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Newsletter of the Invertebrate Conservation & Information Network of South Asia (ICINSA)

Butterfly diversity of the Central University of Tamil Nadu Campus in Thiruvarur, Tamil Nadu, India

The present study was an attempt to document the butterfly diversity of the Central University of Tamil Nadu (CUTN) campus in Thiruvarur, Tamil Nadu, India. CUTN (10.819°N & 79.610°E) is situated on both sides of Vettaru River, a major tributary of Cauvery River in the heart of the Cauvery Delta, 7km to the northwest of Thiruvarur Town with 2.09 Km² of land in two revenue villages of Neelakudi and Nagakudi. The Thiruvarur district has a tropical climate, an average annual temperature of 28.5°C, and an average annual rainfall of 1,178mm. The campus is situated in a riverine freshwater wetland characterized by productive alluvial soil which attracts much floral and faunal diversity. Apart from common birds, CUTN also attracts a large number of waterbirds such as painted storks, open-billed storks, egrets, and spot-billed ducks. CUTN has varied vegetation types such as grasslands, woodlands, shrubs, and herbs.

Methods

The butterflies of CUTN were surveyed during February–December 2017. Adult butterflies were photographed and

identified with standard reference books such as Evans (1932), Wynter-Blyth (1957), Haribal (1992), Feltwell (2001), Kunte (2006) and Pajni et al. (2006). For common names of butterflies, Wynter-Blyth (1957) and Varshney (1983) were followed.

The butterfly survey was carried out between 10.00h and 16.00h on days with less than 50% cloud cover and moderate light. Census routes were conceptualized as transects with width of 12m (40ft). Totally, six line transects were made within the campus every month, totalling to 132 transects in 11 months. The directional radiuses of roughly 6m (20ft) to each side of the route were maintained for the survey. The nectar and host plant species most preferred by the butterfly species were also identified for each section of the census route.

Results and Discussion

During the study period, we recorded a total of 48 species of butterflies (Table 2) and photographed 24 butterflies falling within five families. The dominant family was Nymphalidae with 27 species, followed by

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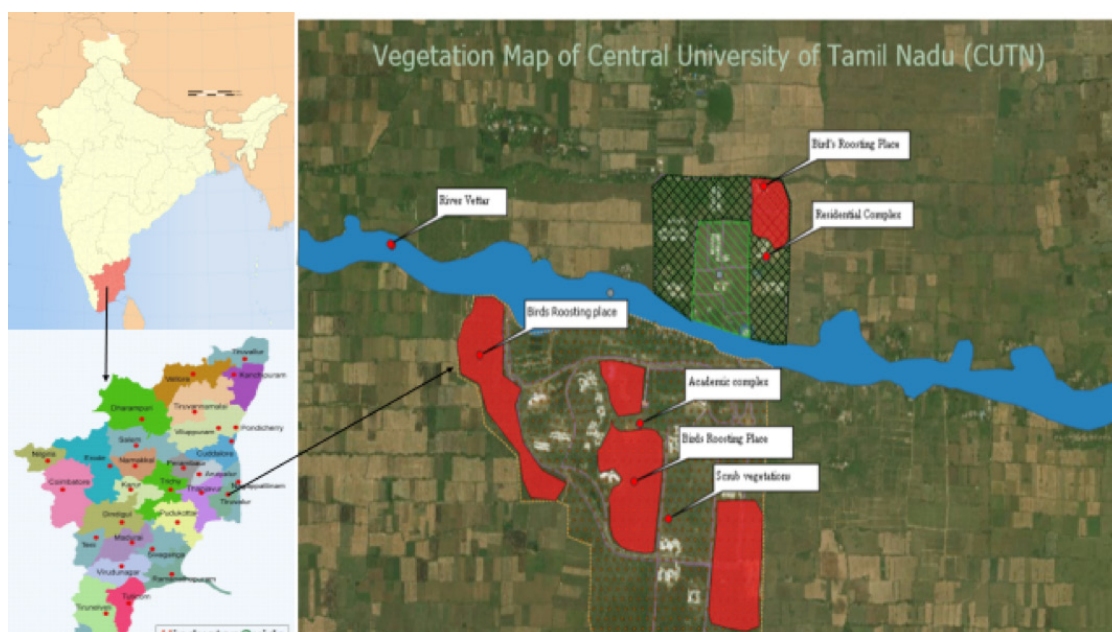
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Table 1. Nectar plant species that attract butterflies in the Central University of Tamil Nadu campus in Thiruvavur, India.

