April
73	**Parkinsonia aculeata* L.	Fabaceae	Tree	Throughout the year
74	*Pergularia daemia* (Forssk.) Chiov.	Apocynaceae	Liana	Throughout the year
75	*Peltophorum pterocarpum* (DC.) K.Heyne	Fabaceae	Tree	January–April
76	*Pongamia pinnata* (L.) Pierre	Fabaceae	Tree	February–October
77	**Pterocarpus santalinus* L.f.	Fabaceae	Tree	January–May
78	**Phyllanthus acidus* (L.) Skeels	Phyllanthaceae	Shrub	Throughout the year
79	*Phyllanthus emblica* L.	Phyllanthaceae	Tree	March–June
80	*Pisonia grandis* R.Br.	Nyctaginaceae	Shrub	September - October
81	**Pithecellobium dulce* (Roxb.) Benth.	Fabaceae	Tree	January–April
82	**Plumeria rubra* L.	Apocynaceae	Shrub	January–June
83	**Polyalthia longifolia* (Sonn.) Thwaites	Annonaceae	Tree	April–June
84	**Prosopis chilensis* (Molina) Stuntz	Fabaceae	Tree	Throughout the year
85	**Prosopis juliflora* (Sw.) DC	Fabaceae	Tree	Throughout the year
86	**Psidium guajava* L.	Myrtaceae	Tree	March–August
87	*Rivea hypocrateriformis* Choisy	Convolvulaceae	Liana	Octobe–April
88	*Sapindus emarginatus* Vahl	Sapindaceae	Tree	Throughout the year
89	*Sapindus trifoliatus* L.	Sapindaceae	Tree	November–March
90	**Spathodea campanulata* P.Beauv.	Bignoniaceae	Tree	December–March
91	*Saraca asoca* (Roxb.) Willd.	Fabaceae	Tree	Throughout the year
92	**Senna siamea* (Lam.) H.S.Irwin & Barneby	Fabaceae	Tree	Throughout the year
93	*Stereospermum chelonoides* (L.f.) DC.	Bignoniaceae	Tree	April–June
94	*Syzygium cumini* (L.) Skeels	Myrtaceae	Tree	May–November
95	**Tabebuia rosea* (Bertol.) Bertero ex A.DC.	Bigononiaceae	Tree	Throughout the year
96	**Tamarindus indica* L.	Fabaceae	Tree	December - June
97	*Tecomella undulata* (Sm.) Seen.	Bigononiaceae	Tree	January–October
98	*Tectona grandis* L.f.	Lamiaceae	Tree	February–August

	Botanical name	Family	Life form	Flowering and fruiting seasons
99	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.	Combretaceae	Tree	February–August
100	*Terminalia catappa* L.	Combretaceae	Tree	February–May
101	*Thespesia populnea* (L.) Sol. ex Correa	Malvaceae	Tree	Throughout the year
102	*Thespesia populneoides* (Roxb.) Kostel.	Malvaceae	Tree	Throughout the year
103	*Tinospora sinensis* (Lour.) Merr.	Menispermaceae	Liana	February–June
104	**Ziziphus jujuba* Mill.	Rhamanaceae	Shrub	November–July
105	*Ziziphus xylopyrus* (Retz.) Willd.	Rhamanaceae	Shrub	May–July

Image 2. A—Forest boundary with *Acacia* | B—Forest stand with palmyra | C—*Acacia holosericea* | D—*Tecomella undulata* | E—*Ficus benghalensis* | F—Forest stand | G—Trunk of *Acacia planifrons* | H—*Anacardium occidentale*. © A–C,D—V. Muneeswaran; E–G, H—M. Udayakumar.

