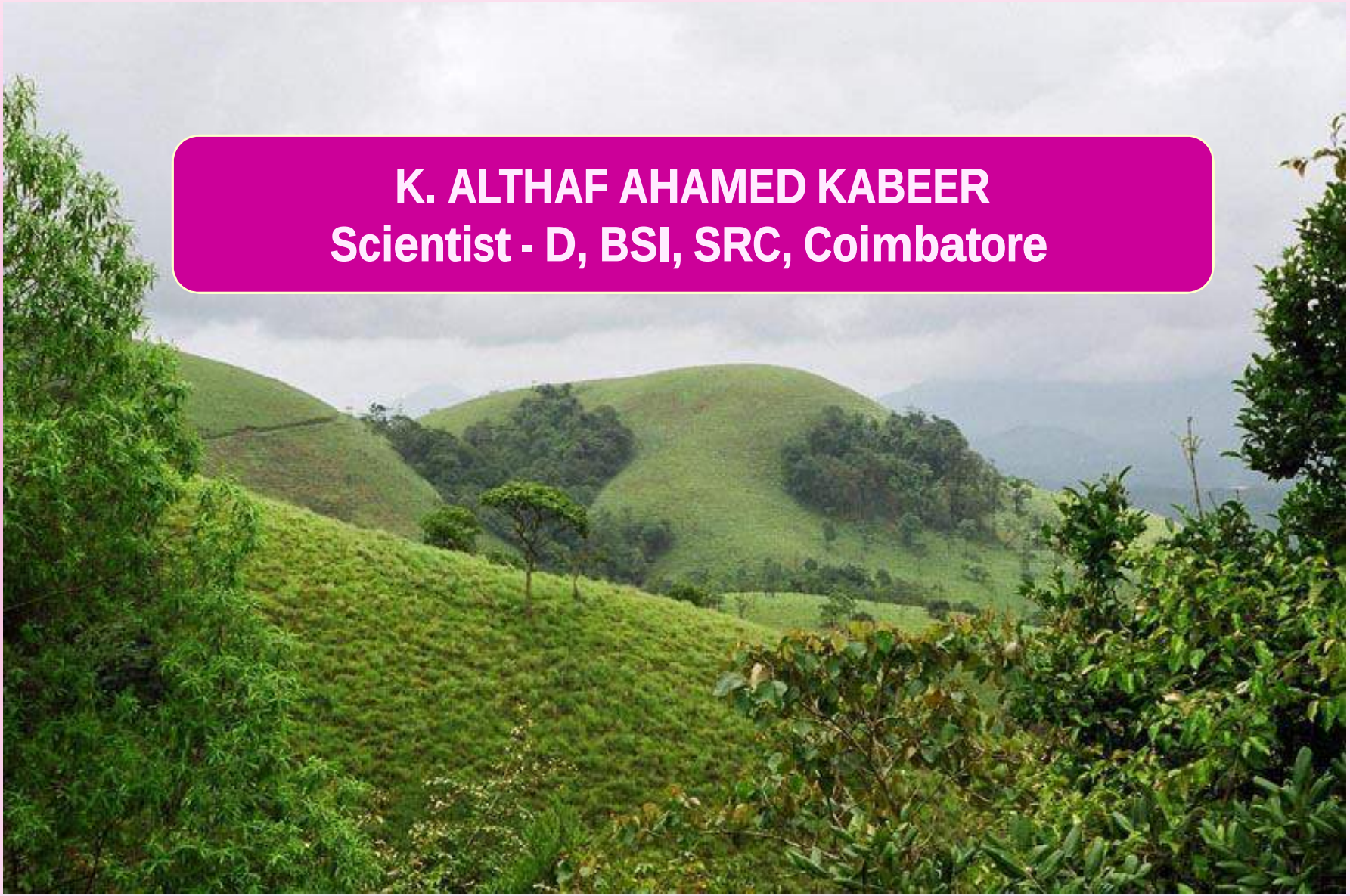
ANNUAL SCIENTIFIC MEET - 2017



K. ALTHAF AHAMED KABEER
Scientist - D, BSI, SRC, Coimbatore

Ph.D. TITLE: "A STUDY ON GRASS FLORA OF TAMIL NADU"

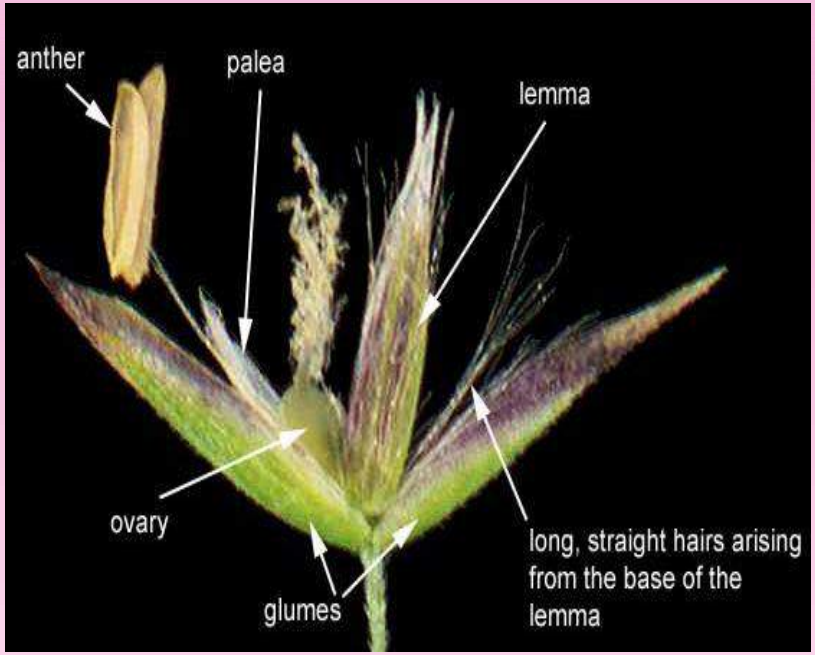
JOINED AS: Research Scholar during 2001 to 2006

UNDER: AICOPTAX –GRASS Project, MOEF& CC, New Delhi

GUIDENCE: Dr. V.J. NAIR, Emeritus Scientist, BSI SRC, Coimbatore

Ph. D. AWARDED: 2008

- Belong to Poaceae, one of the largest flowering plant families.
- Based on number of genera the third largest in the world after Asteraceae and Orchidaceae.
- Species-wise fifth in the world after Asteraceae, Orchidaceae, Leguminosae and Rubiaceae.
- Position in India first (1334 species including bamboos) followed by Orchidaceae (1229 spp.), Leguminosae (1192 spp.), Asteraceae (860 spp.), Rubiaceae (616 spp.) and Cyperaceae (545 spp.).



