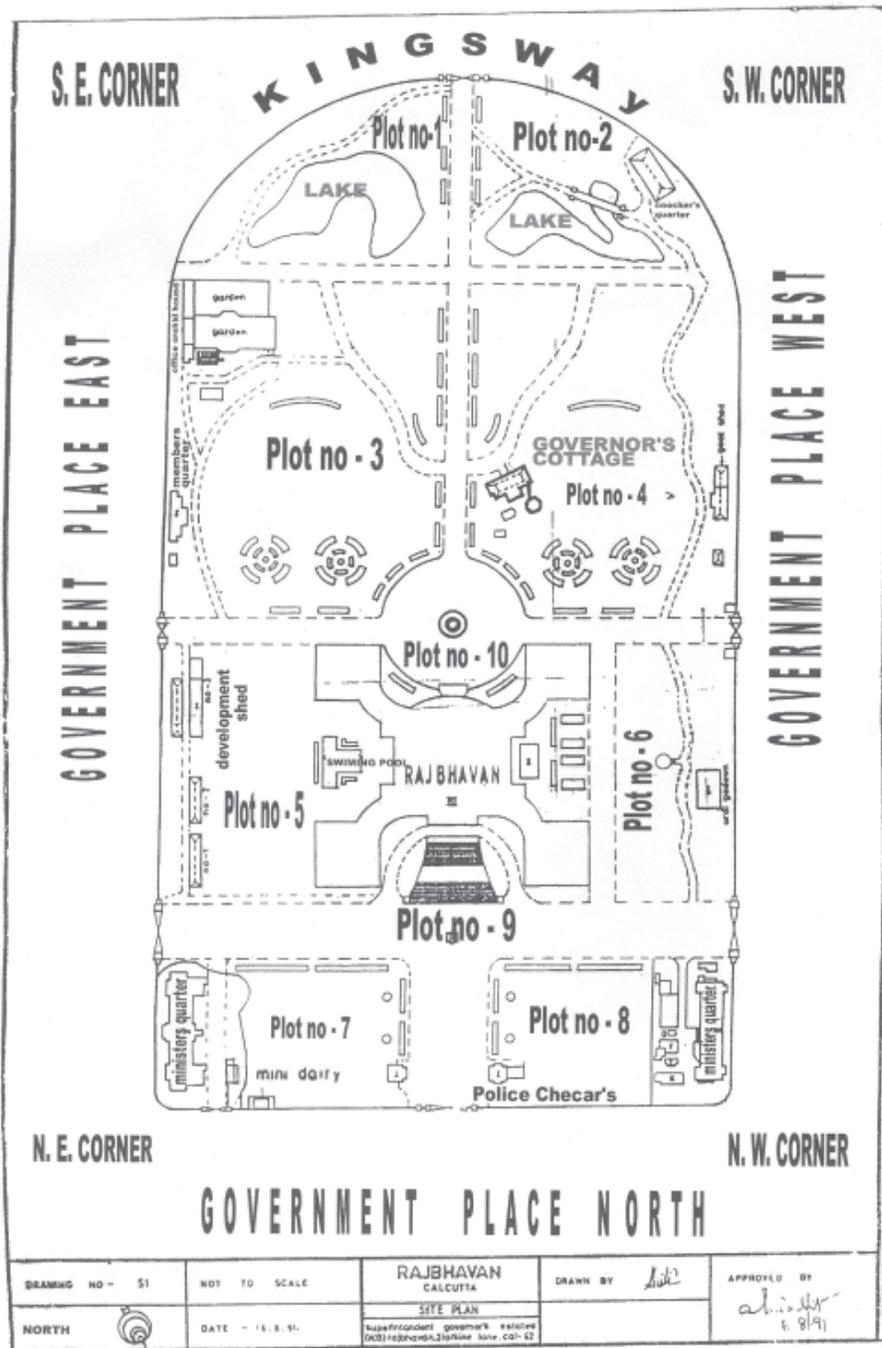


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**BIRDS AND BUTTERFLIES
IN THE GROUNDS
OF THE RAJ BHAVAN
KOLKATA**

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READERS' GUIDE

This publication is intended for lay readers, nature lovers and environmentalists, as well as for readers with special interest in birds or butterflies. To make the contents easily accessible, separate sections have been prepared for birds and butterflies.

Some of the most characteristic or typical species have been described in detail with their scientific name, common English name and local name (Bengali). Full lists are given on page 7 & page 23.

To search for a particular bird or butterfly, the reader may have to walk along paths or beneath the canopy of trees of the Raj Bhavan estate. The outline map of the Raj Bhavan Garden on the opposite page, with numbered plots would certainly be useful for that purpose. Readers and visitors are welcome to communicate any new sightings.

INTRODUCTION

THE BIODIVERSITY OF RAJ BHAVAN'S GROUNDS

Biodiversity, or biological diversity, refers to all life forms, with their manifold variety that occur on our planet earth. It encompasses not only ecosystems, populations and species but the different sub-units of species like 'races', each possessing unique characteristic attributes. Worldwide, urban biodiversity is recognized as a resource that has to be maintained for the sustainability of our environment. Protecting biodiversity is not merely a matter of emotion or aesthetics; wild habitats hold the key to our water security, soil, health and agriculture. A destabilized environment will eventually destabilize our economy. If a keystone species is allowed to vanish, it will spell disaster for a host of other flora and fauna. Vital water catchments will be lost, affecting the lives of millions who depend on natural resources for their survival.

Biodiversity in a city like Kolkata will always be interesting because this densely populated metropolis with so little greenery, and increasing pollution levels, would not be expected to hold much in terms of biodiversity.

Yet, in spite of the apparent inhospitable environment, substantial biodiversity still exists, though it is much less compared to what used to be present about half a century ago. We have lost many species that once flourished in this environment. If not properly conserved this present biodiversity will be drastically reduced in the face of the rapid development that is taking place. We shall have to preserve whatever little greenery is there and we shall have to create more green spaces to improve the biodiversity.

Biologists, researchers and even so called 'common' people can intervene to conserve vulnerable species. Such action can be local for individual species or for a habitat. Avenue trees act as a corridor for birds and butterflies, so more avenue trees could be planted. Waterbodies and wetlands should have natural vegetation for conservation of biodiversity, therefore under no circumstances should their banks have any masonry as this adversely affects the life-cycle of wetland-dependent organisms. If managed properly, even a threatened species can be brought back from the verge of extinction.

The monitoring of biodiversity is an important aspect to realize

the signs of changes. But such monitoring cannot be done without creating a database of flora and fauna of the areas concerned. For this purpose a research project sponsored by the University Grants Commission was carried out from April 2002 to March 2005, through the Department of Zoology (PG & UG), Bangabasi College, Kolkata. Four indicator groups viz., 1. flowering herbs, shrubs and trees; 2. butterflies; 3. birds and 4. mammals were considered in this study conducted by Mr. Narendra Narayan Chatterjea, Mr. Kushal Mookherjee, Mr. Shyamal Mukherjee, Mr. Goutam Das, Mr. Sharif Siddique, Mr. Partha Sarathi Ghose and myself with the hope that our study would help record the status of these indicator groups as a benchmark which would, hopefully, be used in landuse planning and environmental management.

We selected seventeen sites in and around Kolkata for our study of urban biodiversity. The garden surrounding Raj Bhavan, the official residence of the Governor of West Bengal, was one of the study areas, and this paper is based on our findings. The Raj Bhavan garden is full of old huge trees both indigenous and exotic. There are extensive lawns, well maintained throughout the year. During winter many seasonal flowers are grown, which attract butterflies. There are some water bodies, the most interesting of them having a beautiful stand of the mangrove palm, *Nypa fruticans*. The area has beds of ornamental flowers and a corner vegetable garden.

The author is grateful to Sri Gopalkrishna Gandhi, the Governor of West Bengal, for his interest in this publication. The kind help, guidance, suggestions, inspiration and cooperation extended by Smt Tara Gandhi have been invaluable but for which this manuscript would not have seen the light of day. The kind help and cooperation extended by Shri Mrinal Kanti Kundu, Superintendent, Governor's Estates, is thankfully acknowledged. The author also acknowledges the cooperation extended by Shri Susanta Ranjan Upadhaya, Joint Secretary and Comptroller (H), Raj Bhavan. The assistance rendered by the Raj Bhavan garden staffs, especially Shri Ajit Kumar Dhara, during the course of studies and survey is also acknowledged.

Suchitra Ghosh

Author's Profile

Dr. Suchitra Ghosh is a Ph.D in Zoology. As a Reader, she teaches both graduation and post graduation level courses of Calcutta University. Her research domain includes Biodiversity, Electrophysiology, Histology, Histochemistry and Animal Behavioral Study. Twenty five research papers of Dr. Ghosh have been published in national and international journals. Beyond Zoology her interest in Astronomy prompted her to write "*Akash Chitra O Tarar Katha*" - a book on astronomy for children.

Her education as well as her research has been further enriched by her interest in bird watching which she has pursued extensively for the past 25 years. Her field studies include a number of treks in the Himalayas including Kailash-Mansarovar, Everest Base camp and other high altitude areas where she had the opportunity to watch hill birds.

Among the many projects to her credit are an Urban Bio-Diversity Study in and around Kolkata and two projects on Vertebrate Diversity in Purulia district. Additionally, she has been involved in several surveys and studies of birds all over West Bengal, including Sundarban Biosphere Reserve, Jaldapara Wildlife Sanctuary, Lava and Lulegaon Range. Every year, since 1992, she has taken part in the Mid-Winter Waterfowl Census coordinated by Prakriti Samsad on behalf of Asian Wetland Bureau.

