

# BUTTERFLIES OF NEW FOREST DEHRADUN, INDIA



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Butterflies are vivid expressions of life and since time immemorial have inspired writers, poets, artists and naturalists throughout the globe. Rabindranath Tagore once wrote- "The butterfly counts not months but moments, and has time enough". "Butterflies.....flowers that fly and all but sing" by Robert Frost in "Blue Butterfly Day" is equally holds good. The fluttering of a butterfly's wings can effect climate changes on the other side of the planet" by Paul Erlich, is a more recent quote. Butterflies also have great aesthetic value to man. Their shape, colour and patterns have always fascinated humans and are celebrated in art and literature. These magnificent and colorful creatures fly around from flower to flower. These do not bite or sting, as their mouthparts are modified into tubes that can only suck nectar and are therefore known as symbols of innocence.

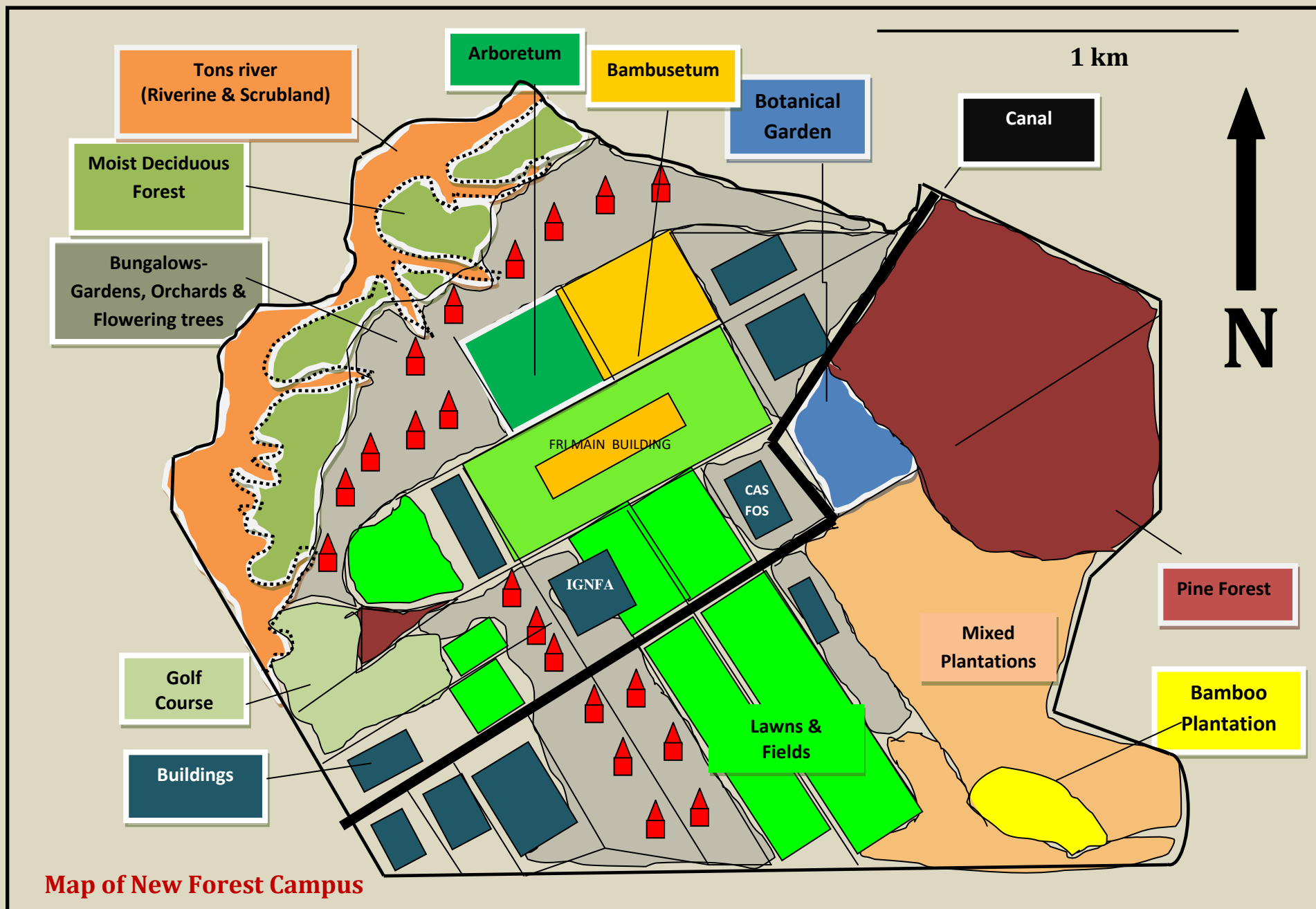
They are important components of biodiversity and are ecologically important because of the role they play in the food chain of a forest ecosystem. Their egg, larva (caterpillars) and adult (butterfly) form the food of a number of other animals. Most butterflies are pollinators of flowering plants and have a symbiotic relationship with plant diversity as they are dependent upon a variety of plants for larval food. Being diurnal and conspicuously attractive, they are easily noticed flying around during sunshine. They are also an easily identifiable group as compared to other invertebrates which have been widely studied with most species described in detail. They have short generations, are widespread, and occur in all types of habitats.