FLORISTIC ANALYSIS

POACEAE	WORLD	INDIA	TAMIL NADU
Genera	651	264	**145**
Species	10000	c. 1300	**442 (and 19 infraspecific taxa)**

TAMIL NADU

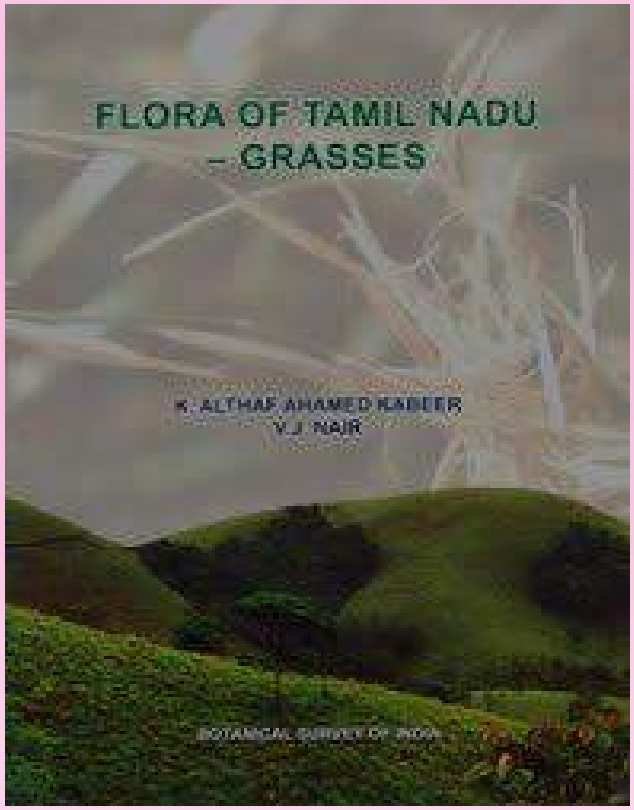
19 Tribes

145 Genera

442 species

1 subspecies

18 varieties



Book Published
YEAR - 2009
ISBN: 81-8177-031-5

Represents 37 % of total grass species of India.

Streblochaete sanjappae sp. nov

INTERESTING RESULTS

A. **Taxa new to Science**: 4

- ***Polypogon nilgiricus*** K.A.A. Kabeer & V.J. Nair
- ***Streblochaete sanjappae*** K.A.A. Kabeer & V.J. Nair
- ***Trachys copeana*** K.A.A. Kabeer & V.J. Nair
- ***Tripogon wightii*** Hook.f. var. ***kanyakumariensis*** K.A.A. Kabeer & V.J. Nair

B. **New Records for India**:

1. **Genus record: 1**

- ***Streblochaete*** Hochst. ex Pilger – known earlier from Tropical Africa, Indonesia and Philippines.

Polypogon nilgiricus K.A.A. Kabeer & V.J.Nair

2. Species records for India: 5

- *Bromus diandrus* Roth
- *Digitaria abyssinica* (A.Rich.) Stapf
- *Ehrhartra stipoides* Labill
- *Panicum plenum* Hichc. & Chase
- *Vulpia bromoides* (L.) Gray

C. **New Records for Southern India**: 4

D. **New Records for Tamil Nadu**: 6

Acrachne henrardiana (Bor) S.M.Phillips
Endemic to Tamil Nadu coast

Cenchrus glaucus Mudaliar & Sundararaj
Endemic to Tamil Nadu

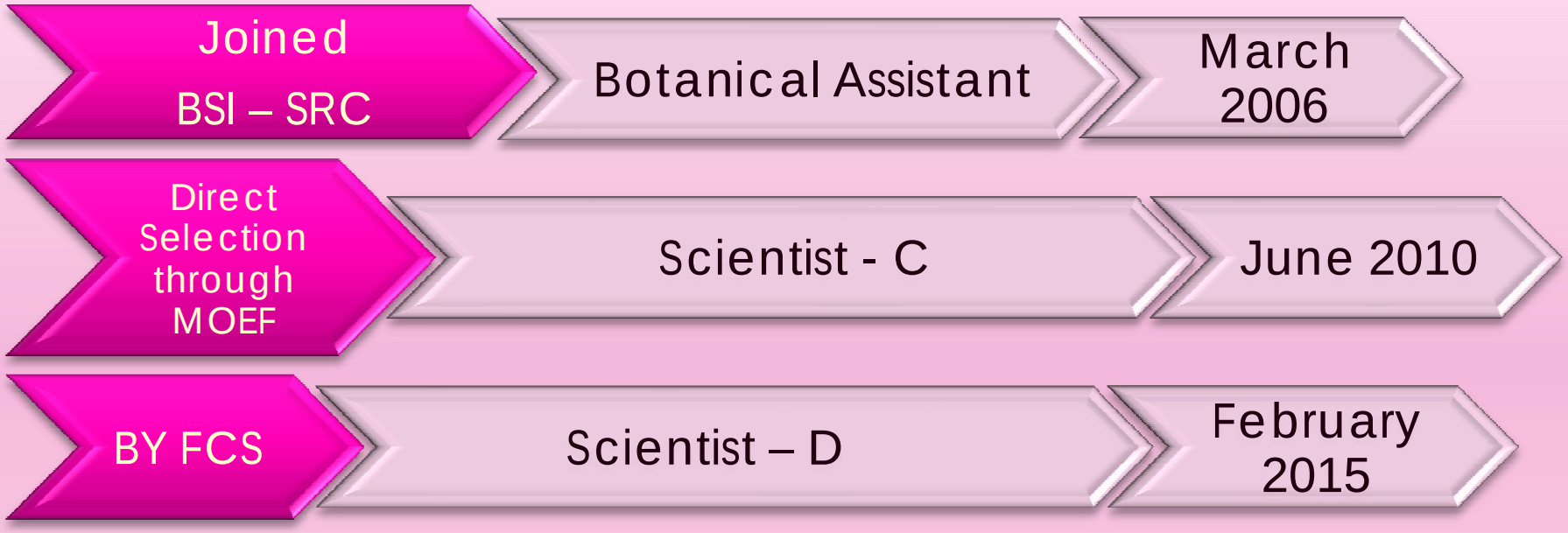
Chloris wightiana Nees ex Steud.
Endemic to Tamil Nadu

Rocky habitat of *Zenkeria sebastinei*
A.N.Henry & Chandrab.
- An Endemic Grass

Cymbopogon travancorensis Bor
Endemic to South India

Garnotia elata (Arn. ex Miq.) Janowski
Endemic to South India

Chrysopogon verticillatus (Roxb.) Trin. ex Steud.
Endemic & Rare to South India


Joined
BSI – SRC
Botanical Assistant
March
2006
Direct
Selection
through
MOEF
Scientist - C
June 2010
BY FCS
Scientist – D
February
2015

Total Annual Action Plan Projects = 08

TITLE

- **01. FLORA OF KERALA – VOL . 7: POACEAE**

Executing Scientist

- Dr. K. A. A. Kabeer, Botanical Assistant
- Dr. V. J. Nair, Emeritus Scientist, BSI - SRC

TENURE

2007 - 2011

ACHIEVEMENTS

- The family Poaceae comprises 6 subfamilies, 18 tribes, 111 genera and 394 species.
- *Trachys copeana* Kabeer & V.J. Nair – *Addition to Flora of Kerala*

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

TITLE

- **02. FLORISTIC SURVEY OF MUKURTHY NATIONAL PARK, NILGIRI BIOSPHERE RESERVE (Upper Bhavani & Sispara Range)**

Executing Scientist

- Dr. G.V.S. MURTHY, Scientist E
- Dr. K. A. A. Kabeer, Botanical Asst.