BIRDS SEEN IN RAJ BHAVAN DURING 2002 - 2005

| Sl No. | COMMON ENGLISH NAMES | SCIENTIFIC NAMES | |
|-----------|---------------------------------|-------------------------------|----------------------|
| 1 | Little Cormorant | <i>Phalacrocorax niger</i> | (Vieillot, 1817) |
| 2 | Cattle Egret | <i>Bubulcus ibis</i> | (Linnaeus, 1758) |
| 3 | Indian Pond Heron | <i>Ardeola grayii</i> | (Sykes, 1832) |
| 4 | Black-crowned Night Heron | <i>Nycticorax nycticorax</i> | (Linnaeus, 1758) |
| 5 | Black Kite | <i>Milvus migrans</i> | Boddaert, 1783 |
| 6 | Indian White-backed Vulture | <i>Gyps bengalensis</i> | (Gmelin, 1788) |
| 7 | Shikra | <i>Accipiter badius</i> | (Gmelin, 1788) |
| 8 | White-breasted Waterhen | <i>Amaurornis phoenicurus</i> | (Pennant, 1769) |
| 9 | Common Sandpiper | <i>Tringa hypoleucos</i> | (Linnaeus, 1758) |
| 10 | Blue Rock Pigeon | <i>Columba livia</i> | Gmelin, 1789 |
| 11 | Spotted Dove | <i>Streptopelia chinensis</i> | (Scopoli, 1786) |
| 12 | Alexandrine Parakeet | <i>Psittacula eupatria</i> | (Linnaeus, 1766) |
| 13 | Rose-ringed Parakeet | <i>Psittacula krameri</i> | (Scopoli, 1769) |
| 14 | Red-breasted Parakeet | <i>Psittacula alexandri</i> | (Linnaeus, 1758) |
| 15 | Brainfever Bird | <i>Cuculus varius</i> | (Vahl, 1797) |
| 16 | Asian Koel | <i>Eudynamis scolopacea</i> | (Linnaeus, 1758) |
| 17 | Greater Coucal | <i>Centropus sinensis</i> | (Stephens, 1815) |
| 18 | Spotted Owlet | <i>Athene brama</i> | (Temminck, 1821) |
| 19 | Asian Palm-Swift | <i>Cypsiurus parvus</i> | (J.E.Gray, 1829) |
| 20 | House Swift | <i>Apus affinis</i> | (J.E.Gray, 1830) |
| 21 | Small Blue Kingfisher | <i>Alcedo atthis</i> | (Linnaeus, 1758) |
| 22 | Stork-billed Kingfisher | <i>Pelargopsis capensis</i> | (Linnaeus, 1766) |
| 23 | White-breasted Kingfisher | <i>Halcyon smyrnensis</i> | (Linnaeus, 1758) |
| 24 | Small Bee-eater | <i>Merops orientalis</i> | (Latham, 1801) |
| 25 | Common Hoopoe | <i>Upupa epops</i> | Linnaeus, 1758 |
| 26 | Blue-throated Barbet | <i>Megalaima asiatica</i> | (Latham, 1790) |
| 27 | Coppersmith Barbet | <i>Megalaima haemacephala</i> | (P.L.S.Muller, 1776) |
| 28 | Fulvous-breasted Woodpecker | <i>Dendrocopus macei</i> | (Vieillot, 1818) |
| 29 | Lesser Golden-backed Woodpecker | <i>Dinopium benghalense</i> | (Linnaeus, 1758) |
| 30 | Common Swallow | <i>Hirundo rustica</i> | Linnaeus, 1758 |
| 31 | Brown Shrike | <i>Lanius cristatus</i> | Linnaeus, 1758 |
| 32 | Rufous-backed Shrike (N-E race) | <i>Lanius schach tricolor</i> | (Hodgson, 1837) |
| 33 | Eurasian Golden Oriole | <i>Oriolus oriolus</i> | (Linnaeus, 1758) |
| 34 | Black-naped Oriole | <i>Oriolus chinensis</i> | Linnaeus, 1766 |
| 35 | Black-headed Oriole | <i>Oriolus xanthornus</i> | (Linnaeus, 1758) |
| 36 | Black Drongo | <i>Dicrurus adsimilis</i> | (Vieillot, 1817) |
| 37 | Ashy Drongo | <i>Dicrurus leucophaeus</i> | (Vieillot, 1817) |
| 38 | Bronzed Drongo | <i>Dicrurus aeneus</i> | Vieillot, 1817 |

| | | | |
|----|------------------------|--------------------------------|-------------------|
| 39 | Grey-headed Myna | <i>Sturnus malabaricus</i> | (Gmelin, 1789) |
| 40 | Asian Pied Myna | <i>Sturnus contra</i> | Linnaeus, 1758 |
| 41 | Common Myna | <i>Acridotheres tristis</i> | (Linnaeus, 1766) |
| 42 | Jungle Myna | <i>Acridotheres fuscus</i> | (Wagler, 1827) |
| 43 | Indian Tree-pie | <i>Dendrocitta vagabunda</i> | (Latham, 1790) |
| 44 | House Crow | <i>Corvus splendens</i> | Vieillot, 1817 |
| 45 | Jungle Crow | <i>Corvus macrorhynchos</i> | Wagler, 1827 |
| 46 | Red-whiskered Bulbul | <i>Pycnonotus jocosus</i> | (Linnaeus, 1758) |
| 47 | Red-vented Bulbul | <i>Pycnonotus cafer</i> | (Linnaeus, 1766) |
| 48 | Jungle Babbler | <i>Turdoides striatus</i> | (Dumont, 1823) |
| 49 | Redbreasted Flycatcher | <i>Muscicapa parva</i> | (Bechstein, 1792) |
| 50 | Hume's Warbler | <i>Phylloscopus humei</i> | (Brooks, 1878) |
| 51 | Common Chiffchaff | <i>Phylloscopus collybita</i> | (Vieillot, 1817) |
| 52 | Blyth's Reed-Warbler | <i>Acrocephalus dumetorum</i> | Blyth, 1849 |
| 53 | Common Tailorbird | <i>Orthotomus sutorius</i> | (Pennant, 1769) |
| 54 | Oriental Magpie Robin | <i>Copsychus saularis</i> | (Linnaeus, 1758) |
| 55 | Orange-headed Thrush | <i>Zoothera citrina</i> | (Latham, 1790) |
| 56 | Oriental Tree Pipit | <i>Anthus hodgsoni</i> | Richmond, 1907 |
| 57 | Grey Wagtail | <i>Motacilla cinerea</i> | Tunstall, 1771 |
| 58 | White Wagtail | <i>Motacilla alba</i> | (Linnaeus, 1758) |
| 59 | Tickell's Flowerpecker | <i>Dicaeum erythrorhynchos</i> | (Latham, 1790) |
| 60 | Purple-rumped Sunbird | <i>Nectarinia zeylonica</i> | (Linnaeus, 1766) |
| 61 | Purple Sunbird | <i>Nectarinia asiatica</i> | (Latham, 1790) |
| 62 | House Sparrow | <i>Passer domesticus</i> | (Linnaeus, 1758) |

Note : Classification order and common names according to the Handbook of the Birds of India and Pakistan by Sálim Ali and S. Dillon Ripley (1969 - 1974)

**Notes on some typical birds
of
Raj Bhavan**

Indian Pond-Heron – *Ardeola grayii*

(Bangla Name- *konch bok*)

An egret like waterside bird, it suddenly becomes startlingly obvious when it spreads its white wings in flight; and effectively camouflaged earthy brown when at rest. Non-breeding adult is drab coloured. Dorsal surface of head and neck is dark brown, streaked with yellowish-buff. Back of the bird is ashy brown and scapulars with pale yellowish stripes on ashy brown base. Below, chin and throat is white, upper breast white and streaked with brown. Rest of the plumage including tail is white.

Adult breeding individual is very handsome, has maroon back with pale brownish-yellow head, neck and breast and has long white or buff occipital crest. Upper breast appears ashy brown. Sexes alike in breeding and non-breeding plumages.

Affects streams, jheels, marshes, inundated paddy fields, village tanks, stagnant roadside ditches, pits and puddles, and even tidal mudflats.

Voice: harsh croak when flushed.

Feeds on frogs, fishes, crustaceans, water beetles, and other insects. Also takes mudskippers from tidal swamps, and crabs on the sandy seashore.

Breeding: Usually in small groups of its own species or mixed with Night Herons, Egrets, Cormorants, etc. Nest, an untidy structure of twigs.

46 cm ; Resident; shifting locally with drought and flood condition; Inland and coastal wetlands.

Black-crowned Night-Heron – *Nycticorax nycticorax*

(Bangla name – *bachka / wak bok*)

A stocky ashy-grey, white and black marsh bird with markedly stouter black bill, contrasting white forehead, grey flight feathers, absence of buff tones to underparts and wings. Metallic greenish gloss is prominent on back, cap and on scapulars. Forehead and a streak over eye are white; the drooping occipital crest is black with a few long narrow white plumes. Underparts are white; sides of the body are grey. Gregarious, crepuscular and nocturnal except in breeding seasons; colonies of a dozen to several hundred birds spend the daytime roosting in the seclusion of dense trees. Sexes alike.

Immature birds are brown, boldly streaked and spotted on underparts; mantle / scapulars. Brown wings with white spotting become prominent in flight.

Affects jheels, tanks, streams, and ponds, as well as estuaries, tidal creeks, coastal lagoons and back waters.

Voice: *weck* or *kwock*, often in flight

Feeds on fishes, frogs, aquatic insects, dragonfly larvae, etc.

Breeding: Colonial, often in pure colonies of its own or in mixed heronries. Breeding season in June-July to September in North India and December to February in South India. Nest is a rough untidy platform of twigs, sometimes so flimsy that eggs are seen from below.

58 cm ; Resident throughout the subcontinent; Patchily distributed and shifting locally with water conditions.

Black Kite – *Milvus migrans*

(Bangla name - *Cheel*)

It is a large dark rufous-brown hawk distinguishable by its forked tail, particularly in flight. Much maneuvering of arched wings and twisting of tail in flight are characteristic. Dark body has variable whitish crescent at primary bases on underwing, and pale band across median coverts on upperwing. Juvenile has broad whitish or buffish streaking on head and underparts. Sexes alike.

Affects urban localities and human habitations on the countryside; gregarious. A confirmed commensal of man, and useful and efficient scavenger.

Normal call is a shrill, almost musical whistle *ewe-wir-r-r-r* uttered singly or in quick succession 4 to 7 times from perch as well as on wing.

It feeds on garbage in urbanized areas. Strolls about to pick up earthworms or awkwardly hawks winged termites in the air. These birds are largely omnivorous.

Breeding: Season prolonged, varying with locality and altitude; in the Peninsula mainly between September and April. Nest, an untidy platform of sticks, iron wire, tow and rubbish of every description; placed 7 to 14 metres up in a forking branch.

55 – 68.5 cm; Common and widespread resident

Indian White-backed Vulture – *Gyps bengalensis*

(Bangla name – *Sakun*)

Adult bird is heavy brownish black with naked skinny neck and head sunk into the shoulders while at rest. White or whitish soft feathers round base of neck, broken by a black crop-patch, whitish head and neck and entirely dark bill. White rump and back is diagnostic in perch or flight. Underbody and lesser underwing-coverts are dark. Median underwing-coverts are whitish. Underparts less heavily streaked, and lacks prominent streaking on mantle and scapulars in adults. Juveniles are dark brown colored with streaking on underparts and upperwing-coverts, dark rump and back, whitish head and neck. Favorite roosts are tall trees and the ground underneath them become besmirched and reeking with the birds' acrid excreta, presenting a sepulchral whitewashed appearance, which kills off the trees if too long patronized. The bird glides in the sky on outspread motionless wings. Dependence on thermal currents make them late risers; individuals may frequently be seen fast asleep on a branch with head tucked under the wing till the sun is well up in the morning. Sexes alike.

Their food is primarily carcasses.

Calls : raucous, strident, creaky screeches or 'laughter' *kakaka*.

Breeding: principally October to March. Nest, a large untidy platform of sticks and twigs often with green leaves attached, with a shallow central depression lined with green leaves, placed c. 10 to 18 metre up or near the top of a tall tree.

75 – 85 cm; Smallest of the *Gyps* vultures; widespread resident and our commonest vulture.