All these qualities make butterflies good biological indicators of environmental variation and quality.

Ecotourism with butterflies in parks, gardens, conservatories and trails has recently gained much importance and hence widely practiced in many countries across the tropics as a source of education, entertainment, earning revenue and research

The campus of the Forest Research Institute, Dehradun also known as New Forest (30°20N & 78°01E), lies in the heart of Dehradun valley and occupies an area of 4.4 km<sup>2</sup> at 670m altitude. The campus was created in 1927 and is unique as it has combination of both artificial and natural habitats, with numerous indigenous and exotic plant species, being flanked by natural, mixed and pure stands of moist deciduous forests with mainly *Shorea robusta* on the slopes. More than 972 species of trees, bamboos, shrubs and climbers, 73 species of herbs and 28 species of grasses are present in the campus of which about 500 species are exotic from different parts of the world. A large number of habitats are present in the campus which include old pine plantation, *Pinus roxburghii*; teak, *Tectona grandis* and other mixed and pure plantations. Bamboo thickets, a large botanical garden, an arboretum, big fields and lawns, agriculture, nurseries, cultivated land, fruit tree orchards, flowering and fruiting tree avenues, bushes, a canal and a golf course.



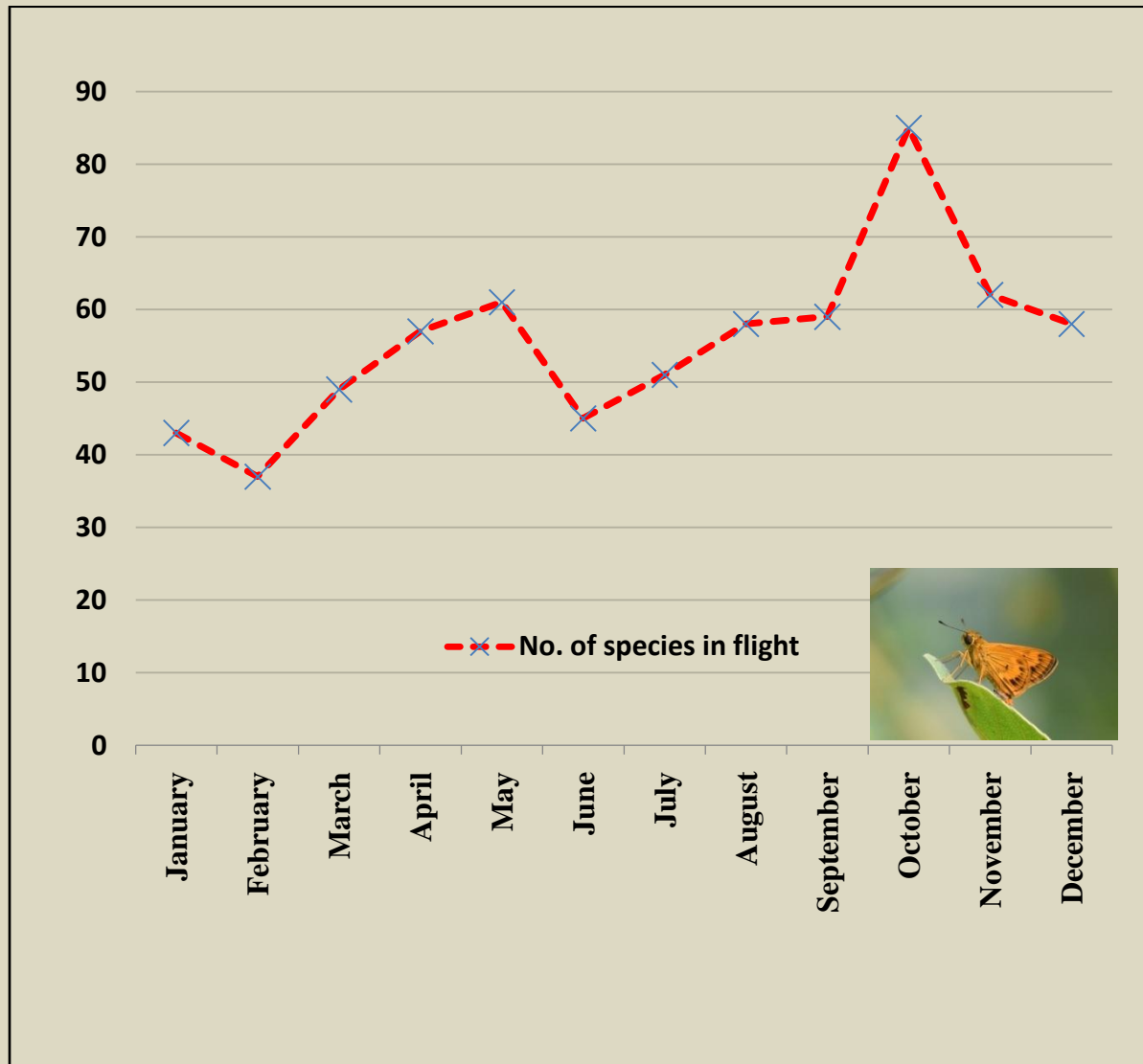
New Forest campus also provides a rich mosaic of habitats having numerous nectar and larval food plants for over 155 species of butterflies that can be seen flying around the year. The species are found here are mostly Oriental but a few migrants from the higher reaches of the western Himalayas during winter having Palaearctic affinities have also been noticed. Besides, a