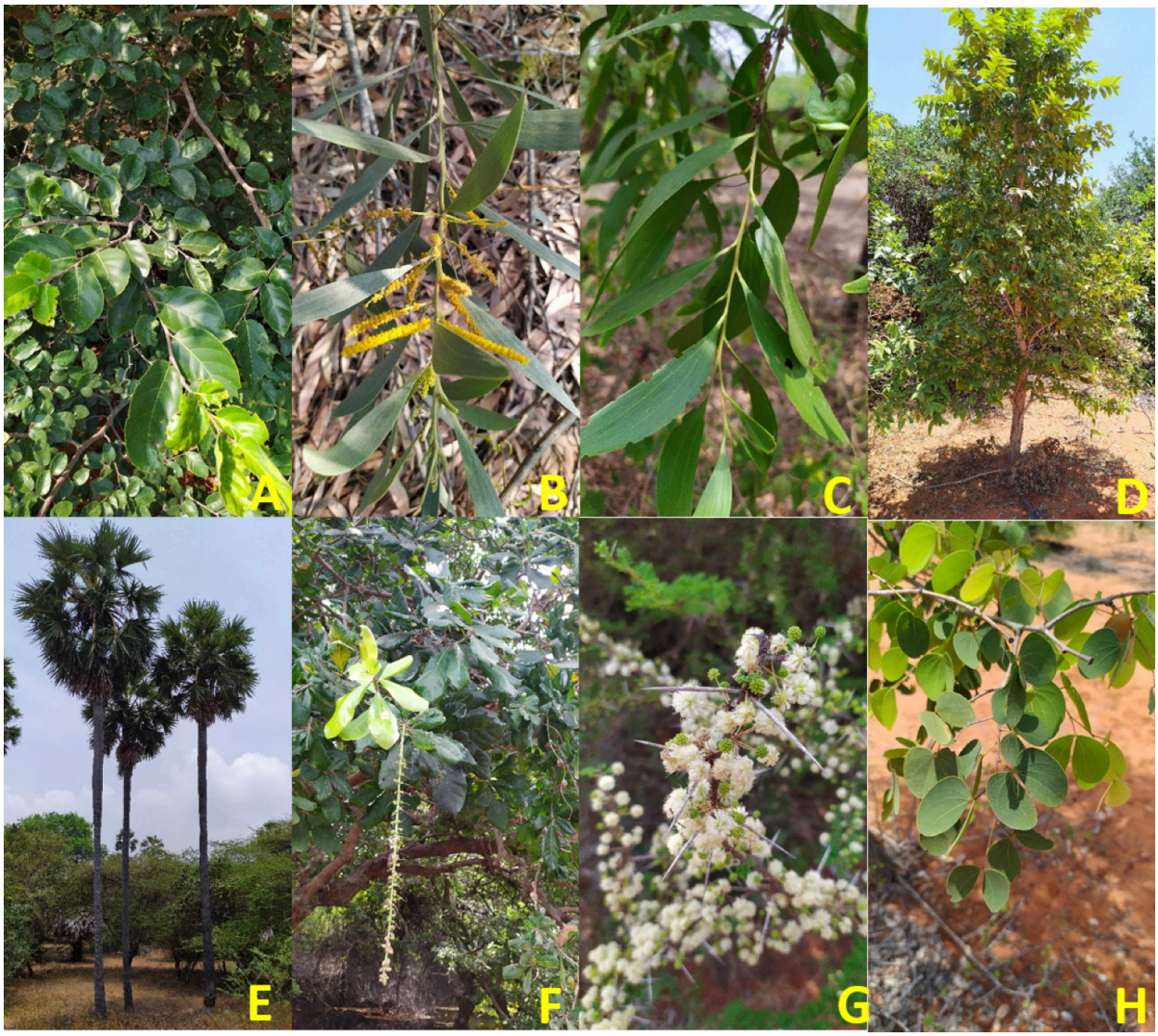

Image 3. A—*Holoptelea grandis* | B—*Acacia holosericea* | C—*A. auriculiformis* | D—*Wrightia tinctoria* | E—*Borassus flabellifer* | F—*Barringtonia acutangular* | G—*Acacia planifrons* | H—*Hardwickia binata*. © A,C,E— M. Udayakumar; B,D,F,G,H—V. Muneeswaran.

phenophase recorded as 7.25±3.26months.

The TRF is relatively undisturbed compared to other forests. Reserve forest category and the presence of sacred groves within the TRF are reasons behind the protection. In addition, people dwelling around the TRF never collect any part of the plant for personal uses, they consider TRF as a home for their deity.

CONCLUSION

Woody plant wealth of CUTF existing within the Therikadu Reserve Forest is higher than in CUTF of Krishnagiri and Dharmapuri districts of Tamil Nadu. The forest flourishing in a dry environment and endowed with a moderate diversity of native trees. The occurrence of the larger specimens of *Acacia planifrons* indicates that TRF is relatively undisturbed for at least 50 years. Additionally, one can witness a large number of downed and decaying dead woods and trees within the forest, no one collect these deadwoods for any uses. The reserve forest and sacred grove statuses are keeping TRF as an intact and relatively undisturbed ecosystem.