	Common name	Scientific name	Family	Habit
1	Blue Porterweed	<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Verbenaceae	Shrub
2	Common Leucas	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Herb
3	Lantana	<i>Lantana camara</i> L.	Verbanaceae	Shrub
4	Shaggy Button Weed	<i>Spermacoce hispida</i> L.	Rubiaceae	Herb
5	Burr Bush	<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Herb
6	Jungle Geranium	<i>Ixora coccinea</i> L.	Rubiaceae	Shrub
7	Coat Buttons	<i>Tridax procumbens</i> (L.) L.	Asteraceae	Herb
8	Sleepy Morning	<i>Waltheria indica</i> L.	Malvaceae	Herb
9	Little Ironweed	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Herb
10	Three-flower Beggar Weed	<i>Desmodium triflorum</i> (L.) DC.	Leguminosae	Herb
11	Purple Fruited Pea Eggplant	<i>Solanum trilobatum</i> L.	Solanaceae	Herb
12	Sessile Joyweed	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Herb
13	Devil-bean	<i>Crotalaria retusa</i> L.	Leguminosae	Shrub
14	Madagascar Periwinkle	<i>Catharanthus roseus</i> (L.) G. Don.	Appocyanaceae	Herb
15	Bitter Bush	<i>Chromolaena odorata</i> (L.) R.M. King & H. Rob.	Asteraceae	Herb
16	Indian Heliotrope	<i>Heliotropium indicum</i> L.	Boraginaceae	Shrub
17	Bellyache Bush	<i>Jatropha acroides</i> (Pax & K.Hoffm.) Hutch	Euphorbiaceae	Shrub
18	Earpod Wattle	<i>Acacia auriculiformis</i> Benth.	Leguminosae	Tree
19	Teak	<i>Tectona grandis</i> L.f.	Lamiaceae	Tree
20	Crested Flower	<i>Isodon adenanthus</i> (Diels) Kudô	Lamiaceae	Shrub
21	Ceylon Slitwort	<i>Leucas zeylanica</i> (L.) W.T. Aiton	Lamiaceae	Herb
22	China Rose	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Shrub
23	Fringed Rosemallow	<i>Hibiscus schizopetalus</i> (Dyer) Hook.f.	Malvaceae	Herb
24	Burr Bush	<i>Triumfetta rhomboidea</i> Jacq.	Malvaceae	Herb
25	Paper Flower	<i>Bougainvillea glabra</i> Choisy	Nyctaginaceae	Climbing shrub
26	Great Bougainvillea	<i>Bougainvillea spectabilis</i> Willd.	Nyctaginaceae	Climbing shrub
27	Royal Jasmine	<i>Jasminum grandiflorum</i> L.	Oleaceae	Climbing shrub
28	Winter Jasmine	<i>Jasminum multiflorum</i> (Burm.f.) Andrews	Oleaceae	Climbing shrub
29	Indian Pellet Shrub	<i>Pavetta indica</i> L.	Rubiaceae	Shrub
30	Chinese Chaste Tree	<i>Vitex negundo</i> L.	Lamiaceae	Tree
31	Crown Flower	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	Shrub
32	Indian Plum	<i>Ziziphus mauritiana</i> Lam	Rhamnaceae	Shrub
33	South West Thorn	<i>Prosopis juliflora</i> (Sw.) DC.	Fabaceae	Tree

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The Map showing Central University of Tamil Nadu campus in Thiruvavur, Tamil Nadu, India.

Lycaenidae (eight species), Pieridae (seven species), Papilionidae (five species), and Hesperidae (one species). The diversity and abundance of butterfly species were highly correlated with the availability of food plants in the surroundings (Kunte 2000; Raut 2010; Ghosh & Saha 2016). The nymphalid species (Table 1) were especially attracted by *Crotalaria retusa* which attracted migratory butterflies in December 2017.