few species found here are 'rare' and protected having been listed under the Indian Wildlife Protection Act 1972. One can observe butterflies on flowers, trees and shrubs, forest edges, wet mud during dry season, ripened and rotting fruits & basking in sunshine during winter.

During the hottest time of the day in dry summer season, to cool themselves and avoid desiccation, butterflies of several species congregate in shady 'nullahs' and riverbeds or damp patches under large sized trees with eg. Large Oak blue (*Arhopala amantes*), Indian Oak Blue (*Arhopala atrax*). This also helps in searching for mates. Large size butterflies generally prefer large tubular flowers for nectar feeding while small ones prefer small sized flowers unless they have usually long proboscis. Many species of nymphalids are attracted to the sap oozing out of tree stems or rotting/fermenting fruits eg. Common Evening Brown (*Melanitis leda*), Common Five-ring (*Ypthima baldus*), Indian Nawab (*Charaxes bharata*), Common Baron (*Euthalia aconthea*), etc. Males of many species can be seen assembling on contaminated ground with animal urine or bird excreta, or even the sweat of

humans eg. Orchid Tit (*Hypolycaena othona*). These butterflies absorb from these sites essential elements such as sodium. Often, very large congregations of one or more species of butterflies congregate on these patches, but only males take part in the mud puddling. The excess water that is absorbed is thrown out of the abdomen in the form of droplets. The moistened minerals can then be sucked eg. Common Mormon (*Papilio polytes*), Lemon Emigrant (*Catopsila pomona*), etc. Most of the species found here breed during monsoon season like the Orchid Tit whose caterpillars feed and breed only on the flowers of epiphytic fox-tail orchid growing on sal trees.