Shikra – *Accipiter badius*
(Bangla name - *Shikre*)

A small, short and rounded-winged hawk with a longish multi banded tail. Above is ashy blue-grey in adult male and indistinct grey gular stripe, while underpart is with closely placed rusty brown bars, especially on breast; unbarred white thighs, and unbarred or only lightly barred central tail feathers; underwing pale with fine barring on remiges, and slightly darker wing-tips. A median grey stripe occurs on throat. Females are larger and dark smoky brown washed with grey above. Legs are stouter and toes shorter. Juvenile has dark brown above and tail with more bars and below white with broad brown vertical streaks and spots.

Shikra feeds on all living animals of manageable size, including small mammals, birds, lizards, frogs, locusts, grasshoppers, mantises, dragonflies, flying termites, etc. The bird hunts by pouncing on unsuspecting quarry from its ambush up in a leafy tree. Sometimes stampedes small birds out of a thicket, selecting one from the flock, chasing it with speed and determination till struck. Its progress through the trees is often indicated by alarm-call of squirrels and small birds. Soars on thermals and circles high up in the sky.

Call is a loud, harsh, and challenging, *titu – titu*.

Breeding: overall March to June; Nest, untidy structure of twigs lined with grass and roots, c. 30 cm across and c. 10 cm deep, and placed 7 to 15 metres up in a leafy mango, neem, tamarind, or other tree.

31 – 36 cm; Widespread resident, except in parts of north-west.

Large Indian Parakeet (Alexandrine Parakeet) – *Psittacula eupatria*
(Bangla name - *Chandana*)

A large grass-green parakeet with a typical short, deeply hooked yellow-tipped massive red bill, and a conspicuous deep red patch on the wing shoulders. Adult male has a green head with grey-blue cheeks and nape, a prominent rose-pink collar round the back and sides of neck, and a broad black band from the lower mandible to the rose collar. It has a long dull yellow-tipped bluish-green pointed tail. Females and young birds lack the black mandible stripe and the pink nape band and are duller.

Affects moist and dry deciduous biotope - forest, open well-wooded country and cultivation with well-grown trees and forest plantations. This species is gregarious and noisy, forming huge flocks depending upon abundance of food and congregate at evening in the communal roosts in the large foliated trees and groves in forests where birds from all quarters collect at sunset flying over long distances in batches of 5 to 50. Its flight is swift, graceful and direct.

Voice is a loud single noted screaming call - *keeâk*, or *kee-ârr*, deeper than that of the Rose-ringed Parakeet (*P. krameri*). In captivity readily learns to imitate few words of human speech.

Breeding occurs during December to April. Nests in holes prepared by themselves in large trees. Nest holes of Barbets and Woodpeckers are often enlarged and appropriated. Lay 2–4 white eggs.

Size : 53 cm ; Resident ; also nomadic and locally migratory driven mainly by the availability of the fruits, seeds and blossoms which make up its diet. Flocks do considerable damage in orchards and also highly destructive to ripening cereal crops, cutting off and shredding them far more than they consume.

Rose-ringed Parakeet – *Psittacula krameri*

(Bangla name - *Tiya*)

This is a slim, grass-green parakeet with typical short, heavy, deeply hooked red bill and greyish tinge on breast. The normal colouration of the male bird is in general green with lighter lower abdomen and the back of the head is bluish. A black ring runs through the chin and along the cheek where it blends into a pink collar with some blue on the nape. The blue-green tail is long, pointed and central tail feathers are bluish while the outer tail feathers are green and the tip is yellow green. The upper mandible of the beak is a red-orange and the lower mandible is black. Feet are grey, nails black. Eyes are black with yellowish iris.

The female and immature male has no black ring, pink collar, or blue tint on the back of the head. Juveniles also have a coral pink beak with a pale tip. The young reach their adult plumage after their second full moult, at about 3 years of age.

Affects moist and dry-deciduous biotope: lightly wooded country, gardens, orchards and cultivation in the neighbourhood of human habitation. Keeps in small parties which often raid ripening crops of maize, other cereals, orchard fruits, etc. This bird clamber about among the twigs and gnaw into the half-ripe fruits, one after another, wasting far more than they actually eat. The vast swarms of this bird, in agricultural areas, due to their wasteful feeding habits, is a menace to food crops and orchard fruit. It is a highly destructive pest with no compensating virtues from the economic point of view.

Breeding season chiefly varies from January to April / May. Nest is an unlined hole in a tree-trunk; sometimes natural holes are cut and enlarged to size.

Size : 42 cm ; Resident.

Indian Redbreasted Parakeet – *Psittacula alexandri*

(Bangla name – *Mâdnâ*)

A pointed-tailed grass-green parakeet is with greyish pink head and plum-red throat and breast. A prominent large yellow patch on wing-shoulder is characteristic. Male has purplish-grey head with narrow black forehead running back to eyes, and broad black stripes from lower mandible to sides of head. Bill largely red. Iris of male is straw-yellow to bright pale yellow, while that of female whitish yellow. Upper mandible of male is coral-red, while that of female is black and the lower one of both is brownish black. Hindneck and sides of neck brighter green than rest of upperparts. Throat and breast vinaceous red; belly bluish green; vent and under tail-coverts yellowish green. Tail bluish green above with yellowish tips; dusky yellow below. Head of female bird is tinged blue-green and less plum coloured bloom; breast redder and darker, untinged with plum colour. Bill largely black. Immature bird is green throughout and lack the red breast and with only a slight dull brownish plum-colour about the head.

Affects moist-deciduous biotope – thin secondary jungle and neighbourhood of *jhoom* or shifting hill cultivation. Avoids dense evergreen forest. Usually keeps in parties of 6 to 10, occasionally larger groups raid the harvested fields till the fallen grains are cleared. Small parties visit the flowering and fruiting trees day after day till the tree is emptied.

Feeds on wild figs and other wild and orchard fruit; leaf buds, and fleshy petals and nectar of *Salmalia*, *Butea* and similar other flowers; hill paddy, maize, etc.

Voice and calls are short sharp nasal, *kaink*, repeated quickly by several birds when disturbed.

Breeding season is chiefly between January and April, varying locally with altitude and other conditions. Nests in natural tree-holes enlarged suitably by themselves.

Size : 38 cm ; Resident, with local nomadic movements governed by food availability.

Brainfever Bird - *Cuculus varius*
(Bangla name - *Chokgallo*)

The adult bird is slender with proportionately longer tail. The plumage is ashy grey above and whitish below. The white on undersurface is covered with rufous and ashy feathers. Breast is rufous and devoid of any streak or bar. The abdomen and flanks are cross-banded with brown. The tail tipped rufescent and broadly barred with 4 / 5 whitish and black bars, the terminal one being the broadest. Immature bird is altogether dark brown, buffy white under part broadly streaked with blackish brown drops and barred with dull rufous, tail bars are black and rufous. When flying into trees, they resemble sparrowhawks. This bird has a distinct lemon-yellow eye-rim and gape; yellowish buff iris, relatively strong yellowish green bill and bright chrome yellow legs, feet and claws. Sexes alike

Affects well-wooded deciduous and semi-evergreen biotope, hill and plain; partial to gardens, groves of trees, mango topes, etc. in the neighbourhood of cultivation and human habitations

Arboreal in general; usually keeps singly or in pairs to the foliage canopy of trees. Remains silent in winter; with approach of hot weather becomes exceedingly vocal to a peak in about May and thereafter gradually revert to silence by August / September. Voice is loud and high-pitched; calls monotonously, at least in the plains during the rainy seasons, almost incessantly throughout the day and during moonlit nights. The call is easily detected by a loud high-pitched screaming *wee-piwhit*, aptly syllabified as *brain-fever* (accent on *fe*), rising in crescendo, mounting progressively to frantic shrillness and breaking off abruptly, to commence all over again after a minute or two.

Food is principally caterpillars and cutworms; also consumes grasshoppers, locusthoppers, beetles, bugs, ants, winged termites and spiders; wild figs and occasionally lizards.

Breeding season is variable, and being a brood-parasite chiefly on Babblers (preferring mostly the Jungle Babblers), its breeding has to coincide with the laying season of the local host, which is usually between March and June, and also in later months. In each nest a single glossy turquoise-blue egg is laid which is often indistinguishable from that of the host. The hatchling is reared to maturity by foster parents.

Size : 34 cm; Resident, but subject to local migratory and nomadic movements especially during the rainy season.

Spotted Owlet – *Athene brama*

(Bangla name - *Kûtûrç pçncha*)

A familiar squat, light brown bird with white oval to round spotting on under parts, including crown, and diffuse similar brown spotting or barring on under parts. Pale facial discs and nuchal collar. Head is typical large and round, without ear-tufts and have yellow forwardly directed staring eyes. Sexes alike.

Keeps in pairs or family parties. Largely crepuscular and nocturnal but frequently hunts in full glare of noonday. Not so much intolerant to sunshine as other owls, but night hunting habit is resorted to escape the merciless mobbing and chivvying it receives from all diurnal birds the moment it is discovered.. Normally retires at sunrise to the seclusion of a tree-hollow or some leafy branch, the pair sitting cuddled closely together. If detected, stares at the intruder in clownish fashion with the head often screwed completely round.

Resident pairs are found in banyan, tamarind or mango trees.

Harsh screeches and chuckles; screeching *chirurrr – chirurrr – chirurrr*, etc. followed by or alternated with *cheevak, cheevak, cheevak*. Particularly noisy in breeding season.

Feeds chiefly on beetles, moths, locust and other insects; also earthworms, lizards, mice, and small birds. Commonly uses street lamps as hunting bases, hawking the insects attracted to the light.

Breeding : February –May; Nest, a natural hollow tree trunk, a hole in a dilapidated wall, or between the ceiling and roof of a deserted as well as occupied dwellings; sometimes lined with little grass, tow and feathers.

21 cm; Generally common and widespread resident.

Storkbilled Kingfisher – *Pelargopsis capensis*

(Bangla name - *Gûriâl*)

Large sized kingfisher with enormous blood-red dagger-shaped bill. Head dark greyish-brown; orange-buff collar on hindneck; rest of upperparts brilliant pale greenish blue, chin and throat whitish, rest of underparts brownish yellow. Sexes alike.

Affects large, heavily shaded forest streams, shaded lakes, and also irrigation channels in well-wooded country, coastal backwaters and sandy beaches.

Very noisy; has a loud rough screaming 'laugh' *Ké – ke – ke – ke – ke*, etc. with explosive accent on the initial *ké*.

Feeds on fish, frogs, lizards, mice and young birds and also eats crabs, water beetles, other manageable animals.

Breeding : overall January to August / September varying locally and also much staggered. Nest, an unlined chamber at the end of horizontal tunnel drilled into a steep earth bank of a stream; upto a metre or more in length and *c.* 10 cm in diameter.

38 cm; Widespread resident; locally common.