REFERENCES

Champion, H.G. & S.K. Seth (1968). *A revised Survey of the Forest Types of India*. Government of India Press, New Delhi, India, 404 pp.

Evitex-Izayas, J. & M. Udayakumar (2021). Density, diversity and community composition of trees in tropical thorn forest, peninsular

India. *Current Botany* 12: 138-145.

Gamble, J.S. & C.E.C. Fischer (1921–35). *Flora of the Presidency of Madras*. 3 Vols. Adlard and Son Ltd, London, 1864 pp.

Matthew, K.M. (1991). *An excursion Flora of Central Tamil Nadu*. Rapinat Herbarium, Thiruchirappalli, India, 647 pp.

Montagnini, F. & C.F. Jordan (2005). *Tropical Forest Ecology: The Basis for Conservation and Management*. Springer, Heidelberg, Germany, 295 pp.

Nagaraj, M. & M. Udayakumar (2021). Aboveground Biomass Stockpile of Trees in Southern Thorn Forest, Tuticorin. *Current World Environment* 16(3): 755–763.

Nair, N.C. & A.N. Henry (1983). *Flora of Tamil Nadu, India*. Series I: Analysis. Vol. 1. Botanical Survey of India, Coimbatore, India, 184 pp.

Nair, N.C. & S.R. Srinivasan (1981). Observation on the botany of Ramanathapuram district, Tamil Nadu. *The Bulletin of the Botanical Survey of India* 23(1-4): 74-78.

POWO (2021). https://powo.science.kew.org/. Accessed on June 2022.

Selvakumari, R. & T.J.S. Rajakumar (2012). Wild edible plants of Kudiraimozhi theri in Tuticorin district, Southern India. *Journal of Non-Timber Forest Products* 19(3): 245-246.

Singh, M., D.G. Lindburg, A. Udhayan, M.A. Kumar & H.N. Kumara (1999). Status survey of slender loris *Loris tardigradus lydekkerianus* in Dindigul, Tamil Nadu. *Oryx* 33(1): 31–37.

The Plant List (2021). http://www.theplantlist.org/. Accessed on May 2021.

Thoothukudi District Website (2021). https://thoothukudi.nic.in/. Accessed on May 2021.

Tiwari, U.L. & K. Ravikumar (2018a). Floristic diversity and vegetation analysis of plants from various forest types in Hosur Forest Division, Tamil Nadu, southern India. *Notulae Scientia Biologicae* 10(4): 597–606.

Tiwari, U.L. & K. Ravikumar (2018b). Floristic diversity, vegetation analysis and threat Status of plants in various forest types in Dharmapuri Forest Division, Tamilnadu, southern India. *Notulae Scientia Biologicae* 10(2): 297–304.

Udayakumar, M. & N. Parthasarathy (2010). Angiosperms, tropical dry evergreen forests of southern Coromandel coast, India. *Check List* 6: 368–381.

Udayakumar, M. & T. Sekar (2017). Estimation of Leaf Area–Wood Density Traits Relationship in Tropical Dry Evergreen Forests of Southern Coromandel Coast, Peninsular India, pp. 169-187. In: Pandey, K., V. Ramakantha, S. Chauhan, A.A. Kumar (Eds.). *Wood is Good*, Springer, Singapore, 480 pp.

Venkatesh, A., N. Sridharan, S.A.J. Packiavathi, K.M. Selvan (2021). Occurrence of mammalian small carnivores in Kalakad-Mundanthurai Tiger Reserve, Western Ghats, India. *Journal of Threatened Taxa* 13(3): 17984–17989. https://doi.org/10.11609/jott.3670.13.3.17984-17989

Venu, U.A. & P. Velmayil (2021). Texture, minerology and geochemistry of Teri sediments from Kuthiraimozhi deposit, Southern Tamil Nadu, India. *Arabian Journal of Geosciences* 14(5): 1–15.

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
No. 12, Thiruvannamalai Nagar, Saravanampatti - Kalapatti Road,
Saravanampatti, Coimbatore, Tamil Nadu 641035, India
ravi@threatenedtaxa.org

Journal of Threatened Taxa

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

September 2022 | Vol. 14 | No. 9 | Pages: 21751–21902
Date of Publication: 26 September 2022 (Online & Print)
DOI: 10.11609/jott.2022.14.9.21751-21902

Publisher & Host

WILD ZOOREACH
Threatened Taxa