Two nymphalids, namely *Parantica aglea* and *Danaus chrysippus*, are dominant butterfly species in CUTN. The distribution and abundance of most families except Hesperidae were highest during May–July 2017. Hesperidae was abundant in September. Tiny Grass Blue *Zizula hylax*,

Common Crow *Euploea core*, Crimson Rose *Pachliopta hector*, Common Rose *Pachliopta aristolochiae*, and Blue Pansy *Junonia orithya* were the commonest butterflies throughout the study period. The present study concluded with study conducted by (Gaude & Janarthanam, 2015). High plant diversity which provides host and food plants for butterflies. During the November–December 2017 Rattle weed *Crotalaria retusa*, *Tridax procumbens* were bloom in the campus that attracted diverse butterfly species in the campus. In the late monsoon season (September–October), the number of plants producing nectar was few; therefore, butterflies chose flowers of *Ziziphus mauritiana*, *Tridax procumbens*, and *Alternanthera sessilis* as sources of nectar in the study

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1-3 - *Cortalaria retusa* attracts a flock of Striped tiger and Blue tiger and 4 - *Prosopis juliflora* support butterflies within the Central University of Tamil Nadu campus in Thiruvavur, India.

area. During September–November, CUTN attracted a greater number of Glassy Tiger *Parantica aplea* and Striped Tiger *Danaus genutia* butterflies. The present study recorded a greater number of butterfly species during the winter season than the summer season. These findings coincide with a study conducted by Sneha (2018), which concluded that butterfly diversity and abundance varies with seasons.

Conclusion

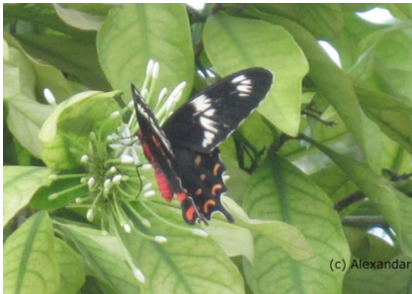
The present study was the first of its kind in exploring the butterfly diversity of CUTN. Reduction of native vegetation and

spreading of *Prosopis juliflora* are major threats to the diversity and abundance of butterfly species in the area (Tiple et al. 2007; Majumder et al. 2012). Conservation of the butterfly diversity of CUTN encompasses the conservation of the ecosystem with varieties of native herbs, shrubs, and trees with foliage, nectar, pollen, and seeds. Butterflies need diverse habitats (Ave et.al 2014) and, therefore, protection of nectar and vegetation heterogeneity within CUTN will ensure butterfly diversity as well as conservation and sustenance of the ecosystem (Tiple 2012). Conservation of butterflies is

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Butterflies recorded in the Central University of Tamil Nadu campus in Thiruvavur, India.



Pachliopta hector



Pachliopta aristolochiae



Catopsilia pomona



Delias eucharis



Castalius rosimon



Zizula hylax



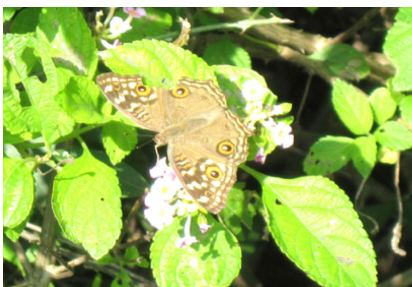
Ariadne ariadne



Hypolimnias bolina



Junonia iphita



Junonia lemonias



Junonia almana



Junonia orithya

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Tirumala limniace



Danaus chrysippus



Danaus genutia



Euploea core



Byblia ilithyia



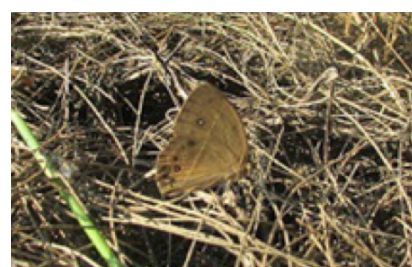
Ariadne merione



Pareronia valeria



Eurema hecabe



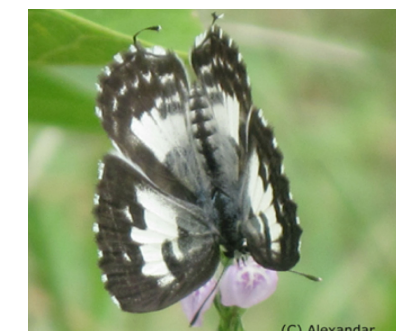
Heteropsis malsara



Papilio demoleus



Acraea terpsicore



Caleta roxus

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Table 2. Butterflies species recorded in the Central University of Tamil Nadu campus in Thiruvavur, India.