Whitebreasted Kingfisher – *Halcyon smyrnensis*

(Bangla name – *Sadabuk mâchhrânga*)

A brilliant turquoise-blue bird with chocolate-brown head, neck and underparts. Chin, throat, and centre of breast conspicuous glistening white. A large white wing-patch is very prominent in flight. Pointed bill is long and heavy and coral-red, legs are red coloured. Colour of upperparts vary seasonally and in different lights, sometimes appearing quite green, at other times bright blue.

Affects wet paddy fields, flooded pits, and roadside ditches, village tanks, canals, streams. Cultivation, forest edges, gardens in towns, fish-curing yards, fresh water and coastal wetlands are favourite haunts.

Normal call is ‘a loud defiant rattling laugh’. A long drawn musical whistle *Kililili* repeated again and again from a tree-top for long periods.

Feeds on small animals, insects, grasshoppers, crickets, mantises, ants and winged termites, crabs on sandy seashores, frogs, lizards, mice and fledging or small adult birds; fish is only a secondary item.

Breeding : overall January to August, varying locally; mainly April to July. Nest, a tunnel bored in the steep bank of a dry nullah or roadside cutting, or in the side of a dry ditch, sloping slightly upwards, *c.* 7 cm in diameter and *c.* 50 cm to a meter long.

28 cm; Resident and most widely distributed; subject to local movements.

Bluethroated Barbet – *Megalaima asiatica*

(Bangla name – *Bâdâ bâsânth bairi / Korul*)

A flashy grass-green barbet with verditer-blue short supercilium, ear-coverts, feathers round eye, chin and throat. Forehead crimson, then yellowish, behind which is a black band across vertex, followed by crimson crown. A black streak runs back to nape on either side from crown. A crimson speck on the sides at the base of the lower mandible; a crimson patch also present at the base of the throat on either side. Base of bill is surrounded by conspicuous bristles. Sexes alike.

Affects well-wooded country – light deciduous and evergreen forest and *Ficus* groves around villages and urban gardens. Arboreal and eminently frugivorous; usually keeps singly or in loose feeding parties.

Call critically, softer and in a somewhat higher key, sounding more like *pûkârûk*, *pûkârûk*, and more rapidly repeated; often ends in a rippling *kûr-rrr*. The initial notes are lower, while louder subsequently

Feeds mainly on fruits, especially wild figs, drupes and berries; occasionally mantises and other large insects.

Breeding : overall March to June / July, varying with altitude. Nest, the typical barbet hole excavated in dead tree-trunk or decaying branch, between 2 and 8 metres up. When in a horizontal branch the entrance-hole is on the underside.

23 cm ; Resident; common.

Coppersmith Barbet – *Megalaima haemacephala*
(Bangla name – *Chhôta basantha bauri / Bhogiroth*)

This small dumpy grass-green barbet has yellow throat, crimson breast and fore head, yellow patches above and below eye, and green-streaked yellowish underparts. A patch of bare skin is present on either side of the throat. Tail is short, truncated and distinctly triangular in flight. Juvenile lacks red on head and breast. Sexes alike.

Affects lightly wooded countryside and roadside avenues, and groves of trees (especially *Ficus* species) near villages and cultivation, and in urban gardens and compounds.

Call is a repetitive loud rather metallic *tuk, tuk, tuk*, and so on, reminiscent of a distant coppersmith hammering on his metal.

Feeds on figs of banyan and peepul trees, some other wild figs, drupes and berries. Occasionally captures moths or flying termites in clumsy aerial sorties.

Breeding : Overall November to June, mainly February to April. Nest, a shaft excavated in a dead or decaying softwood branch c. 25 – 80 cm deep, ending in a slightly widened chamber.

17 cm ; Resident; common and very widely distributed, practically throughout India.

Lesser Golden-backed Woodpecker – *Dinopium benghalense*
(Bangla name – *Chhoto shonali kaththokra*)

The bird has a crimson crown, upper plumage chiefly golden yellow and black, eye-stripe, chin, hind part of head, neck, throat and rump are black finely streaked and mottled with white. Dark moustachial stripe is absent. Spotting on wing-coverts is prominent. Underpart is white, streaked with black, more boldly on breast. Female similar to male but with forecrown black, mottled with white like the throat, and only the occipital crest is red. Creeps up in characteristic short jerks, directly or in spirals, tapping spasmodically with the bill to stampede insects crawling around or locate pupal galleries of wood-boring beetles. Occasionally slide back 'in reverse gear' to reinvestigate some promising crevices it has missed. Flight undulating, swift and noisy, consisting of a few rapid flaps followed by a long dipping bound with wings pressed to the sides; accompanied by a shrill, chattering 'laugh'. Keeps in pairs or family parties.

Affects every type of wooded country: light forest, forest plantations, mango groves and other trees about villages and cultivation, urban compounds, roadside venues, etc.

Voice: A loud, high-pitched crackling 'laugh'.

Feeds on insects and larvae, predominantly ant, fruits and berries and also takes flower nectar regularly.

Breeding: February to July, chiefly March and April. Nest, a neat round hole (c. 7 or 8 cm across) leading to widened egg-chamber, 3-6 m above ground.

26 – 29 cm ; Resident; commonest and most widely distributed woodpecker in the subcontinent as a whole.

Redwhiskered Bulbul – *Pycnonotus jocosus*

(Bangla name – *Sipâhi bâlbâl*)

Brown above with a pointed black crest which is carried erect except when flying. White ear-coverts with post-ocular (behind the eyes) crimson tufts, ‘the whiskers’, white underparts with a dark collar, and scarlet vent. Young birds lack the ‘red whiskers’ and have a pale orange-rufous vent. Sexes alike.

Melodious and cheery call notes - *be quick-quick*. One of its commonest calls is a lively *pettigrew* or *kick-pettigrew*, or *Please-to-meet-you* (accent on *meet*).

Affects open scrub jungle, semi-cultivation and urban gardens even in the heart of noisy cities. Avoids heavy forest but prefers a more humid habitat. Usually in pairs, occasionally in loose feeding flocks. Roosts communally.

Feeds mostly on fruits, berries and flower nectar from trees and bushes but also descends to the ground, hopping about to pick ants and other insects. Often make aerial sorties from a bush- or tree-top to capture winged termites and moths. Often damages ripening fruits, flower-buds, seedling, etc. in the orchards.

Breeding : February to November. Nest is a small cup of fine twigs and rootlets.

Usually female partner act as if injured and drags herself on her belly on ground with outspread beating wings screaming piteously to draw away intruder from the nest site.

20 cm; Common and widespread resident.

Redvented Bulbul – *Pycnonotus cafer*

(Bangla name - *Bâlbâl*)

A lively earth-brown bird with slightly tufted black head, black throat, mantle and breast vary from pale brown to blackish and scale-like markings on back and breast. White rump, scarlet vent and white-tipped blackish tail, particularly conspicuous in flight. Sexes alike.

Affects light scrub. An energetic and noisy, familiar bird, usually seen in pairs or in small parties. Arboreal but occasionally descends to the ground to pick up black ants and winged termites emerging from their underground retreats, or launches out for flying insects from a bush top, springing up a metre or two vertically and tumbling back to the perch open deciduous forest and secondary growth. This bird is a common resident in human settlements, cultivation and gardens.

Cheery call-notes *peep-peep-peep* may be rendered as *be care-ful* or *be quick-quick*.

Feeds on fruits and berries, flower nectar. Efficient pollinating and seed-disseminating agent. Also feeds largely on insects including many major pests.

Breeding: February to November; chiefly during the monsoon. Nest, a cup of rootlets, fine twigs and midribs of dead leaves neatly woven, placed in shrubs, hedges, stunted date-palms, on slender branches of trees, etc.

20 cm; Commonest and most widespread, resident.

Jungle Babbler – *Turdoides striatus*

(Bangla name - *Chhatare*)

A familiar earthy brown bird of untidy appearance and have creamy white eyes, yellowish bill and legs and pale lores. Relatively long tail appears to be loosely stuck into the body. Above drab grey-brown, a little greyer on head and nape. Rump and tail-coverts uniformly buff; tail rufous-brown. Below, throat drab-grey with variable dark mottling and streaking; breast also streaked with pale brown; belly creamy buff. Sexes alike.

A harsh conversational *ké – ké - ké* uttered as the birds move about which frequently breaks out into a loud, unmusical chorus of squeaking and chattering under any sort of excitement.

Feeds mainly on insects; grasshoppers, ants, beetles, cockroaches, caterpillars, etc., and spiders

Breeding: Mainly March to October. Nest, a loosely put together cup of twigs, roots, grass and various other materials, scantily lined with rootlets and fine grass; placed in bushes and trees much above ground.

Affects deciduous forest, bamboo and cultivations. Very gregarious; spend much of their time hopping about on the ground, vigorously turning over or flickering aside dead leaves in search of food. Members of the same flock roost together sitting side by side with their bodies touching each other.

25 cm; Widespread resident; one of the commonest birds of the Peninsula, unrecorded in parts of the northwest and northeast.

Common Tailor Bird – *Orthotomus sutorius*

(Bangla name - *Tüntúni*)

A common, small restless yellow-green warbler with whitish buff under parts and rust coloured crown. Tail pointed, usually carried erect, the central rectrices narrow and elongated. Sexes alike, but tail is usually longer in males.

Affects gardens, hedges, orchards, edges of forest and thin scrub. Generally found singly or in pairs. Normally quite confiding near human dwellings. Usually keeps low down in herbage and undergrowth, hopping about energetically with erect tail constantly flicking from side to side and uttering its loud, familiar call. The long tail jerks over the back in a very characteristic manner.

This bird is commonly seen hunting for insects attracted to mango blossoms, and also feeds on flower nectar; occasionally feeds on the ground. Food is mainly small insects and their larvae, butterflies, moths, etc.

Calls are quick repeated *pit-pit-pit-pit* which are alarm notes uttered while hopping agitatedly in the bush around the intruder. Otherwise, quick cheeps, *pitchik-pitchik-pitchik* or *chubit-chubit-chubit* intermittently all day long during breeding season.

Breeding season is overall March to December, but mainly during the monsoon. Nest made by sewing together two large leaves. When completed, a soft cup of fibres, spiders' egg bags and vegetable floss is filled inside the leaf-cone.

13 cm; Common, widespread and resident birds.

Common Chiffchaff – *Phylloscopus collybita*

This bird is pale olive-brown above, below dull whitish washed with buff on breast and flank. It has a short whitish supercilium and no wing-bar. Sexes are alike.

Affects bushes, especially of *Acacia*, *Zizyphus* and such other plants, waterside vegetation, also hedges, gardens, babool groves, scrub jungle, reed beds and standing crops. Found singly or in parties of 8 to 10, flitting restlessly from bush to bush or hopping on the ground flicking wings and tail nervously. Commonly observed picking insects off the water surface, clinging sideways to reed stems, reaching down to an adjacent stem when the perch bends over into the water with its weight.

Feeds on insects. Voice is depressed flat whistle – *peet or peep or heep*; plaintive *teù; zit* (eastern birds).

Breeds in Western Europe from Poland to France and the British Isles. Arrives (migration) in September and remains till end of April.