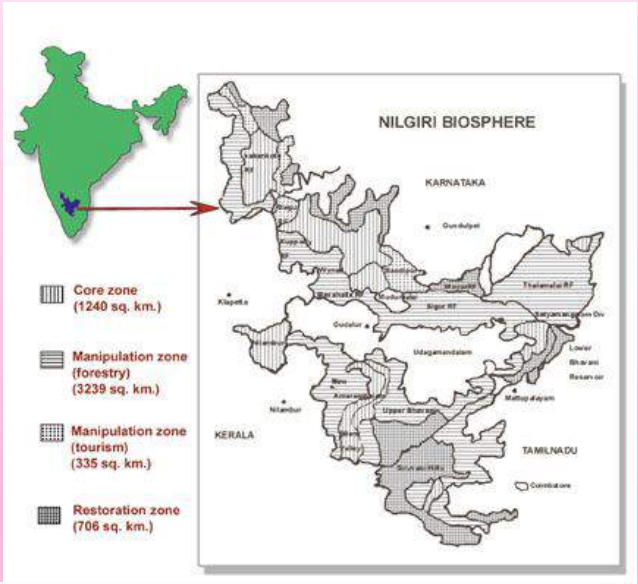
TENURE
2008 - 2011

ACHIEVEMENTS

- Mukurthi National Park - core zone of NBR with a total coverage of 78.46 sq.km., latitudes 11°10' to 11°22' and longitudes 76°26' to 76°34'
- Hills with uniform elevation (2400 m), the highest - Kolaribetta (2630 m). Other major peaks Mukurthi (2556 m) & Nilgiri peak (2477 m).
- Total of 655 Field Numbers comprising 1965 specimens collected.
- **Results showed a total collection of 218 genera, 307 taxa** (sp., subsp. & var.) belongs to 87 families.
- Possess a maximum no. of herbs (166 taxa), followed by shrubs (67 taxa), trees (36 taxa), climbers (20 taxa), epiphytes (09 taxa) and parasites (03 taxa)

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

MAP : MUKURTHI NATIONAL PARK, NILGIRI BIOSPHERE RESERVE



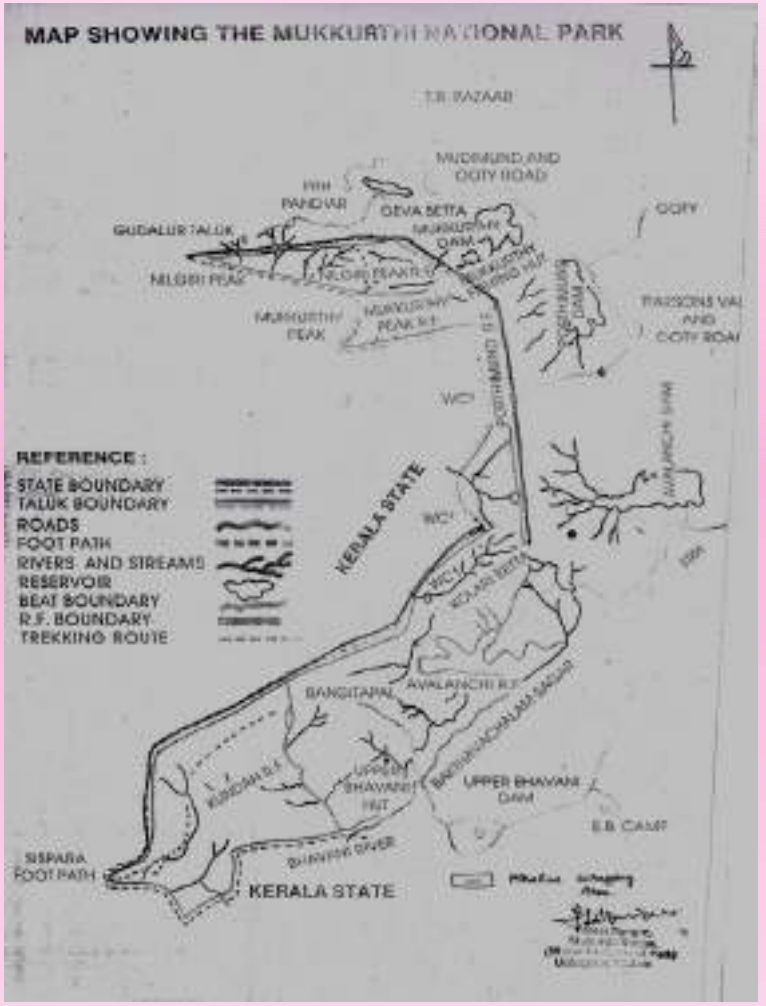


Plate - 4

Taraxacum Juninicum Soest. - Asteraceae

Impatiens clavicornu Turcz - Balsaminaceae

Impatiens leptingel Gamble ex Hook.f. - Balsaminaceae

Mahonia leschenaultii (Wall. ex Wight & Arn.) Takeda ex Gamble- Berberidaceae

Cyanotis vittata (Spreng.) Schult.f. - Commelinaceae

Cyanotis arachnoidea Clarke- Commelinaceae

Solena amplexicaulis (Lam.) Gandhi. - Cucurbitaceae

Plate - 5

Kyllinga melanosperma Nees - Cyperaceae

Drosera peltata Smith - Droseraceae

Rhododendron arboreum J.E.Smith ssp nilagiricum (Zenk.) Tagg - Ericaceae

Desmodium repandum (Vahl) DC. - Fabaceae

Ulex europaeus L. - Fabaceae

Smithia blanda Wall. ex Wight & Arn. - Fabaceae

TITLE

- **03. FLORA OF SRIVILLIPUTHUR WILDLIFE SANCTUARY, TAMIL NADU**

Executing Scientist

- Dr. K. A. A. Kabeer, Scientist - C
- Dr. G. Gnanasekaran, Botanical Asst.