	Family	Common name	Scientific Name	Wildlife (Protection) Act Schedule (Rahul and Agarwala 2015)
1	Papilionidae	Crimson Rose	<i>Pachliopta hector</i> (Linnaeus, 1758)	Schedule I
2		Common Rose	<i>P. aristolochiae</i> (Fabricius, 1775)	
3		Red Helen	<i>Papilio helenus</i> (Linnaeus, 1758)	
4		Lime Swallowtail	<i>P. demoleus</i> (Linnaeus, 1758)	
5		Common Mormon	<i>P. polytes</i> (Linnaeus, 1758)	
6		Blue Mormon	<i>P. polymnestor</i> (Cramer, 1775)	
7	Pieridae	Mottled Emigrant	<i>Catopsilia pyranthe</i> (Linnaeus, 1758)	
8		Common Emigrant	<i>C. pomona</i> (Fabricius, 1775)	
9		Common Wanderer	<i>Pareronia valeria</i> (Cramer, 1776)	
10		Common Jezebel	<i>Delias eucharis</i> (Drury, 1773)	
11		White Cabbage	<i>Pieris brassicae</i> (Linnaeus, 1758)	
12		Green-Veined White	<i>P. napi</i> (Linnaeus, 1758)	
13		Common Grass Yellow	<i>Eurema hecabe</i> (Linnaeus, 1758)	
14		Crimson Tip	<i>Colotis danae</i> (Boisduval, 1836)	
15	Lycaenidae	Common Pierrot	<i>Castalius rosimon</i> (Fabricius, 1775)	Schedule I
16		Tiny Grass Blue	<i>Zizula hylax</i> (Fabricius, 1775)	
17		Dark Grass Blue	<i>Zizeeria karsandra</i> (Moore, 1865)	
18		Zebra Blue	<i>Leptotes plinius</i> (Fabricius, 1793)	
19		Pea Blue	<i>Lampides boeticus</i> (Linnaeus, 1767)	Schedule II
20		Common Cerulean	<i>Jamides celeno</i> (Cramer, 1775)	
21		Blue Gram	<i>Euchrysops cnejus</i> (Fabricius, 1798)	Schedule II
22		Grass Jewel	<i>Freyeria trochylus</i> (Freyer, 1845)	
23	Nymphalidae	Common Costor	<i>Ariadne merione</i> (Cramer, 1779)	
24		Great Egg Fly	<i>Hypolimnas bolina</i> (Linnaeus, 1758)	Schedule I
25		Danaid Egg Fly	<i>H. misipus</i> (Linnaeus, 1758)	Schedule II
26		Common Hedge-blue	<i>Lycaenopsis puspa prominens</i> (Toxopeus, 1927)	Schedule I
27		Chocolate Pansy	<i>Junonia iphita</i> (Cramer, 1779)	
28		White-line Bush-brown	<i>Telinga malsara</i> (Moore, 1857)	
29		Grey Pansy	<i>Junonia atlites</i> (Linnaeus, 1763)	
30		Lemon Pansy	<i>J. lemonias</i> (Linnaeus, 1758)	
31		Peacock Pansy	<i>J. almana</i> (Linnaeus, 1758)	
32		Blue Pansy	<i>J. orithya</i> (Linnaeus, 1764)	

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	Family	Common name	Scientific Name	Wildlife (Protection) Act Schedule (Rahul and Agarwala 2015)
33	Nymphalidae	Blue Tiger	<i>Tirumala limniace</i> (Cramer, 1775)	
34		Plain Tiger	<i>Danaus chrysippus</i> (Linnaeus, 1758)	
35		Striped Tiger	<i>D. genutia</i> (Cramer, 1779)	
36		Common Crow	<i>Euploea core</i> (Cramer, 1780)	Schedule IV
37		Common Five Ring	<i>Ypthima baldus</i> (Fabricius, 1775)	
38		Common Four Ring	<i>Y. huebneri</i> (Kirby, 1871)	
39		Common Leopard	<i>Phalanta phalantha</i> (Drury, 1773)	
40		Tawny Coster	<i>Acraea violae</i> (Fabricius, 1775)	
41		Baronet	<i>Euthalia nais</i> (Forster, 1771)	
42		Straight Pierret	<i>Caleta roxus</i> (Godart, 1823)	
43		Common Evening Brown	<i>Melanitis leda</i> (Linnaeus, 1758)	
44		Spotted Joker	<i>Byblia ilithyia</i> (Drury, 1773)	
45		Angled Castor	<i>Ariadne ariadne</i> (Linnaeus, 1763)	
46		Common Sailer	<i>Neptis hylas</i> (Moore, 1872)	
47		Glassy Tiger	<i>Parantica aglea</i> (Stoll, 1782)	
48	Hesperiidae	Common Straight Swift	<i>Parnara guttatus</i> (Moore, 1865)	

essential for a sustainable green campus (Mandal 2016). This study emphasizes the need for establishing a butterfly garden (Kunte 2000) within CUTN.