11 – 13 cm ; Abundant winter visitor.

Purple Sunbird – *Nectarinia asiatica* (Bangla Name – *Durga tuntuni*)

The adult breeding bird has a dark, glossy, metallic bluish-purple body. The eclipse male has yellow-grey upperparts and a yellow breast with a blue central streak extending to the belly. Adult female has yellow-grey upperparts and yellowish underparts, pale throat and upper breast and a faint short supercilium. The thin down-curved bill is of medium length with brush-tipped tubular tongue adapted for nectar feeding. Flight is fast and direct on short wings.

The Purple Sunbird is aggressive, active and noisy and probes whichever flower that has nectar. It has a pest status in grape-growing areas in India as it pierces the fruit and sucks out juice.

This small bird breeds across tropical Southern Asia from Persian Gulf to South-East Asia. A very bright yellow patch develops during breeding in the males on the inner side of shoulder which is visible on close and careful observation while hovering. They are strongly sexually dimorphic.

Affects forest, light wooded areas cultivation and gardens as well as other habitats with some trees. It flits up and down the branches very fast.

Feeds largely on nectar, although these birds also take insects, especially when feeding young ones. Most species can take nectar by hovering like a humming bird, but usually perch to feed most of the time. Voice is humming ‘*zit zit*’ and ‘*swee swee*’.

Breeding occurs during April-June / July. Nest is purse-like; both parents take care for the chicks.

10 cm; Abundant resident.

Black-naped Oriole – *Oriolus chinensis*

(Bangla name – *Kaloghar bënë bāû*)

The bird has brilliant golden yellow mantle with black in wings and tail, yellow wing-coverts concolorous with under parts, black eye-band continues behind to meet over nape. Nape-band broad and wide. Female duller and greener. Large stout reddish bill,

Arboreal, keeping singly or in pairs to large, well-foliaged and fruit-bearing trees; plantations and garden. Feeds on wild figs, lantana and other berries; flower nectar; insects and caterpillars.

Rasping nasal call (*kyehhr*), fluty whistle

Breeding – Chiefly May and June; Nest, a compactly woven deep cup of grass and bast fibres c. 9 cm across and 6 cm deep, suspended like a hammock. Nest may be built beside Drongo's for protection from attack by many other big birds.

25-27 cm; Fairly common resident, undertake some seasonal wandering from the north in winter.

Black-headed Oriole – *Oriolus xanthornus*

(Bangla name – *Bënë bāû*)

Brilliant golden yellow bird with jet black head, throat and upper breast, and some black in wings and tail, bill orange coloured. Sexes alike, but upper parts of female tinged with olive.

Affects well wooded country, open broadleaved forest, mango groves, etc. around habitation and cultivation, gardens and compounds with large trees within urban limits. Arboreal, though occasionally descends to the ground to capture insects, on which it feeds freely, though its chief food is various species of wild figs. Feeds predominantly on banyan, peepul and other wild figs; berries and flower- nectar and also many insects. They are very active creatures, delight in aerial games, following each other from tree to tree, flitting through the foliage with their bright plumage flashing in the sun.

Voice loud harsh, rather nasal descending *cheeuw*; *k(u)ray*; or melodious fluty whistles *poopeelo*.

Breeding - March to August, principally March and April. Nest, a deep cup of woven grass and bast-fibres, slung like a hammock within a fork of twigs near the end of an overhanging branch in some large leafy mango, sheesham or similar tree, 4-10 metre or so from the ground.

25 cm; Widespread common resident, subject to some local seasonal movement.

Black Drongo / King-Crow – *Dicrurus adsimilis*

(Bangla name - *Finga*)

Adult slim, glossy jet black with deeply forked tail which may be lost during moulting giving a curious look. White rictal spot is prominent in adults. During first-winter it has black underparts with bold whitish fringes. Juvenile has uniform dark brown upper- and underparts.

Affects open wooded country, often about cultivation and outskirts of habitations. Arboreal and wholly carnivorous and are of economic usefulness to agriculture in destroying vast quantities of insect pests. Usually seen singly perched on leafless tree-tops, telegraph wires, fence-posts, or earthen bunds separating fields and swoops from the perch to the ground for prey or launches sallies in aerial pursuit. It is the earliest riser and last to retire amongst birds.

Feeds predominantly on insects, on occasion lizards, small birds and small bats; feeds on specific flower-nectar and helps in cross-pollination.

Voice harsh *chicee-ti* or *cheece-titi* (*chicee* harsh; rest musical) or *dek-chu* or a double-noted call *ti-tiu*.

Breeding : overall April to August, principally May and June. Nest, a flimsy-bottomed shallow cup of fine twigs, grasses or fibres cemented together and bound to the substrate with cobwebs and placed in a horizontal fork of a branch, near the extremity, and 4 to 12 meters above ground.

28-31 cm; Widespread resident, subject to some seasonal local and altitudinal migration.

Indian Tree Pie – *Dendrocitta vagabunda*
(Bangla name – *Handi châchâ*)

A long-tailed bright rufous arboreal bird is with dark sooty grey head, neck and breast; buffy underparts and rump, pale grey wing panel and whitish subterminal tail-band. Broad black tips to graduated greyish tail, and greyish, white and black pattern on wings conspicuous and diagnostic, particularly in flight. Juvenile has brown hood. Sexes alike.

Affects lightly wooded country in dry- and semi-deciduous biotope. Forest plantations, thin tree and scrub jungle, mango topes, village groves, extensive dense gardens and compounds in urban areas, roadside ancient banyan and such other trees are amongst its favorite haunts.

Has a large range of harsh and rough as well as musical melodious calls. A loud harsh *ke – ke – ke – ke* often interspersed with a metallic flute-like *ko – ki – la* or *ku – lo – hee*, and also a very metallic *ta – chuck – chuck – chack – chack*, utters strange musical croaks and chuckles.

Feeds on a large variety of fruits including neem, figs of banyan and peepul. Highly destructive to orchard fruits like cultivated figs, mulberries, papaya, cereal crops, flower nectar, etc. Eats widely assorted insects, spiders, centipedes, snails, and almost any other small animals.

Breeding : overall March to July, varying locally; chiefly May and June. Nest, a scanty and fragile deep cup of thin twigs lined with finer twigs, rootlets, etc. placed c. 6 to 8 m up in trees.

Highly inquisitive at all times, and can likewise be excessively cunning and wary when occasion dictates

30 cm; Resident.

BUTTERFLIES SEEN IN RAJ BHAVAN DURING 2002 - 2005

| Family | | Common Name | Scientific Name |
|--------------|----|------------------------|---|
| Papilionidae | 1 | Tailed Jay — | <i>Graphium agamemnon agamemnon</i> Linnaeus |
| | 2 | Common Mime — | <i>Papilio clytia</i> Linnaeus |
| | 3 | Lime Butterfly — | <i>Papilio demoleus</i> Linnaeus |
| | 4 | Common Mormon — | <i>Papilio polytes</i> Linnaeus |
| | 5 | Common Jay — | <i>Graphium doson</i> C & R Felder |
| Pieridae | 6 | Mottled Emigrant — | <i>Catopsilia pyranthe</i> Linnaeus |
| | 7 | Common Emigrant — | <i>Catopsilia pomona</i> Fabricius |
| | 8 | Common Jezebel — | <i>Delias eucharis</i> Drury |
| | 9 | Psyche — | <i>Leptosia nina nina</i> Fabricius |
| | 10 | Indian Cabbage White — | <i>Pieris canidia</i> Linnaeus |
| | 11 | Common Gull — | <i>Cepora nerissa</i> Fabricius |
| | 12 | Common Wanderer — | <i>Pareronia valeria</i> Cramer |
| | 13 | Common Grass Yellow — | <i>Eurema hecabe</i> Linnaeus |
| Lycaenidae | 14 | Common Hedge Blue — | <i>Actolepis puspa</i> Horsfield |
| | 15 | Rounded Pierrot — | <i>Tarucus nara</i> Kollar |
| | 16 | Common Acacia Blue — | <i>Surendra quercetorum biplagiata</i> |
| | 17 | Monkey Puzzle — | <i>Rathinda amor</i> |
| Nymphalidae | 18 | Common Bushbrown — | <i>Mycalasis perseus</i> Fabricius |
| | 19 | Common Three-ring — | <i>Ypthima asterope</i> Klug |
| | 20 | Common Palmfly — | <i>Elymnias hypermenstra</i> Linnaeus |
| | 21 | Common Castor — | <i>Ariadne merione</i> Cramer |
| | 22 | Lemon Pansy — | <i>Junonia lemonias</i> Linnaeus |
| | 23 | Peacock Pansy — | <i>Junonia almana</i> Linnaeus |
| | 24 | Danaid Eggfly — | <i>Hypolimnas misippus</i> Linnaeus |
| | 25 | Blue Tiger — | <i>Tirumala limniace</i> Cramer |
| | 26 | Striped Tiger — | <i>Danaus genutia</i> Cramer |
| | 27 | Plain Tiger — | <i>Danaus chrysippus</i> Linnaeus |
| | 28 | Common Indian Crow — | <i>Euploea core</i> Cramer |
| | 29 | Common Evening Brown — | <i>Melanitis leda</i> Linnaeus |
| | 30 | Tawny Coster — | <i>Acraea violae</i> Fabricius |
| | 31 | Common Sailor — | <i>Neptis hylas</i> Moore |

**Notes on some typical butterflies
of
Raj Bhavan**

Tailed Jay – *Graphium agamemnon agamemnon*
Family - *Papilionidae*

Upper part of the butterfly is blackish brown with glistening apple green spots. Upper fore wing with double row of spots in the cell. Hind wings prominently tailed. Ventral side is pale brown with black and red spots on the hind wings. The wings are elongated and narrow. The tails on the hind wings are longer in the female.

Wingspan: 85 – 100 mm. The pointed wings are master of speed and fastest always. Its flight is straight and dashing. In gardens it usually flies at the level of bushes but at the sight of an obstacle or any attacking predator, it flits swiftly and strongly to the tree tops.

This is an extremely restless butterfly, never tired of flying. It starts its activity in the morning and ends late in the afternoon. When it is active, it is always on its wings or at the flowers. Even when it feeds from a flower, it barely touches it with its legs, takes short sips of nectar and flies over the next flower. It trembles its wings while feeding.

The butterfly visits areas of extensive cultivation of *Annona* (Custard apple), *Polyalthia* (Debdaru) and *Michelia* (Champa) plants which are its larval host plants; and also the nectar plants in the garden. Garden flowers such as *Lantana*, red flowered *Ixora*, *Mussaenda*, etc are regularly visited. It is active throughout the year.

Lime Butterfly – *Papilio demoleus*
Family - *Papilionidae*

It has black wings that turn brownish in older specimens. The wings are spotted with various shades of yellow. Underside has characteristic lemon-yellow, red and blue spots. The abdomen is lemon-yellow with longitudinal prominent black lines.

