



Pocket guide to the

BUTTERFLIES

of Venkateshpura Lake, Bengaluru



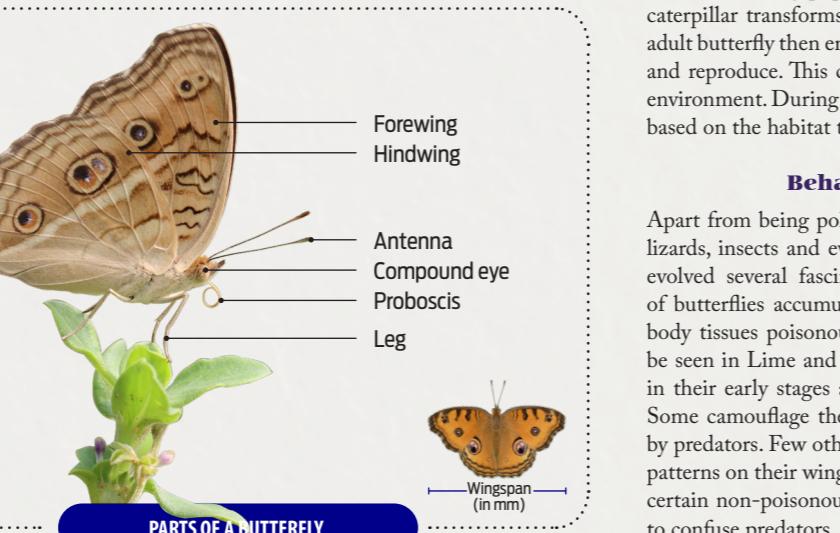
Introduction

Butterflies are important pollinators. As they move from one plant to another in search of nectar, their bodies pick up pollen and transfer it from flower to flower. The presence of diverse species of butterflies can indicate that an ecosystem is healthy and balanced, while a decline in butterfly numbers or diversity can be a sign that the ecosystem is not doing well. Moreover, butterflies are aesthetically pleasing, eye-catching, fascinating and enjoyable to watch. They can contribute to our sense of well-being and spark an appreciation for nature.

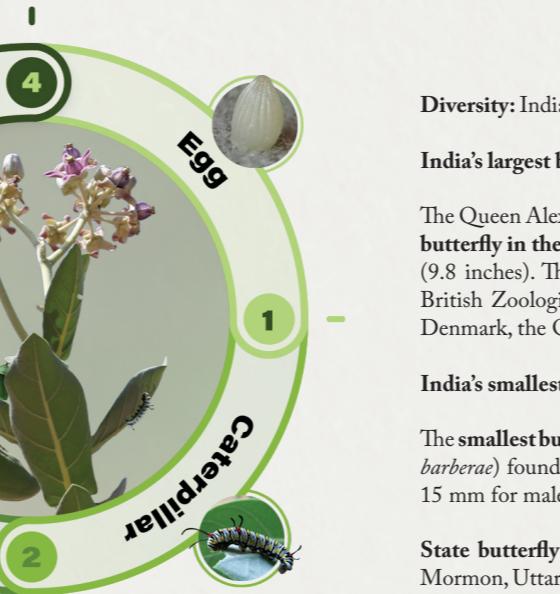
India is home to a large diversity of butterflies. Many of these species are unique or threatened. Therefore, there is an urgent need to restore their habitats and ensure that their ecological requirements are met.

Butterflies that live close to wetlands often have special features that allow them to survive in damp and humid conditions. In addition, wetlands are often home to a wide diversity of plants, which provide a diverse array of food sources for butterflies, including larval and nectar food plants. Apart from floral nectar, butterflies are also seen feeding on wet soil, animal droppings and rotten fruits.

Wetlands in urban landscapes are usually polluted and can negatively impact butterflies by affecting their food plants. Butterflies overcome such adverse conditions by migrating to more suitable areas. Around the month of January, one can witness migrating Blue Tiger and Emigrant butterflies flying in small batches and heading in the same direction. We can make the lake shore attractive to them by planting some species that can serve as a 'pitstop' (fuel recharge) during their migration.