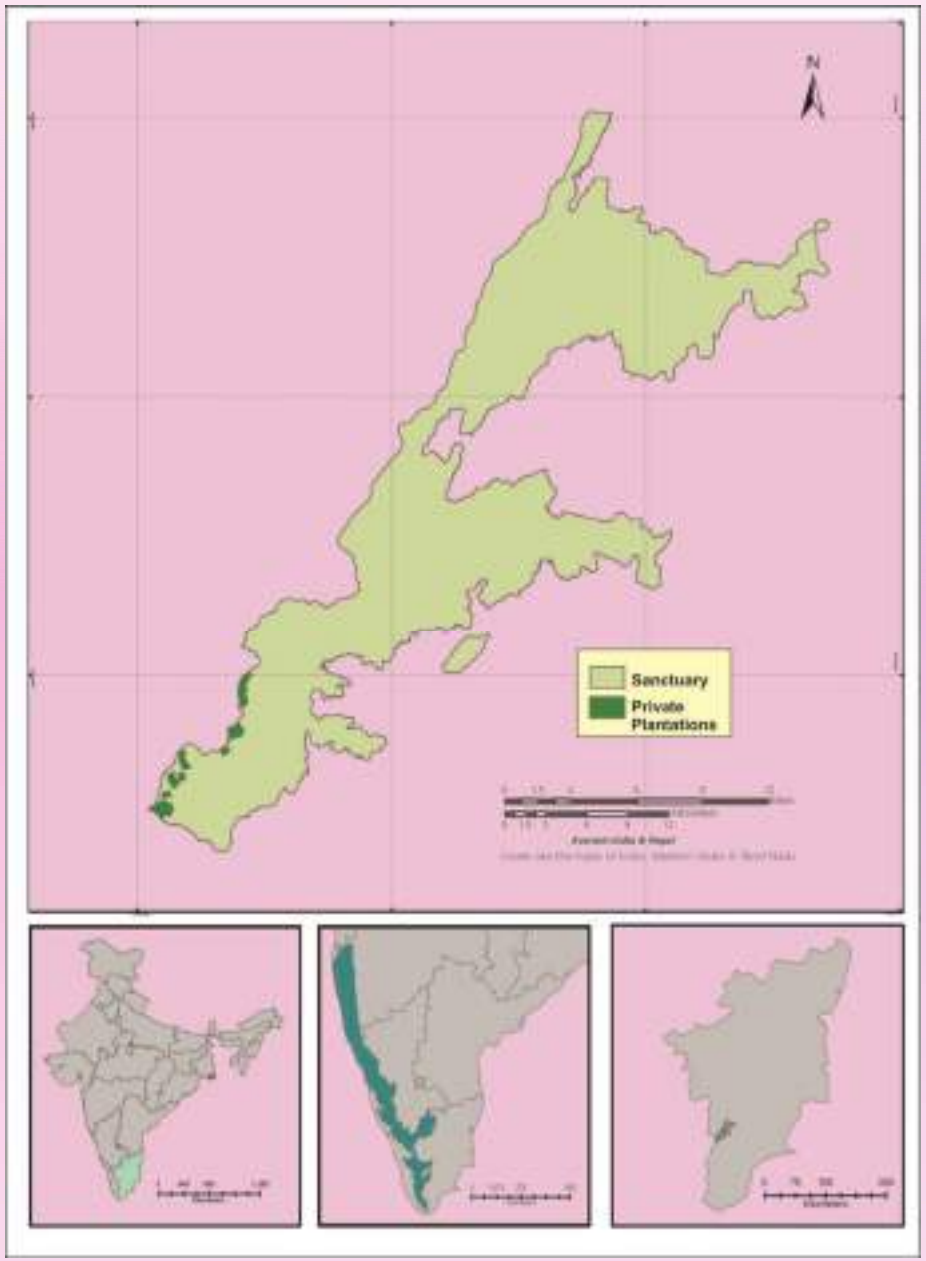
TENURE
2011 - 2015

ACHIEVEMENTS

- Grizzled Squirrel Wildlife Sanctuary, also known as Srivilliputhur Wildlife Sanctuary, established in Dec. 1988
- Located between 9° 21' to 9° 48' N and 77°21' to 77°46' E. Spreads over an area of 476.65 sq. km., in eastern slopes of Western Ghats with altitude varies from 100 MSL to 2010 MSL.
- 8 intensive tours were undertaken, collection of 1336 field numbers in triplicate
- Srivilliputhur WLS, yielded **540 species in 350 genera and 92 families.**
- Among 540 plant species , herbs (296) were dominant, followed by shrubs (106), trees (86) and climbers (52).
- SWLS represents high degree of endemism - Out of 540 taxa, 67 are endemics, of which 10 taxa are endemic to India, 29 to Peninsular India, 8 to Western Ghats and 20 to Southern Western Ghats
- One taxon is under endangered and 3 taxa in vulnerable. 30 taxa have been reported as invasive/ feral/ weeds and cultivated status.

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

Map: Srivilliputhur Wildlife Sanctuary



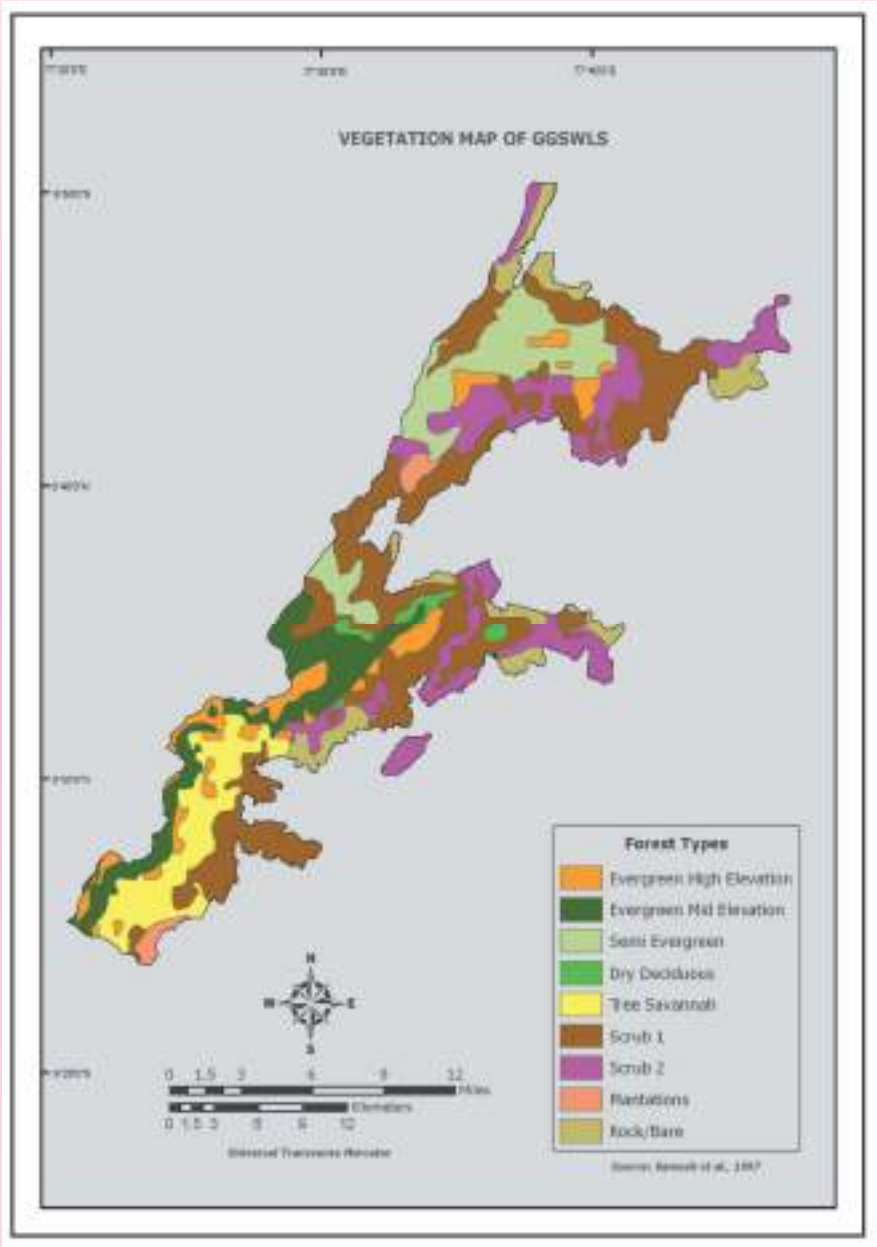


Plate 9

Flora of Srivilliputhur Wildlife Sanctuary, Tamil Nadu

A) *Goniothalamus wightii* Hook.f. & Thomson - Annonaceae

B) *Miliusa lawsonii* (Hook. f. & Thomson) Thwaites - Annonaceae

C) *Polyalthia cerasoides* (Roxb.) Bedd. - Annonaceae

D) *Polyalthia suberosa* (Roxb.) Thwaites - Annonaceae

E) *Cocculus pendulus* L. var. *hirsutus* (Buch.-Ham. ex DC.) - Menispermaceae

G) *Cadaba trifoliata* Wight & Arn - Capparaceae

F) *Pachygone ovata* (Poir.) Diels - Menispermaceae

Plate 15

Flora of Srivilliputhur Wildlife Sanctuary, Tamil Nadu

A) *Dodonaea viscosa* (L.) Jacq. - Sapindaceae

B) *Lepisanthes tetraphylla* Radlk. - Sapindaceae

C) *Rhus mysorensis* G.Don - Anacardiaceae

D) *Abrus precatorius* L. - Fabaceae

E) *Butea monosperma* (Lam.) Taub. - Fabaceae

F) *Canavalia virosa* (Roxb.) Wight & Arn. - Fabaceae

G) *Crotalaria pallida* Aiton - Fabaceae

TITLE

- **04: FLORA OF KERALA – VOL . 6 (1. Liliaceae 2. Iridaceae 3. Pontederiaceae & 4. Xyridaceae)**