Although this butterfly is common everywhere during the monsoon and post-monsoon months, it occurs in more diverse habitats and is available throughout the year in South and Southeast Asia. It is a keen nectar feeder and prefers the flowers of tiny herbs to those of huge thickets, such as of *Lantana*. It visits the flowers only for a short while, and in haste.

Its habitat ranges from savannahs, fallow lands and gardens to semi-evergreen and evergreen forests and it is particularly plentiful along the streams and river-banks. It occurs throughout the year.

Wingspan: 80 – 100 mm; It flies slowly in the morning and rapidly in the hotter hours. It flutters its wings for some time after settling on the soil, but finally sits motionless provided it is left undisturbed. It basks in open places with the wings spread flat.

Although its larval host plants are varieties of *Citrus*, the preferred plants differ in different habitats, all of the family Rutaceae.

Common Mormon – *Papilio polytes*
Family - *Papilionidae*

The male butterfly is jet-black with tailed hind wings which have a yellow discal band, continued on fore wing as marginal white spots. A row of white spots remains submarginally in the hind wings. The males are smaller than the females. In-between the submarginal and discal band there is an area of blue scaling.

The female resembles the male i) in colouration with indistinct red spots on the hind wings, the *cyrus* form; ii) the *stichius* form, a good mimic of the Common Rose butterfly except crimson body colour of Rose where as black of the mimic. iii) The *romulus* form is dull coloured and mimics the Crimson Rose butterfly. They start flying faster than their mimics and most erratically on the slightest disturbance.

Only the male butterflies mud-puddle. Both the male and female spread their wings flat against the substratum while basking.

It is very common butterfly in the plains in the monsoon and post monsoon months, but active throughout the year. It occurs throughout the Oriental region and found in the well wooded areas around human habitations.

Its long proboscis aids it to feed on nectar from flowers with long corolla tubes. It feeds on *Lantana*, *Jatropha*, *Mussaenda* and *Ixora* around human habitations, while in addition to these plants it gets its nectar supply from *Asystasia*, *Peristrophe*, *Jasmiium*, etc. in the forests.

Wingspan: 90 – 100 mm; It remains close to the ground and never rises above 3 m while flying. The males fly in zigzag manner but unidirectional and with moderate speed. Both the sexes fly long distances at a stretch and seem untiring.

The larval host plants are all either large shrubs or small trees like *Citrus* sp. *Murraya paniculata*, *M. koenigii*, *Triphasia* sp. and *Zanthoxylum* sp.

Common Jay – *Graphian doson*
Family : *Papilionidae*

This is a black butterfly with pale blue, semi transparent central band that is formed by large spots. There is a marginal series of smaller spots. The underside of the wings is brown, with markings similar to the upperside, but they are whitish. The sexes are alike.

Wingspan: 70 – 80 mm; It inhabits primary as well as secondary moist deciduous, semi-evergreen and evergreen forests, sometimes venturing into forest plantations and orchards; it particularly frequents the rivers and streams of the forests. Mud-puddling by the males is seen by the forest streams. The butterfly remains very active throughout the day and year, particularly in summer.

It remains constantly on the move, so it is difficult to see it settling down. It has a swift and straight flight and avoids no vegetation layer. It never settles fully on the flowers while feeding and keeps its wings vibrating.

Having very strong thorax, it can beat its wings rapidly without lowering them in each beat and can easily travel between the ground and the fairly tall canopy of the evergreen forests.

The larval food plants are *Annona lawii*, *Cinnamomum macrocarpum*, *Magnolia grandiflora*, *Michelia champaca*, *Miliusa tomentosum* and *Polyalthia longifolia*.

Common Emigrant – *Catopsilia pomona*
Family - Pieridae

This is one of the most variable butterfly species, as far as coloration and size of the adult are concerned. Male is pale yellow or greenish yellow. The colour of its wings ranges from white with only basal areas of the wings yellow of varying shades, to completely plain lemon yellow. In forested regions, especially in the summer, the individuals are much larger and a brighter sulphur-yellow with brown blotches. Despite variations in this species, on the upper side, at least the bases of all the four wings of all the specimens are yellow, the front margin and apex of the fore wings are narrowly black in the male and broadly black in the female, where this margin may converge to a spot at the cell-end. Underside is unmarked.

Occurs in semi-arid and arid areas with little woody vegetation and also abundant on cultivated land, scrub, grasslands and savannahs. It is active throughout the year, but most abundant during the pre-monsoon and post-monsoon months.

Wingspan: 50 – 80 mm. Seasonal forms occur. Swarming of this butterfly can be seen just after the monsoon. They are generally fond of visiting various species of flowers. They also visit damp patches, where sometimes a large congregation of these butterflies can be seen. They fly about 1 – 4 m from the ground. Often a female is seen being chased by many males. Flight is powerful with erratic ups and downs and unpredictable jerks.

The butterfly feeds on flowers of herbs and shrubs like *Caesalpinia coriaria*, *Lantana camara*, *Sesbania* sp, *Sida cordifolia*, etc.

Common Jezebel - *Delias eucharis*
Family - Pieridae

The upperside of the butterfly is white in general. The wings have the veins broadly black, which broadens triangularly at the termination of the veins. Veins of the hind wings, for three-fourths of their length, are much more narrowly black and curved. The ground colour of the hind wings and also the underside of both the wings are bright

yellow coloured with black veins and a marginal series of roughly pentagonal orange-red spots. Females have upper and undersides similar to those in the males, but the black edging to the veins and transverse bands on both fore and hind wings are very much broader. Antennae are black; head, thorax and abdomen white, the apical joint of the palpi black; black hairs on the head and thorax give these parts a grey-blue appearance.

Wingspan: 66 - 83 mm; Common Jezebel is generally found all over India up to an altitude of 7000 feet in the hills except in the desert tracts. It may be found wherever there are trees, even in towns and cities and is commonly seen in gardens. The females can be seen flying amongst the trees in search of its food-plants, while the males are more frequently observed visiting flowers for nectar or mud-puddling. It rests with its wings closed exhibiting the brilliantly coloured underside. This butterfly remains very active during noontime and afternoons. It sleeps on the overhanging branches of tall trees.

The Jezebel often flies high up in the canopy and usually comes lower down only to feed on nectar in flowers. It has bright coloration to indicate the fact that it is unpalatable due to toxins accumulated by the larvae from the host-plants.

The larval host plants are various species of small hanging shrubs which are plant parasites growing on branches of trees such as *Loranthus*, *Helicanthus*, *Dendrophthoe* etc.

Psyche – *Leptosia nina nina*
Family - *Pieridae*

Upper part of the butterfly is bright white with black apex and discal spots on the forewing. The underside is also white, but dull, overlaid with pale grey scales and marked with faint green striations. The wings appear papery thin therefore semi-transparent.

Wingspan: 35 – 50 mm. Psyche's flight is extremely weak, flies in undergrowth and bushes, fluttering with a slow closing and opening of wings, a characteristic rhythm which identifies it.

It visits flowers of various low growing plants, close to the ground. When disturbed it flies erratically but not faster.

Indian Cabbage White - *Pieris canidia*
Family: *Pieridae*

This is a predominantly white butterfly. Male has the upperside white to pale cream-colour. The apical margin on the upperside of the fore wing is marked with a scattering of black scales extended for a very short distance triangularly along the veins and has a few black marginal spots. A large round black spot is present on the outer half of the fore wings. The hind wing has a large and more conspicuous subcostal black spot

and also a series of four or five terminal black spots of varying size at the apices of the veins.

Underside of the fore wing is white; apex somewhat broadly tinged with ochraceous yellow. Antennae black with minute white specks; the long hairs on head and thorax greenish-grey; abdomen black; head, thorax and abdomen are white. The underside of the hind wings is dirty white, densely dusted with dirty yellow, grey and greenish scales.

Female has the underside similar to that of the male but the scattering of black scales more prominent; on the fore wing there is an additional black spot on the upperside.

Feeds on the flowers of herbs and shrubs, such as various *Impatiens*, *Leucas*, *Vicoa*, and *Crepis*.

Wingspan: 45-60 mm; It exhibits slow and fluttering flight. In the morning it flies in shorter bursts, while settles usually close to the ground, sometimes with closed or half open wings. It remains very active around noon and in the afternoon.

The larval host plants are small herbs as well as cabbages. The caterpillars of this species are regarded as minor pests of cabbage.

Common Gull - *Cepora nerissa*
Family - *Pieridae*

Common Gull has chiefly white on the upperside and yellow on the underside. Males have grayish-blue shade at base of wings and along the veins, due to the dark markings on the underside that show through. Fore wing veins and margins are black. Hind wing veins have outwardly-dilated broad black edgings that unite sometimes and form an anterior, irregular, black, terminal margin to the wing. The veins are faint on the upperside but prominent on the underside. Antennae black, obscurely speckled with white; head and thorax bluish grey; abdomen is dusky black.

The female butterfly is similar to the male but very much darker and more heavily marked. Veins on the upperside are more broadly bordered with black. Underside similar to that of the male only the veins are much more broadly margined with diffuse black scaling. Antennae, head, thorax and abdomen are as in the male.

Feeds on flowers of *Tridax procumbens*, *Sida rhombifolia*, *Alternanthera* and *Lantana* when these are in inflorescence.

Wingspan: 40 - 65 mm ; It is a common butterfly of the savannahs, scrub and dry deciduous forests of the plains and low-lying hills of India. It is also found in degraded forests and occasionally visits gardens. This is very common between monsoon and post-monsoon months. It flies rapidly but always fairly close to the ground. While basking, it keeps its wings three-quarters open. Once it is warm enough, it is a very active butterfly.

The larval host plants are various species of capers (*Capparis*) which are mainly woody climbers. The recorded host plants are *Cadaba fruticosa*, *Capparis sepiaria*, *Capparis zeylanica* (the most commonly used plant) and *Maerua oblongifolia*.

Common Wanderer — *Pareronia valeria*
Family - *Pieridae*

The male butterflies are bright and shiny sky-blue with contrast black margins and veins. The females are light bluish-white coloured with broader margins as well as veins. Both upper and lower surfaces have similar markings, but the colour of the under surface markings is brownish. These butterflies prefer open forests, dense scrub and woodlands and are found in areas of moderate to high rainfall and also are seen in well-wooded parts of urban areas.

Wingspan: 65 - 80 mm ; It has a characteristic wandering flight. The males fly untiringly between 1-5 metre above the ground and hardly seen to rest or bask with their wings open. Their flight is usually moderate but becomes erratic when disturbed. The females mimic the Blue Tigers and fly slowly and are relatively sedentary as compared to the males. It feeds on flowers having long corolla tube, such as *Plumbago*, using its very long proboscis.

The larval host plants are woody climbers of family Capparaceae: namely *Capparis rheedii*, *Capparis zeylanica* etc.

Common Grass Yellow – *Eurema hecabe*
Family - *Pieridae*

This is a very bright yellow butterfly with black borders on the dorsal side of its wings. Upper side is dark yellow with dark apex of the forewing and broadly black termen. Various brown markings without a transverse streak are seen on the under part of the hind wing. The apical area under forewing is not entirely brown and has brown blotches and a large characteristic spot at each apex in the dry season form.