PARTS OF A BUTTERFLY



Life cycle of butterflies

Butterflies undergo metamorphosis through four stages: egg, larva, pupa, and adult. Females lay eggs on the larval host plant. The eggs hatch into caterpillars in 2-7 days. These caterpillars molt several times before becoming pupae in the next 6 - 14 days. Inside the pupa, the caterpillar transforms, developing wings and other adult features. The adult butterfly then emerges in about 14-30 days, ready to feed on nectar and reproduce. This complex cycle allows butterflies to thrive in their environment. During each life stage, they use different shapes and colors based on the habitat to camouflage themselves from predators.

Behaviour and characteristics

Apart from being pollinators, butterflies are prey to many birds, frogs, lizards, insects and even mammals. To overcome predation, they have evolved several fascinating strategies for self-defense. Some species of butterflies accumulate toxins from their food plants to make their body tissues poisonous to birds. Another instance of self-defense can be seen in Lime and Common Mormon butterflies, where caterpillars in their early stages appear as bird droppings to avoid being noticed. Some camouflage themselves as a 'dry leaf' to avoid being discovered by predators. Few others stun their predators with conspicuous eye-like patterns on their wings to give the illusion of being a large animal. Also, certain non-poisonous species mimic wing patterns of poisonous ones to confuse predators.

FACTS ABOUT BUTTERFLIES

Diversity: India is home to approximately 1,500 species of butterflies.

India's largest butterfly: The Southern Birdwing (*Troides minos*).

The Queen Alexandra's Birdwing (*Ornithoptera alexandrae*) is the **largest butterfly in the world**. The wingspan of females can reach up to 25 cm (9.8 inches). This species was named by Walter Rothschild, a famous British Zoologist in 1907. It was named so, in honor of Alexandra of Denmark, the Queen of England.

India's smallest butterfly: The Grass Jewel (*Freyeria trochylus*).

The **smallest butterfly in the world** is the Dwarf Blue butterfly (*Oraidium barberae*) found in South Africa and Zimbabwe. The wingspan is 10 to 15 mm for males and 12 to 18 mm for females.

State butterfly: Karnataka: Southern Bird Wing, Maharashtra: Blue Mormon, Uttarakhand: Common Peacock, Tamil Nadu: Tamil Yeoman, Arunachal Pradesh: Kaiser-i-Hind, Kerala: Malabar Banded Peacock.

Mimicry: Indian butterflies exhibit various forms of mimicry. For example, the Common Mormon butterfly exhibits Batesian mimicry by resembling the toxic Common Rose butterfly, thus avoiding predation.

Butterflies use their feet to **taste**.

A little help for butterflies

We can grow nectar plants such as Chaste tree (*Vitex negundo*) and Butterfly bush (*Buddleja indica*) to bring more butterflies to our backyard. Conserving nature is every individual's responsibility and this is a unique opportunity for nature lovers to get involved. You could start butterfly watching using this pocket guide, and over a period of time, become a citizen scientist by recording their presence, activity, life cycle and threats. You can upload your observations in citizen science portals such as *iNaturalist*, *India Biodiversity Portal* or *ifoundbutterflies* websites where you can learn more about the observed species.



Venkateshpura Lake

Venkateshpura Lake is a small neighborhood lake with a water spread area of ~ 7 acres located in Jakkur (13°04'38.9"N 77°37'23.6"E) in the midst of residential layouts. Historically, the land surrounding the lake was farmland, and the water from the lake was used for irrigation. Over the years, the farmland has been converted to apartment complexes and houses. Earlier sewage from the surrounding apartments used to enter the lake. The excess nutrient overload caused eutrophication in the lake, leading to the rapid growth of water hyacinth, then replaced by water cabbage.

Restoration efforts at Venkateshpura Lake

ATREE in collaboration with BBMP and the Resident Welfare Associations is restoring the lake through nature-based solutions (floating islands) to improve water quality. The shore of the lake was previously occupied by invasive species such as *Lantana camara* and *Parthenium*. The invasive species have been removed and will be managed by regular removal. Efforts are on to establish a butterfly trail by planting butterfly food plants.