Executing Scientist

- Dr. K. A. A. Kabeer, Scientist - C

TENURE
2011 - 2012

ACHIEVEMENTS

- Liliaceae: 10 genera and 18 species
- Iridaceae: 3 genera and 4 species
- Pontederiaceae: 2 genera and 3 species
- Xyridaceae: 1 genus with 4 species

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

TITLE

- **05: FLORA OF KERALA – VOL . 7 (Cyperaceae)**

Executing Scientist

- Dr. K. A. A. Kabeer, Scientist – C
- Dr. J. Herald Franklin Benjamin, Scientist - B

TENURE
2013 - 2014

ACHIEVEMENTS

- 39 genera and ca 580 species in India,
- 20 genera and 203 species in Kerala
- 33 species are in endemic status

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

Utricles of Carex species

Plate 5. Utricles of *Carex* spp.: a. *Carex baccans* Nees; b. *C. filicina* Nees var. *filicina*; c. *C. lenta* D. Don; d. *C. leucantha* Arn. ex Boott; e. *C. ligulata* Nees; f. *C. lindleyana* Nees; g. *C. maculata* Boott; h. *C. nubigena* D. Don; i. *C. phacota* Spreng.

Nuts of Scleria species

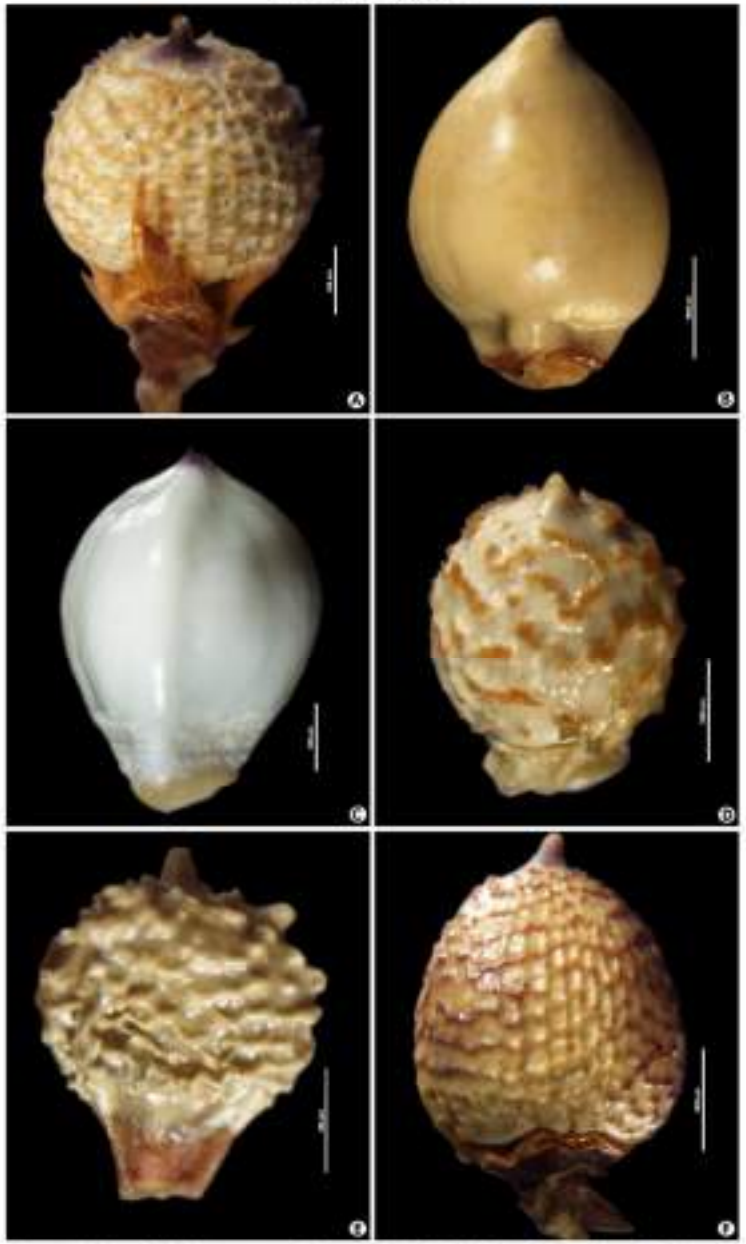


Plate 6. Nuts of *Scleria* spp.: a. *Scleria biflora* Roxb.; b. *S. corymbosa* Roxb.; c. *S. lithosperma* (L.) Sw. subsp. *lithosperma*; d. *S. lithosperma* (L.) Sw. subsp. *linearis* (Benth.) Koyama; e. *S. pergracilis* (Nees) Kunth; f. *S. terrestris* (L.) Fassett

TITLE

- **06: FLORA OF KERALA – VOL . 7 (Eriocaulaceae)**

Executing Scientist

- Shri. R.K. Premanath, Botanist
- Dr. K. A. A. Kabeer, Scientist – D
- Dr. J. Herald Franklin Benjamin, Scientist - C

TENURE
2015 - 2016

ACHIEVEMENTS

- 1 genus and ca 86 species in India,
- 1 genus and 36 species in Kerala
- 24 species are in endemic status

PROJECT COMPLETED & MANUSCRIPT SUBMITTED

TITLE

- **07: SEM Study of Caryopsis in *Eragrostis*, *Sporobolus* & *Tripogon* genera of Poaceae**

Executing Scientist

- Dr. K. A. A. Kabeer, Scientist – D

TENURE
2012 - 2017

ACHIEVEMENTS

- To study and describe the caryopsis morphology using Light and SEM, and to prepare an identification key based on caryopsis characters.
- Caryopsis studied using stereo light microscopes (Nikon SMZ1500 & Nikon Eclipse 50i) coupled with digital sight DS-Fi1 camera & Scanning Electron Microscope (Evo M18, Carl Zeiss).
- For each taxon, ca 10 to 15 matured caryopses were selected.
- Finely longitudinally striate, reticulate, striate, laterally flattened, elliptical in cross section, smooth, not grooved ventrally - all these surface characters can be very distinct from species to species.