It occurs all over India and abundant in many places. It is found in large open patches in the evergreen forests, in semi-evergreen and deciduous forest and also in scrub, savannahs and near human habitations. This is the most common butterfly in the urban areas.

It occurs round the year but abundant in post-monsoon months and remains most active in the morning and at noon.

Wingspan: 40 – 50 mm. It has a weak fluttering flight. Contrary to its name, this butterfly does not depend upon grasses; its caterpillars feed on legumes. Occurs in association with grassy habitats, where it usually flies close to the ground among herbs and bushes. It may often fly to the top of the trees seeking nectar from flowers.

The butterfly feeds mostly on the small, low-growing flowers. Asteraceae members, such as species *Tridax*, *LAGASCEA*, *Bidens* and *Ageratum* are its favourite flowers. All the larval host plants of the Common Grass Yellow are leguminous.

Common Hedge Blue – *Actolepis puspa*
Family – *Lycaenidae*

This is a small, handsome, white butterfly with a pure white face and black eyes. The bright blue colour of the upper surface is brilliantly glossy. The female always has a white patch at the centre of the upper surface of the fore wings, but the male may lack it. It lacks tails on the hind wings. The pattern of black line-markings on the underside of its wings is characteristic.

Wingspan: 28-35 mm; The common Hedge Blue occurs in deciduous, semi-evergreen and evergreen forests. It inhabits moist shaded riparian areas in deciduous forests, forest edges and paths in the semi-evergreen and evergreen forests. It flies amidst the undergrowth of bushes, never rising higher to other vegetation layers. It occurs seasonally in the deciduous forests, restricted to the monsoon and post-monsoon months and is not seen during the rest of the year. However, it is common and one of the most prominent butterflies in its preferred habitats.

It is a very weak flier, flutters with feeble wingbeats, sometimes settles but never flies too far or too high and thereby it remains very close to those bushes where moisture is always available. However, it prefers patches where intermittent sunlight is present so that it can occasionally bask. The white disc on the fore wings become very prominent when rests on open branches of a bush or a tall herb spreading the wings partially. It sucks food from small flowers and bird-droppings with its slender and delicate proboscis. It usually mud-puddles singly.

The larval host plants are large trees or woody climbers of family Fabaceae, Mimosaceae, Sapindaceae, such as *Schliechera oleosa* and *Xylia xylocarpa*.

Rounded Pierrot – *Tarucus nara*
Family – *Lycaenidae*

This butterfly is unmistakable with white marks in black. It has more than three metallic green spots at the lower corner and hind wing on the underside. It occurs in semi-arid areas or highly disturbed dry forests. The wing-borders are dark brown or black. Sexes alike.

Wingspan: 20 – 30 mm; This is a weak flier but somehow manages to avoid predation by birds. With its bright pied colouration when it basks in the sun with the

wing half-open, the metallic green scales on the upperside then become conspicuous. The genitalia structure being different, it is distinguishable from similar other species.

The larval host plants are mainly different species of *Ziziphus*.

Common Bushbrown – *Mycalesis perseus*
Family - *Nymphalidae*

It is a medium-sized, inconspicuous butterfly brown in colour. On the upperside of each fore wing occurs an eye-spot at the outer margin. The underside varies with the season. The wet season form has a white line running from the leading margin of the fore wing to the trailing edge of the hind wing, which usually remains obscure in the dry season form or may be represented as a pale brown or thin white line. A series of black spots with white centres remain enclosed in the area between this line and the wing margin. These eye spots are reduced to mere indistinct dots in the dry season form. The males have small, hairy, black bands in the region of overlap between the hind and the fore wings. Sexes alike.

Wingspan: 38 – 55 mm; This butterfly is widely distributed in most common habitats. It is abundant more or less throughout the year and many are seen during the monsoon in deciduous forests. The flight of the Bushbrown is somewhat comical. It proceeds in an unstable manner and always keeps close to the ground where it prefers to bask on grass or leaves on cloudy days or in the morning.

The larval food plants are grasses in general. It goes neither inside dense and dark undergrowth nor away from it, but goes round and round the shrubs so that it is difficult to follow it for long. Its preferred food is tree-sap and rotting fruits and also prefers some mammalian herbivore droppings.

Common Plamfly - *Elymnis hypermenstra*
Family - *Nymphalidae*

The common plamfly males have blackish brown upper part with a purple gloss. Fore wings are with marginal series of blue spots. Upper hind wings are with a broad chestnut border. Ventral side is dark chestnut brown with fine striations.

Female butterfly is reddish brown and spotted with white. The upper fore wing has white apical band. The submarginal spots of the upper hind wing are obsolete. It has a broader black border and black stripes on the wings and thereby it mimics the striped Tiger. Its maroon underside is heavily marked with white streaks. The hind wings of both the male and female plamfly are toothed. The male plamfly mimics the Crows.

It is usually found near forests or palm groves and occur only at the lower altitudes. Although it prefers undergrowth, it comes out to bask in the morning hours and it is very fond of areas with light and shade.

Wingspan: 65 - 80 mm; Its flight is very weak and males are frequently seen to settle on palm leaves and also are seen to visit damp patches. The males rest with wings closed for a long time. Their food plants belong mainly to Palm and Banana family.

The larval food plants are primarily bamboos; other plants are *Areca*, *Arenga*, *Cocos*, *Phoenix*, *Rhaphis* etc.

Common Castor – *Ariadne merione*
Family: *Nymphalidae*

This butterfly is rusty-brown with wavy black lines on its wings. A characteristic white dot is present on the front margin of the fore wing. The hind wings may not have wavy margins. The underside of the wings has much darker shade of the same rusty-brown colour. The common castors are lazy and take short flights and often come back to the same spot. The butterfly mainly glides and the gliding is sustained by periodic wingbeats.

It has been reported to feed from flowers and on plant-sap. This butterfly is suspected to be unpalatable and hence protected from predation.

Wingspan: 45 – 60 mm; This butterfly is very common in the proximity of the castor plants on which its caterpillars feed. Since these plants are widespread throughout India, the butterfly is also very common in the plants' vicinity. This butterfly sits on the castor plants always with the wings wide open, occasionally moving them slowly.

The female settles on the underside of a leaf, usually away from the margins and habitually lay eggs singly.

The larval host plants are *Ricinus communis* (castor plant) and *Tragia involucrata* as well as *T. plukenetii* (stinging nettles). The utility of the latter is probably dependent on the availability of the plants, therefore the castor plants are more frequently used.

Lemon Pansy – *Junonia lemonias*
Family: *Nymphalidae*

This butterfly is brown with numerous eye-spots as well as black and lemon-yellow spots and lines on the fore wings and hind wings. The spots and marks are less prominent in summer compared to wet season. The butterfly being obscure and pale in the dry season, can camouflage itself among dried leaf-litter. Sexes are alike.

Feeds on *Lantana*, *Cosmos* or other large flowers with abundant nectar and keeps its wings partially open. It always flies close to the ground, wanders around for some time but may return to the same place.

Wingspan: 45 – 60 mm; Lemon pansy is among the commonest butterflies in gardens, uncultivated lands and open wooded areas. It is found almost throughout the year, though more numerous during monsoon and post-monsoon months.

It is a very active butterfly and is seen to bask in the morning on low growing herbs or on the ground. It rests spreading its wings flat and facing the sun. It is well known to chase away other trespassing butterflies. While perching on any branch, occasionally it moves its wing up and down very slowly. After a forest fire which destroys the ground vegetation, this is the first butterfly to appear in the burnt areas.

The eggs are laid singly, usually on the undersides of the leaves. The larval host plants, belonging to three families, namely Acanthaceae, Malvaceae and Tiliaceae, all herbs or small shrubs. The recorded host plants are *Barleria* spp., *Corchorus capsularis*, *Hygrophila auriculata*, *Nelsonia canescens* and *Sida rhombifolia*.

Danaid Eggfly – *Hypolimnas misippus*

Family – *Nymphalidae*

The male butterfly is jet-black above with two contrasting glossy white oval spots, one large-sized on the hind wing and one smaller-sized on the fore wing, the steel-blue margins of these spots become apparent only when the light conditions are perfect for such dynamic colours. Just behind the tip of the fore wing occurs a smaller white spot giving this butterfly a characteristic appearance. The fore wings are pointed. The underside is rusty-brown coloured with golden tinge and has distinct broad white band on the hind wing and a narrow band on the fore wing.

The female is reddish-tawny like a Plain Tiger butterfly of which it is a total mimic. The apex of the fore wings of female is black with white bands; borders of the hind wings are black with series of white oval dots. The underside is similar but paler. A large, distinct, black spot is present near the front margin of the hind wing, compared to the Plain Tiger's 3 - 4 smaller black dots approximately at the centre of the hind wings. Danaid Eggfly is a typical example of sexual dimorphism in butterflies.

This is a fairly common butterfly in lightly wooded country, deciduous forests, thick and moist scrub and parts of human habitations where greenery still exists.

Feeds exclusively on nectar and mostly that of *Lantana*.

Wingspan: 70 – 85 mm; The male Danaid Eggfly is somewhat sedentary in nature and can be seen at one spot for days. It rests on the ground or on low bushes spreading the wings pressed on the substratum and moving them intermittently and slowly. The female flies steadily and untiringly; but attains speed if disturbed.

The larval host plants are mainly *Portulaca oleracea*, and *Asystacia lawiana*, while reported plants are *Barleria cristata*, *Hibiscus* sp., etc.

Striped Tiger – *Danaus genutia*

Family - *Nymphalidae*

The wings are tawny or orange with broad black veins. Black margins of the wings with two series of white spots give it a striped appearance with white and black apical bands. The underside is similar in colour and pattern, but paler, as compared to the upperside. The male has a black-and-white spot on the underside of the hind wing.

It is common in scrub jungles, fallow lands around human habitations as well as dry and moist deciduous forests, but prefers areas with moderate to high rainfall. This butterfly is a common visitor to urban gardens. Prefers forest vicinity, woods, overgrown with bushes and scrub

It is distributed throughout India. It is most active from the pre-monsoon to the post-monsoon period.

It feeds from the flowers of *Lantana*, *Celosia*, *Adelocaryum*, *Cosmos*, *Zinnia* and many others.

Wingspan: 70 – 80; It is a strong flier, but never flies fast or very high. The wingbeats are regular and fairly rapid. The wings may be kept open or closed while feeding from flowers.

The larval host plants are small herbs, twiners and creepers

Plain Tiger – *Danaus chrysippus*

Family - *Nymphalidae*

A tawny-brown, medium-sized butterfly has black body spotted with white. The apical half of the fore wing is black and marked with a subapical pure white band. The males have larger and slightly bulging white-centred spot formed of a cluster of scent-scales, which attract females. The hind wing characteristically has three small black spots approximately at the centre (instead of a large black spot near the front margin of the hind wing in Danaid Eggfly female). The hind wing has a thin, black border that encloses a series of semicircular white spots.