Ecological importance of Venkateshpura Lake

Baseline biodiversity surveys carried out by ATREE show that there are over 38 species of butterflies, 20 species of moths, 10 species of odonates, 60 species of plants, 5 species of amphibians, 14 species of reptiles, 6 species of fish and 100 species of birds. The lake and its shore are envisioned as a biodiversity refugium in the midst of the concrete jungle. The lake also helps recharge the groundwater table, helping neighboring residents be off the Kaveri grid.



VENKATESHPURA LAKE

About the pocket guide

This pocket guide covers 60 species of butterflies which are common and can be used in any cityscape. The butterflies with close resemblance are placed together in the pocket guide for easy identification.

Biodiversity Data was provided by:

Chethana V. Casiker, Ganesh T, Ganesan R, Harsh Singhal, Jagadishakumara B, Nilanjan Mukherjee, Pavan Naik, Ragul R, Saravanan A, Seshadri KS, Sunil G.M, and Surya Narayanan.

Photo credits

Atudu, Balakrishnan Valappil, Brijesh EP, Cheran J, Haneesh K M, Hemant Ogale, Jeevan Jose, K Saji, Kadavoor, Krushnamegh Kunte, Maria Antony P, Mayilvahanan, Prasanth P, Rachita M, Rajkamal Goswami, Raju Kasambe, Rison Thumboor, Sahana Balasubramanian, Thalavaipandi S, and Zeynel Cebevi

This guide can be cited as

Pocket guide to the butterflies of Venkateshpura lake, 2023,
Thalavaipandi S, Vardhini Suresh, and Maria Antony P

Principal Investigator

Soubadra Devy M

Concept, Layout & Design

Thalavaipandi S



Contact Address

ATREE

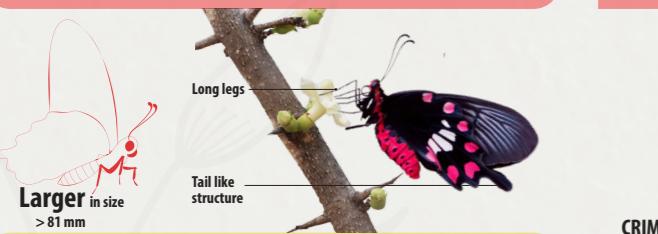
Royal Enclave, Srirampura,
Jakkur, Bengaluru, Karnataka 560064
Telephone: +91-80-23635555 (EPABX)
Fax : +91-80-23530070
Email: info@atree.org





FAMILIES of Butterfly

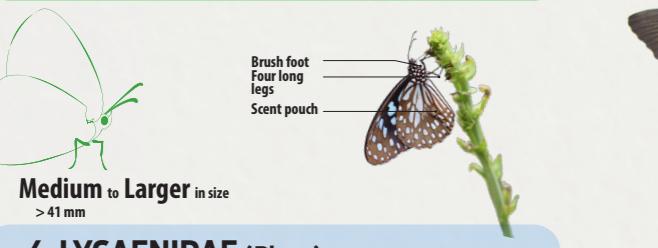
1. PAPILIONIDAE (Swallowtails)



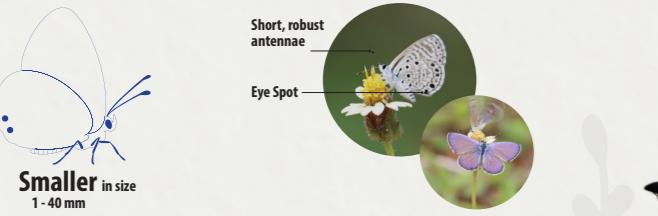
2. PIERIDAE (White & Yellows)



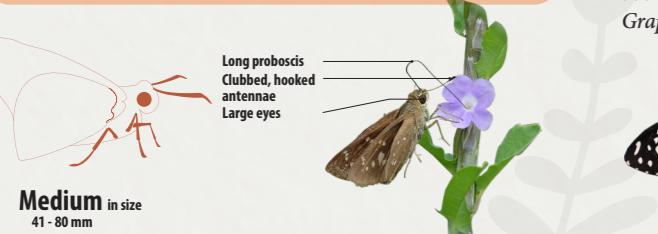
3. NYMPHALIDAE (Brush-Footed)