The peak season for observing butterflies in the New Forest is mainly the pre-monsoon (April-May) and the post-monsoon (October-November) seasons, when butterflies are both high in number of species as well as individuals. Many species show seasonal altitudinal migration to escape the harsh climatic conditions during winter in the hills, as they descend to the warm low-lying valleys in the foothills i.e. Dehradun and adjoining plains from September-December and then return back to the higher hills in the Himalayas, to breed, during late spring in March-May. Some migratory species that can be found in the New Forest during winter are Pale Clouded Yellow (*Colias erate*), Dark Clouded Yellow (*Colia fieldii*), Bath White (*Pontia daplidice*), Large Cabbage White (*Pieris brassicae*), Hill Jezebel (*Delias*

*belladonna*), Lemon Emigrant (*Catopsila Pomona*), Common Yellow Swallowtail (*Papilio machaon*), etc.







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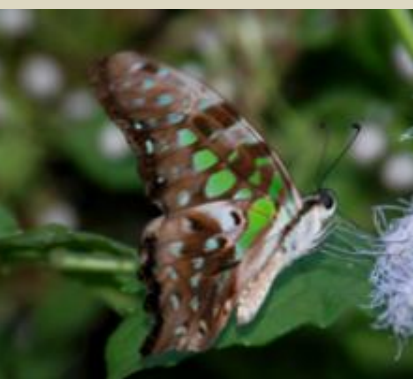
<div> <div>A</div> <div>Family PAPILIONIDAE</div> <div>Page   7</div> </div>			
1	Common Blue Bottle	<i>Graphium sarpedon sarpedon</i> (Linnaeus,1758)	Common
2	Glassy Blue Bottle	<i>Graphium cloanthus cloanthus</i> (Westwood,1841)	Uncommon
3	Common Jay	<i>Graphium doson axion</i> (Page & Treadaway, 2014)	Fairly Common
4	Spot Swordtail	<i>Graphium nomius nomius</i> (Esper,1799)	Rare/Spring
5	Tailed Jay	<i>Graphium agamemnon agamemnon</i> (Linnaeus,1758)	Common
6	Common Rose	<i>Pachliopta aristolochiae aristolochiae</i> (Fabricius,1775)	Common
7	Spangle	<i>Papilio protenor protenor</i> Cramer,[1775]	Common
8	Common Mormon	<i>Papilio polytes romulus</i> Cramer,[1775]	Very Common
9	Common Yellow Swallowtail	<i>Papilio machaon</i> Linnaeus,1758	Rare/Winter
10	Lime Butterfly	<i>Papilio demoleus demoleus</i> Linnaeus,1758	Very Common
11	Common Mime	<i>Papilio clytia clytia</i> Linnaeus,1758	Uncommon
12	Paris Peacock	<i>Papilio paris paris</i> Linnaeus,1758	Fairly Common

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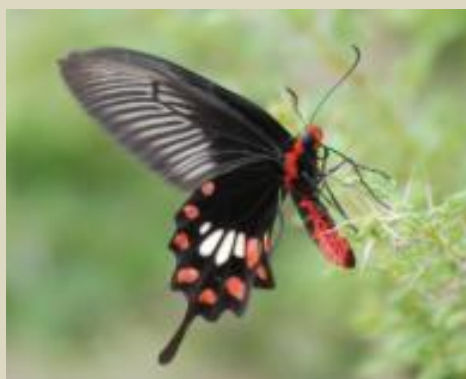
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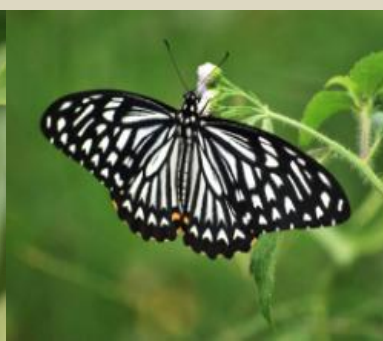
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**B**