It occurs along the clearings and edges in open forests, scrub and savannahs, gardens in human habitations, riversides, etc. The Plain Tiger is protected against attacks from avian and reptilian predators by virtue of the unpalatable alkaloids it ingests while feeding in its larval stage. Its flight is slow and laborious which helps its predator to recognize it. Inexperienced predator may try it out, but learn very quickly, as the alkaloid stored in the butterfly's body causes vomiting. Its tough leathery skin protects it from the predators' killing attack.

Nectar being the only nourishment, the Plain Tiger visits the flowers of *Lantana*, *Tagetus*, *Cosmos*, and other garden plants for feeding.

Wingspan: 70 – 80 mm; It flies almost straight and close to the ground. The wings are usually closed over the back at rest, but while basking, it rests close to the ground on small bushes, spreading the wings and its back completely exposing to sun.

The larval host plants are the large bushes of the herb *Calotropis gigantea* near water, *Asclepias curassavica* and a straggling bush – *Cryptolepis buchanani*.

Common Indian Crow – *Euploea core*
Family - *Nymphalidae*

This butterfly is characterised by rich glossy chocolate brown colour on the upperside (when fresh) and paler on the underside. A complete row of marginal and a row of submarginal white spots are present. The submarginal spots of hind wings are elongated while those of marginal rows are rounded. At one cell-end along the underside of the fore wing is present a white spot, a characteristic of this butterfly. The body is black and spotted with white. Near the rear edge of the fore wing, along the upperside, occurs dark velvety band and also a white streak at the same place on the underside.

It is a common nectar-lover, mud-puddler and an emigrant butterfly. It flies in all vegetation layers and feeds on the flowers of herbs or large trees like *Lantana*, *Chromolaena*, *Syzygium*, *Terminalia*, *Gliricidia*, *Gmelina arborea*, etc.

Its global distribution extends over the entire Oriental and Australian regions. This butterfly thrives in all habitats and is generally common except in very dry areas and thick evergreen forests. It remains active throughout the year, with some seasonal variations in numbers, depending upon local conditions.

Wingspan: 85 – 95 mm; The Common Crow exhibits weak flight which is not swift and jerky and sails few metres above the ground. The wings are held slightly above the horizontal plane while glides through the air.

The most common larval host plants are *Ficus racemosa*, *F. glomerata*, *Ichnicarpus fruticans*, *Nerium odorum*, *N. oleander*, *Cryptolepis buchanani* and also *F. benghalensis*, *F. religiosa*, *Hemidesmus indicus*, *Holarrhena antidysenterica*, etc. all having milky unpalatable latex.

Common Evening Brown – *Melanitis leda*
Family - *Nymphalidae*

This is an inconspicuous brown butterfly. The upperside is dark brown with an eye-spot and a white 'pupil' on the fore wings surrounded by orange patches, particularly

in the dry seasons. This butterfly rests camouflaged among fallen dried leaves on the floor like leaf-litter. It rests on one side, as if unbalanced, so that it is hard to spot among the fallen sticks and dead leaves. In the wet season it becomes yellowish brown in colour with prominent eye-spots and black streaks in the wings. The apex of the fore wing is produced and angular only in the dry season forms. The sexes are alike.

Wingspan: 60 – 80 mm; This is one of the very few butterflies present everywhere in India and is found in wide range of habitats barring the extremely dry and open areas. Possibly this is the only species of the closed and thick evergreen forest floors, i.e. in dense evergreen forests, deciduous forests, scrub and savannahs, as well as neglected, shaded places in urban gardens. It keeps close to the ground and rarely flies high up. Immediately after landing, it may open its wings and turn around a few times to display eye-spots on the fore wings, but then rests motionless.

Being crepuscular, this butterfly usually comes out of its hiding place in an unsteady manner as the day dies out. It is often attracted to electrical lights and it is stubbornly returns to the light even after repeated attacks by the predators, such as lizards.

Tawny Coster – *Acraea violae*
Family - *Nymphalidae*

This bright tawny-red coloured butterfly has distinctive wing shape. The fore wings are long, broad and rounded at the apex. The hind wings are rounded. Both the wings are tawny-red with a black border, which is broader on the hind wings and encloses a series of white spots. The wings are marked with black spots. The thorax is small; the abdomen is long and narrow.

It avoids shade and dense vegetation but frequents openings in all vegetation types, including clearings in evergreen forests. It is common in gardens. It is found throughout the year and is restricted to the Indian subcontinent.

The species is protected because of its unpalatability. It flies unaffected in the same careless fashion even after attack from its predators, since its tough skin makes it hard to kill.

Feeds from the flowers for a long time folding its wings over its back or moves them slowly. It flies close to the undergrowth and herbs for flowering plants in this region.

Wingspan: 50 – 65 mm; Tawny Coster is unmistakable due to its lazy flight which is very slow but long-sustained, with weak wingbeats. It keeps within 3 m from the ground. It is among the boldest fliers in India.

The larval host plants are mostly the “passion-flower plants”, and also *Adenia hondala*.

Common Sailor – *Neptis hylas*

Family - *Nymphalidae*

The wings of Common Sailor are black with two white bands made of spots. The cell of the fore wing is almost entirely white, with a triangular white mark in front of it. The wings are narrow. The body has a greenish-brown polish. The underside of the wings is chestnut coloured. Sexes alike.

Wingspan: 50 – 60 mm; This is a common butterfly in wooded and hilly country and distributed all over the Indian subcontinent. It prefers well-watered and densely vegetated nullahs in deciduous forests, as well as in sunny patches. It also ventures into the paths, edges, and openings in the evergreen forests as well as human habitations, gardens and scrub.

It remains active throughout the year and is very common during summer months. It is a master of graceful sailing flight and hence the name is very appropriate. It flies with the wings spread flat and glides without much effort. Occasional flicking of the wings enables the butterfly to maintain its height and momentum. This is a very efficient dodger and therefore not easy to capture. It closes its wing only when it roosts. Its black and white colour pattern is very striking.

This butterfly feeds exclusively on nectar of a variety of flowers, of herbs to giant trees, moving effortlessly in all the vegetation layers which include *Bombax ceiba*, *Canavalia gladiata*, *Xylia xylocarpa*, *Corchorus* sp., *Flemingia* sp., etc.

Larval host plants are diverse, from many families from herbs to large trees like *Bombax ceiba*, *Canavalia gladiata*, *Paracalyx scariosus*, *Xylia xylocarpa*, etc.

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Glossary of technical terms used

Birds

| | |
|--------------------|--|
| Arboreal | : Tree-dwelling (may also frequent bushes). |
| Avian | : Pertaining to birds. |
| Biotope | : Region characterized by certain environmental conditions and inhabited by a particular community of flora and fauna. |
| Buff(y) | : A very pale (yellowish-) brown colour. |
| Collar | : Distinctly coloured band around the neck. |
| Coverts | : Feathers covering the bases of flight and tail feathers. |
| Crepuscular | : Active during the twilight of dawn and dusk. |
| Diurnal | : Chiefly active during the daytime. |
| Eclipse plumage | : Post-breeding plumage |
| Eye-band/stripe | : A stripe on a bird's head which encloses or appears to run through the eye. |
| Gregarious | : Associating in groups or flocks. |
| Hawking | : Catching insects in the air. |
| Immature | : Not fully developed (adult). |
| Iris | : Membrane around the dark pupil (centre) of the eye - often brightly coloured and of some diagnostic value in birds. |
| Juvenile | : A bird in its first full plumage after fledging. |
| Mandible | : One of the two sections that form the bill, viz. upper mandible or lower mandible. |
| Mantle | : Back and adjoining area. |
| Migration | : Seasonal movement. |
| Mobbing | : Crowd round in an unruly and excitable way. |
| Moustachial Stripe | : A stripe extending from the upper beak. |
| Nape | : Back of neck. |
| Nocturnal | : Mainly active at night. |
| Occipital Crest | : Crest arising from the back of the head. |
| Plumage | : A bird's feather collectively. |
| Rictal | : Of the gape (usually describing the bristles near the base of the bill, or a spot behind the mouth). |
| Roost | : A place where birds regularly settle to rest at night. |
| Rufescent | : A colour somewhat lighter than rufous, a slight reddish tinge. |
| Scapular | : Feather covering the shoulder; growing above the region where the wing joins the body. |
| Supercilium | : Streak above eye. |
| Swarm | : Moving in large numbers. |

Butterflies

| | | |
|----------------------------|---|---|
| Abdomen | : | The last section of the butterfly's body, which bears spiracles. |
| Alkaloid | : | A nitrogenous organic compound, many of which are beneficial for animals and humans, usually produced by flowering plants. |
| Antenna <i>l</i> | : | The long clubbed feelers situated close to the inner margins of the adult butterfly eyes. |
| Antennae (pl) | : | |
| Apex | : | Tip of the wings. |
| Apical area | : | The area at or adjacent to the tip of a wing or other structure. |
| Base | : | The portion of the wing close to the body. |
| Cell (of a wing) | : | An area of the wing enclosed by veins which play a crucial role in butterfly identification. |
| Cell-end | : | The end of the cell at a cross-vein. Markings at the cell and cell-end are the basis of butterfly identification. |
| Costa | : | The upper / front margin of the wing. |
| Disc | : | The central area on the wing of the butterfly. |
| Dorsal surface (of a wing) | : | The upper surface of the wing. |
| Dorsum | : | The lower or hind (of the fore wing) or inner (of the hind wings) margin of the wings of a butterfly. |
| Dry season form | : | This form is produced in cool and dry season of the year and is paler, unmarked and larger than the wet season form. |
| Eye-spots | : | The eye-like markings on the wings of the butterfly. |
| Larva | : | The growing stage of in a butterfly's life. |
| Mud-puddler | : | Seek moisture (and dissolved salts) from damp soil, mainly to flush out body wastes. Males exclusively ingest salts during mud-puddling. |
| Proboscis | : | The long tube-like mouth part of an adult butterfly, used for sucking nectar or liquid food and remains coiled in front of the eyes when not in use. |
| Puddling | : | Male butterflies make up their deficiencies by absorbing the sodium salts from contaminated ground water and other sources where easily dissolvable inorganic salts are available. Very often a large congregation of many species of butterflies can be seen on such patches . |
| Scales | : | The covering on the wings consisting of loose, detachable structures that gives the butterfly its colour. |
| Spiracles | : | An external respiratory opening in insects. |

| | | |
|-----------------|---|---|
| Termen | : | The outer margin of the wings of a butterfly. |
| Thorax | : | The second section of a butterfly's body, bearing the wings and legs. |
| Tornus | : | The lower corner of the wing of a butterfly. |
| Tawny | : | Yellowish-brown. |
| Wet season form | : | A morphological form of a species produced in the wet season of the year which has darker, more richly marked and smaller wings. |
| Wingspan | : | A straight distance between two apices of the forewing of a preserved specimen that has the dorsum of the forewings at right angle to the body. |
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