4. LYCAENIDAE (Blues)



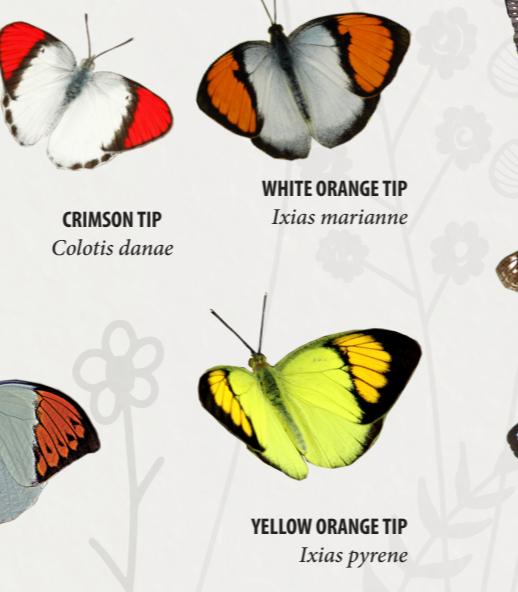
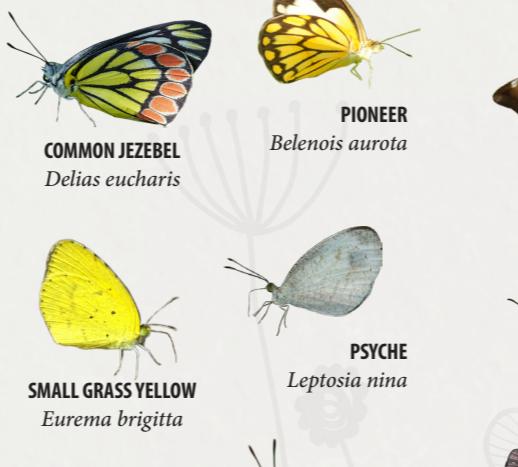
5. HESPERIIDAE (Skippers)



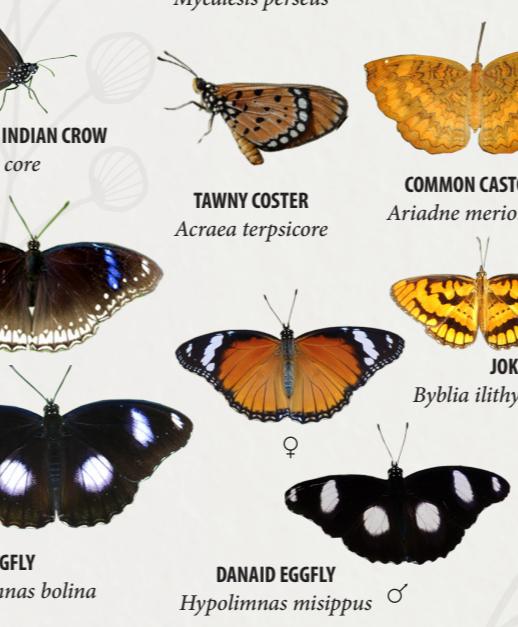
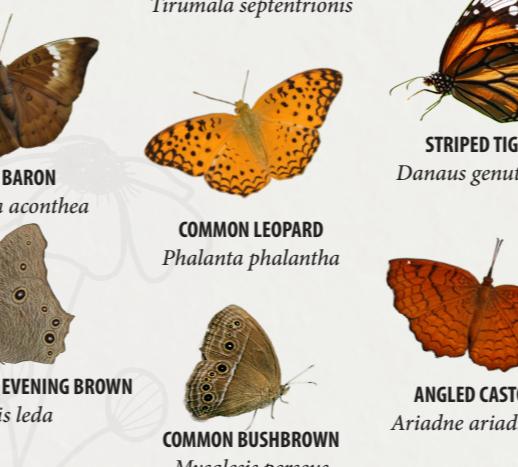
1. PAPILIONIDAE (Swallowtails)



2. PIERIDAE (White & Yellows)



3. NYMPHALIDAE (Brush Footed)



4. LYCAENIDAE (Blues)



LYCAENIDAE (Blues) - cont.