ON GOING PROJECT

- The length of caryopses (L), was measured (in mm) parallel to the middle vertical axis including embryo tip, either in dorsal or ventral view.
- The breadth of caryopses (B) was measured (in mm) on the horizontal axis, either in dorsal or ventral view.
- The thickness of caryopses (T) was measured (in mm) at right angles to the breadth and in the same horizontal plane, such that $T \leq B$.
- The length to breadth ratio (L:B) was calculated as the length of caryopses divided by breadth and multiplied by 10.
- The thickness to breadth ratio (T:B) was calculated as the thickness of caryopses divided by breadth and multiplied by 100.

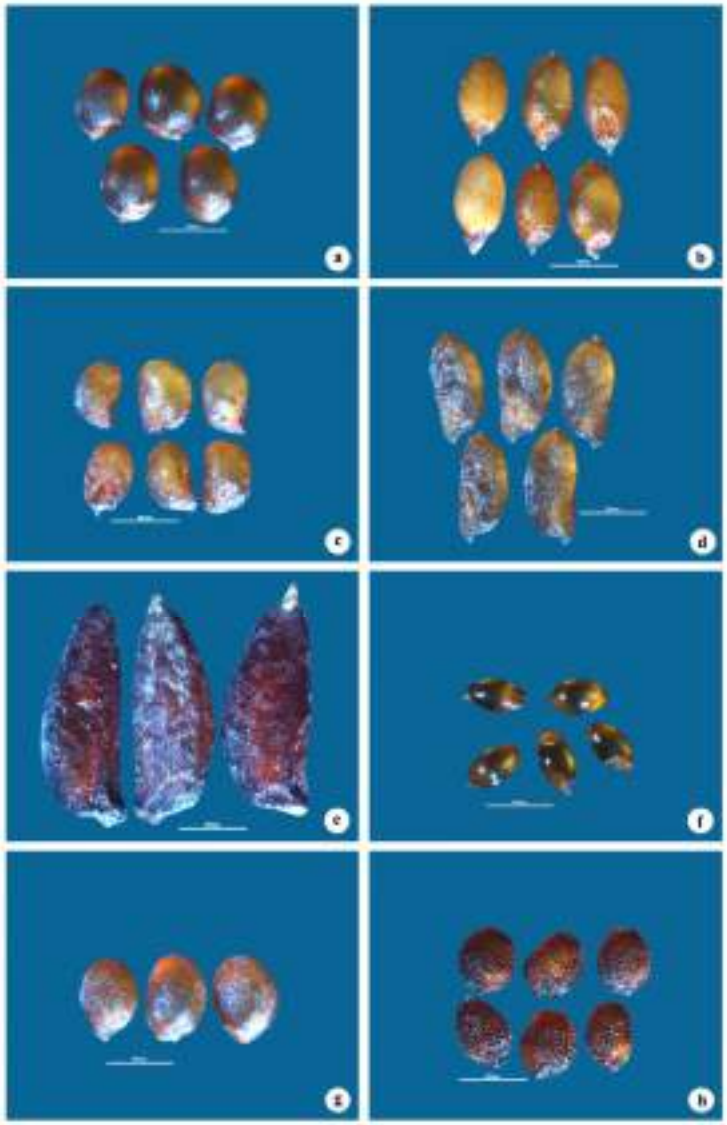


Plate 3. iv. Nikon SMZ 1500 microscopic images of caryopses of : **a.** *Eragrostis nutans* (Retz.) Nees ex Wight & Arn.; **b.** *E. pappiana* Chiov.; **c.** *E. pappposa* (Dsf.) Steud.; **d.** *E. pilosa* (L.) P. Beauv.; **e.** *E. plana* Nees; **f.** *E. riparia* (Willd.) Nees; **g.** *E. santapaui* K.G. Bhat & Nagendran; **h.** *E. schweinfurthii* Chiov.

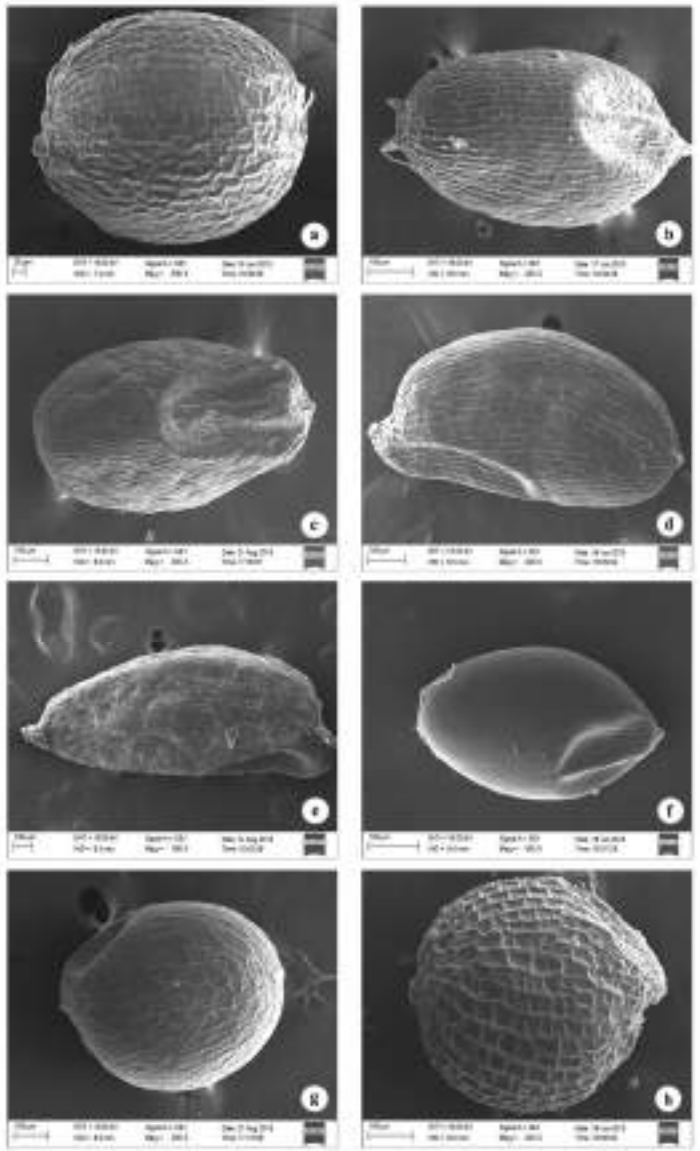


Plate 4. iv. SEM features of caryopses of : **a.** *Eragrostis nutans* (Retz.) Nees ex Wight & Arn.; **b.** *E. pappiana* Chiov.; **c.** *E. pappposa* (Dsf.) Steud.; **d.** *E. pilosa* (L.) P. Beauv.; **e.** *E. plana* Nees; **f.** *E. riparia* (Willd.) Nees; **g.** *E. santapaui* K.G. Bhat & Nagendran; **h.** *E. schweinfurthii* Chiov.