## Family PIERIDAE

Page | 8

13	Psyche	<i>Leptosia nina nina</i> (Fabricius,1793)	Very Common
14	Pioneer	<i>Belenois aurota aurota</i> (Fabricius,1793)	Common
15	Bath White	<i>Pontia daplidice moorei</i> (Röber,[1907])	Uncommon/Winter
16	Common Gull	<i>Cepora nerissa phryne</i> (Fabricius,1775)	Common
17	Indian Cabbage White	<i>Pieris canidia indica</i> Evans,1926	Very Common
18	Large Cabbage White	<i>Pieris brassicae nepalensis</i> Gray,1846	Very Common
19	Lemon Emigrant	<i>Catopsilia pomona pomona</i> (Fabricius,1775)	Very Common
20	Mottled Emigrant	<i>Catopsilia pyranthe pyranthe</i> (Linnaeus,1758)	Very Common
21	Hill Jezebel	<i>Delias belladonna horsfieldii</i> (Gray,1831)	Uncommon/Winter
22	Indian Jezebel	<i>Delias eucharis</i> (Drury,1773)	Common
23	Indian Wanderer	<i>Pareronia hippa</i> (Fabricius,1787)[ ♀form <i>philomela</i> ]	Very Common
24	Dark Clouded Yellow	<i>Colias fieldii fieldii</i> Ménétriés,1855	Uncommon/Winter-Spring
25	Pale Clouded Yellow	<i>Colias erate</i> (Esper,1805)	Uncommon/Winter-Spring
26	Common Grass Yellow	<i>Eurema hecabe hecabe</i> (Linnaeus,1758)	Very Common
27	Small Grass Yellow	<i>Eurema brigitta rubella</i> (Wallace,1867)	Uncommon
28	Spotless Grass Yellow	<i>Eurema laeta laeta</i> (Boisduval,1836)	Common

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19 (form *catilla*)



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**B**

## Family PIERIDAE

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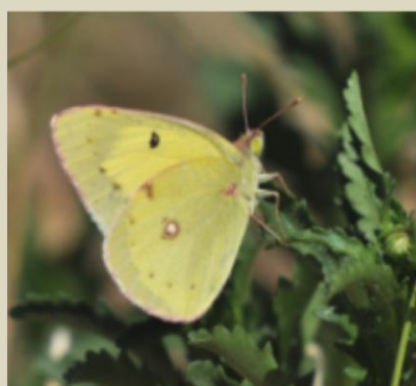
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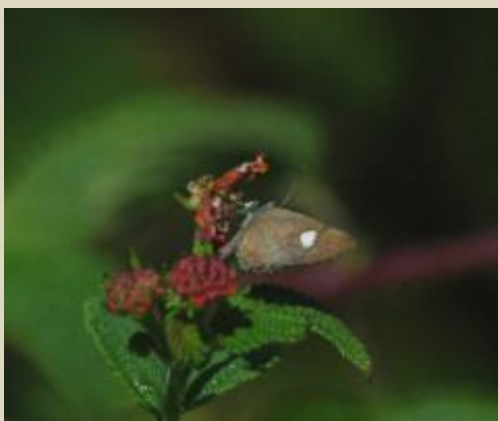
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C		Family LYCAENIDAE	Page   10
29	Acute Sunbeam	<i>Curetis acuta denata</i> Moore,1879	Fairly Common
30	Common Gem	<i>Poritia hewitsoni hewitsoni</i> Moore,[1866]	Uncommon
31	Broad Spark	<i>Sinthusa chandrana chandrana</i> (Moore,1882)	Rare
32	Brown Onyx	<i>Horaga viola</i> Moore,1882	Rare
33	Common Onyx	<i>Horaga onyx onyx</i> (Moore,[1858])	Fairly Common
34	Common Acacia Blue	<i>Surendra quercetorum quercetorum</i> (Moore,[1858])	Common
35	Silver Streak Blue	<i>Iraota timoleon timoleon</i> (Stoll,[1790])	Rare
36	Orchid Tit	<i>Hypolycaena othona</i> Hewitson,[1865]	Common
37	Indian Oakblue	<i>Arhopala atrax</i> (Hewitson,1862)	Very Common