References

Ave Liivamagi, Valdo Kuusemets, Tanel Kaart, Jaan Luig & Isabel Diaz-Forero (2014). Influence of habitat and landscape on butterfly diversity of semi-natural meadows within forest-dominated landscapes. *J Insect Conserv* 18:1137-1145. DOI 10.1007/s10841-014-9724-7

Evans, J.H. (1932). *Identification of Indian Butterflies*. Bombay Natural History Society, Mumbai, 454pp.

Feltwell, J. (2001). *The Illustrated Encyclopedia of Butterflies*. Chartwell Books, New Jersey, USA, 288pp.

Gaude, K. & M.K. Janarthanam (2015). The butterfly (Insecta: Lepidoptera) diversity of four sacred groves of Goa, India. *Journal of Threatened Taxa* 7(12): 7927-7932; <http://dx.doi.org/10.11609/JoTT.o4228.7927-32>.

Ghosh, S. & S. Saha (2016). Seasonal diversity of butterflies with reference to habitat heterogeneity, larval host plants and nectar plants at Taki, North 24 Parganas,

West Bengal, India. *World Scientific News* 50: 197-238.

Haribal, M. (1992). *The Butterflies of Sikkim Himalaya and Their Natural History, Sikkim*. Sikkim Natural Conservation Foundation, 217pp.

Joydeb Majumder, Rahul Lodh & B.K. Agarwala (2012). Variation in butterfly diversity and unique species richness along different habitats in Trishna Wildlife Sanctuary, Tripura, northeast India. *Check List* 8(3): 432-436.

Kunte, K. (1997). Seasonal patterns in butterfly abundance and species diversity in four tropical habitats in northern Western Ghats. *Journal of Bioscience* 22(5): 593-603.

Kunte, K. (2000). *Butterflies of Peninsular India*. Universities Press, Hyderabad, India.

Kunte, K. (2000). *Butterflies of Peninsular India*. Indian Academy of Sciences, Universities Press, India, pp. 254.

Kunte, K. (2006). *India - A Lifescape, Butterflies of Peninsular India*. Universities Press (India) Private Ltd. Hyderabad, India, 254pp.

Mandal, S. (2016). Butterflies of the Rice Research Station and adjoining locality in Chinsurah, West Bengal, India. *Journal of Threatened Taxa* 8(5): 8804-8813. <https://doi.org/10.11609/jott.2815.8.5.8804-8813>

Pajni, H.R., H.S. Rose & V.K. Walia (2006). *Butterflies of North-West India - part 1*. Atma Ram & Sons, Chandigarh, India, 115pp.

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Newsletter of the
Invertebrate Conservation & Information Network of South Asia (ICINSA)

Rahul, L. & B.K. Agarwala (2015). Inventory of butterfly fauna (Lepidoptera: Rhopalocera) of Tripura, India, in the Indo-Myanmar biogeographical zone, with records of threatened taxa. *Check List* 11(2): 1591, doi: <http://dx.doi.org/10.15560/11.2.1591>

Raut, N.B. & A. Pendharkar (2010). Butterfly (Rhopalocera) fauna of Maharashtra Nature Park, Mumbai, Maharashtra, India. *Zoos' Print Journal* 6(1): 22-25.

Sneha, C. (2018). Butterflies of Peringome Vayyakara Panchayat, Kerala, India. *Journal of Threatened Taxa* 10(1): 11205–11209. <https://doi.org/10.11609/jott.2493.10.1.11205-11209>

Tiple, A.D. (2012). Butterfly species diversity, relative abundance and status in Tropical Forest Research Institute, Jabalpur, Madhya Pradesh, central India. *Journal of Threatened Taxa* 4(7): 2713–2717. <https://doi.org/10.11609/JoTT.o2656.2713-7>

Tiple, A.D., A.M. Khurad & R.L.H. Dennis (2007). Butterfly diversity in relation to a human-impact gradient on an Indian university campus. *Nota Lepidopterologica* 30(1): 179–188.

Varshney, R.K. (1983). Index Rhopalocera Indica. Part II. Common Names of Butterflies from India and Neighbouring Countries. Records of the Zoological Survey of India. *Occasional paper* No. 47, 1–47pp.

Wynter-Blyth, M.A. (1957). *Butterflies of the Indian Region*. Bombay Natural History Society. 523 PP

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