Caryopses of Sporobolus

I. Light microscopic images

II. SEM images

III. Surface ornamentation with SEM

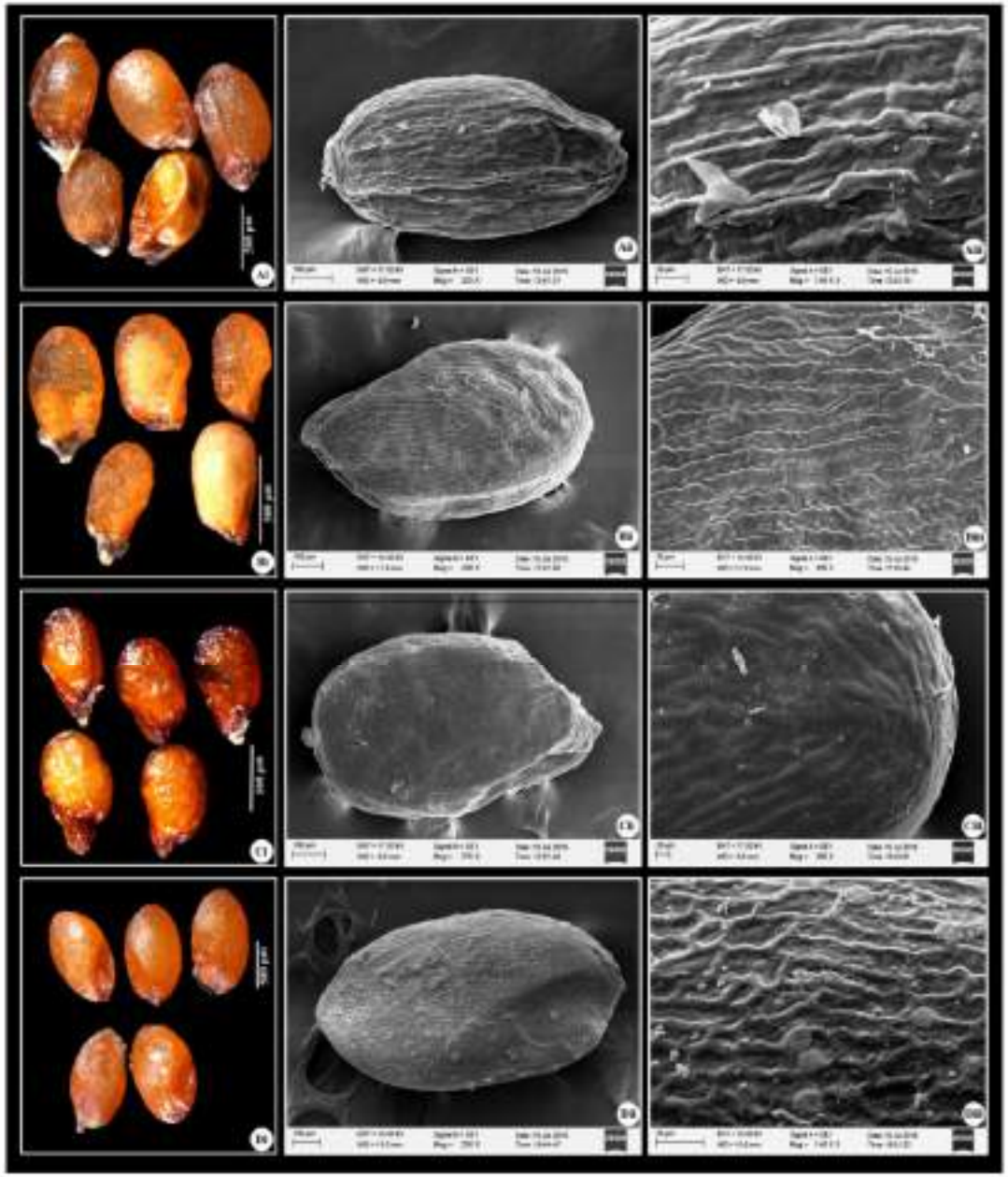


Plate. Ve. 1. Microscopic image; 2. SEM image; 3. SEM image – enlarged.

A1, A2, A3 – *Sporobolus humilis* subsp. *minor* Veldkamp; **B1, B2, B3** – *S. ioclados* (Trin.) Nees; **C1, C2, C3** – *S. madraspatanus* Bor; **D1, D2, D3** – *S. piliferus* (Trin.) Kunth

TITLE

- **08. FLORA OF KODAIKANAL WILDLIFE SANCTUARY, TAMIL NADU**

Executing Scientist

- Dr. K. A. A. Kabeer, Scientist - D
- Shri. A. Ravi Kiran, Botanical Asst.

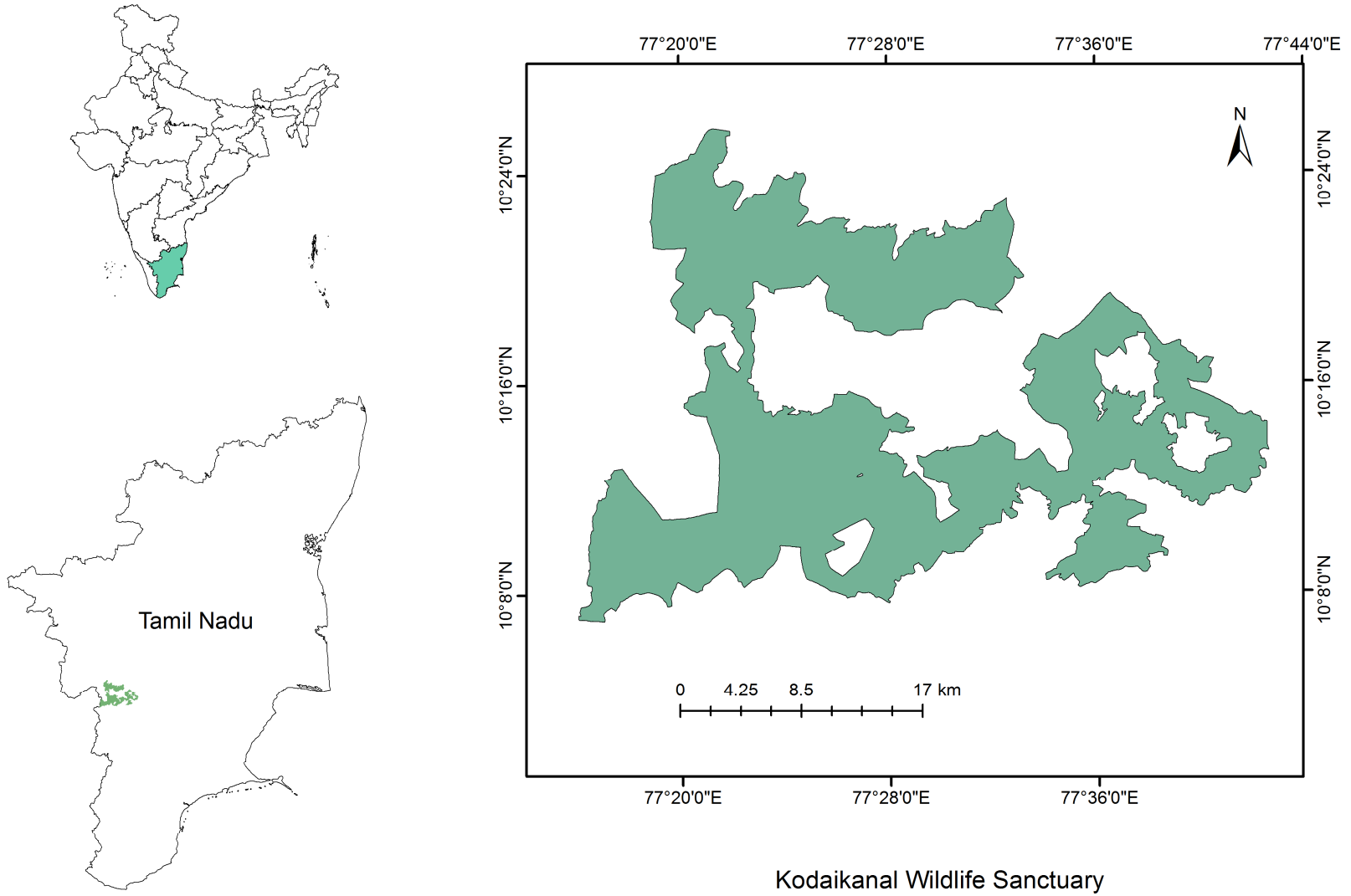
TENURE
2015 - 2020

ACHIEVEMENTS

- KWLS declared on 20.09.2013 by Govt. Tamil Nadu for the purpose of protecting, propagating and developing wildlife and its environment.
- KWL S covers 608.95 Sq. Km and falls in Dindigul district and part of Theni district of Tamil Nadu.
- Total Forest Ranges in KWLS – 8; 1. Kodaikanal, 2. Berijam, 3. Vandaravu, 4. Mannavanoor, 5. Poomparai, 6. Perumpallam, 7. Deva Dhanapatti and 8. Palani - Consisting 25 Reserved forest areas.
- 5 intensive tours were undertaken, collection of 923 field numbers in triplicate
- Among them, herbs (480) were dominant, followed by trees (192), shrubs (138) and climbers (113).
- Herbarium Consultation tour to RHT Tiruchirapalli was carried for six days.
- A checklist of RET species that are found in and around KWLS has been made.
- Some of following Endemic status species was collected during field tour viz., (Red listed plants like *Cotoneaster buxifolius* Wall. ex Wight, *Magnolia nilagirica* (Zenk.) Figlar and *Symplocos cochinchinensis* (Lour.) S. Moore; endemic plants like *Anaphalis neelgerryana* (Sch.-Bip. ex DC.) DC., *Berberis tinctoria* Leschen., *Elaeocarpus recurvatus* Corner, *Garnotia elata* (Arn. ex Miq.) Janowski, *Impatiens leschenaultii* (DC.) Wall. ex Wight & Arn., *Osbeckia brachystemon* Naud., *Rhododendron arboreum* J.E. Smith ssp. *nilagiricum* (Zenk.) Tagg., *Rosa leschenaultiana* (Redout, & Thory) Wight & Arn., *Streblochaete sanjappae* Kabeer & V.J. Nair, *Syzygium densiflorum* Wall. ex Wight & Arn. and *Vernonia bourneana* W.W. Sm. were collected)

ON GOING PROJECT

Map: Kodaikanal Wildlife Sanctuary



IDENTIFICATIONS - *KWLS:*

- ***A total of 460 field numbers were identified and labelled.***
- ***Live germplasm collections of many orchids, carallumas and zingibers were sent to NOEG, Yercaud Office for germplasm conservation and further studies***

PUBLICATIONS

- ***Cotoneaster buxifolius Wall. ex Lindl., a vulnerable shrub species in Kodaikanal Wildlife Sanctuary, Tamil Nadu to Current Science***
- ***The status and extended distribution of Streblochaete sanjappae Kabeer & V.J.Nair (Poaceae) to Indian Forester***
- ***Insect entrapment by Plants in Kodaikanal Wildlife Sanctuary, India to National Academy of Science Letters***

Herbs

Christisonia neilgherrica Gardner

Luisia birchea Blume

Impatiens campanulata Wight

Impatiens viscida Wight

Aeschynanthus perrottetii A.DC.

Henckelia humboldtiana (Gardner) A.Weber & B.L.Burtt

Climbers

Cardiospermum halicacabum L. var. *luridum* (Blume) Adelb.

Clematis gouriana Roxb. ex DC.

Ceropegia juncea Roxb.

Mucuna pruriens (L.) DC. var. *hirsuta* (Wight & Arn.) Wilmot-Dear

Citrullus colocynthis (L.) Schrad.

Diplocyclos palmatus (L.) C.Jeffrey

KWLS Orchids

Calanthe sylvatica (Thouars) Lindl.

Malaxis densiflora (A.Rich.) Kuntze

Seidenfadeniella filiformis (Rchb. f.) E.A. Chr. & P. Ormerod

Diplocentrum congestum Wight

Calanthe triplicata (Willemet) Ames

Spiranthes sinensis (Pers.) Ames

Gastrochilus acaulis (Lindl.) Kuntze

Anoectochilus elatus Lindl.

KWLS Trees

Vaccinium leschenaultii Wight

Syzygium densiflorum Wall. ex Wight & Arn.

***Xantolis tomentosa* (Roxb.) Raf.**

***Elaeocarpus tuberculatus* Roxb.**

***Rhododendron arboreum* Sm. *ssp. nilagiricum* (Zenker) Tagg**

***Pittosporum neelgherrense* Wight & Arn.**

Administrative works carried out

Sr. no.	Administrative work	Period	Details
1.	**SCIENTIST IN-CHARGE**	**Worked as Officer in-charge when regular HOO was on leave.**	
2.	**DRAWING & DISBURSING OFFICER**	**Period of more than TWO Financial Years**	As a CDDO of this office from 10.12.2010 to 08.02.2011 and 28.03.2011 to 15.04.2011; 26.04.2011 to 18.7.2011; 12.01.2012 to 25.01.2012 and 29.03.2012 - 11.05.2012; 14.12.2012 to 06.03.2013 and 12.03.2013 to 10.04.2014
3.	**TECHNICAL**	**Organized & Co-organized "Training in Herbarium Methodology" conducted during May /June of every year.** **Inspected 3 Botanic Gardens under Assistance to Botanic Gardens Project of MOEF&CC.**	
4.	**IN-CHARGE FOR VARIOUS SECTIONS**	**Estate Officer** **Computer In-Charge** **Vehicle In-Charge** **Laboratory Instruments**	
5.	**MEMBER FOR VARIOUS COMMITTEES**	**Departmental Purchase & Disposal Committee; Disciplinary committee and other committees constituted time to time by HOO for verification of store and library sections, etc.**	

Summary of Projects carried out and Publications Individually/jointly

Research Activity	Contribution	Number
Number of projects carried out	Individually Jointly	3 5 (2 ongoing)
Number of books Book chapters	written /compiled /edited / contributed	3 published 1 under publication 1 published 4 submitted
Number of papers published	First author jointly or co-author	12 nos. 08 nos.
Number of new taxa	New species New variety	08 nos. 01 no.
New reports	India Regions, states	05 nos. 12 nos.

Future plan of research	
Name of the project	Kodaikanal Wildlife Sanctuary, Tamil Nadu. –ON GOING PROJECT
Name of the Executive persons	Dr. K. Althaf Ahamed Kabeer, Scientist – D Mr. A. Ravi Kiran, Bot. Asst.
No. of Field tours to be conducted	Three tours [Quarter 2 (Sept. 2017), Quarter 3 (Dec. 2017) & Quarter 4 (Feb. 2018] and one Consultation tour
Work to be done	• Identification of plants based on keys and preparation database for all specimens • Mapping of vegetation types based on IRS LISS – III multi seasonal images & Classification of vegetation types and preparation of classified maps of KWLS by GIS • Submission of a complete report on KWLS in a Flora format DURING 2020.


Thank you