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C		Family LYCAENIDAE – Contd.		Page   11
38	Large Oakblue	<i>Arhopala amantes amatrix</i> de Nicéville, 1891	Very Common	
39	Indigo Flash	<i>Rapala varuna orseis</i> (Hewitson, [1863])	Common	
40	Slate Flash	<i>Rapala manea schistacea</i> (Moore, 1879)	Common	
41	Common Flash	<i>Rapala nissa nissa</i> (Kollar, [1844])	Uncommon	
42	Indian Red Flash	<i>Rapala iarbus sorya</i> (Kollar, [1844])	Rare	
43	Peacock Royal	<i>Tajuria cippus cippus</i> (Fabricius, 1798)	Rare	
44	Guava Blue	<i>Virachola isocrates</i> (Fabricius, 1793)	Uncommon	
45	Redspot	<i>Zesius chrysomallus</i> Hübner, [1819]	Uncommon	
46	Common Silverline	<i>Spindasis vulcanus vulcanus</i> (Fabricius, 1775)	Uncommon	

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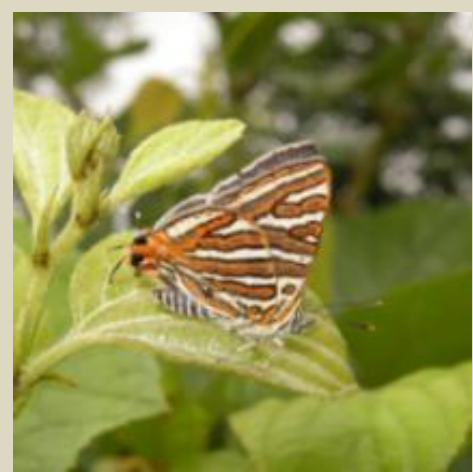


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C		Family LYCAENIDAE – Contd.	Page   12
47	Yamfly	<i>Loxura atymnus continentalis</i> Fruhstorfer, [1912]	Common
48	Dark Cerulean	<i>Jamides bochus bochus</i> (Stoll, [1782])	Common
49	Common Cerulean	<i>Jamides celeno celeno</i> (Cramer, [1775])	Common
50	Common Hedge Blue	<i>Acytolepis puspa gisca</i> (Fruhstorfer, 1910)	Very Common
51	Pale Hedge Blue	<i>Udara dilectus dilectus</i> (Moore, 1879)	Uncommon
52	Margined Hedge Blue	<i>Celatoxia marginata marginata</i> (de Nicéville, 1884))	Rare
53	Common Lineblue	<i>Prosotas nora ardates</i> (Moore, [1875])	Common
54	Tailless Lineblue	<i>Prosotas dubiosa indica</i> (Evans, [1925])	Common
55	Common Pierrot	<i>Castalius rosimon</i> (Fabricius, 1775)	Very Common

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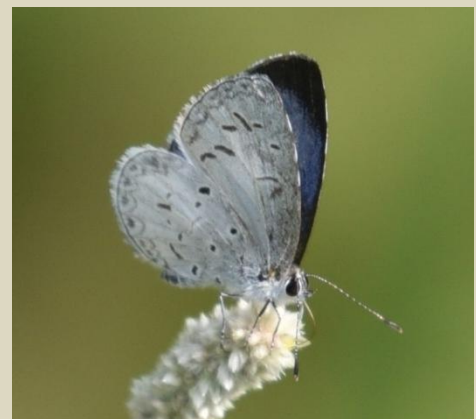
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C Family LYCAENIDAE – Contd. Page   13			
56	Striped Pierrot	<i>Tarucus nara</i> (Kollar, 1848)	Uncommon
57	Red Pierrot	<i>Talica nyseus nyseus</i> (Guérin-Ménéville, 1843)	Common
58	Common Quaker	<i>Neopithecops zalmora zalmora</i> (Butler, [1870])	Fairly Common
59	Malayan	<i>Megisba malaya sikkima</i> Moore, 1884	Uncommon
60	Plains Cupid	<i>Chilades pandava pandava</i> (Horsfield, [1829])	Common
61	Dark Grass Blue	<i>Zizeeria karsandra</i> (Moore, 1865)	Very Common
62	Pale Grass Blue	<i>Pseudozizeeria maha maha</i> (Kollar, [1844])	Very Common
63	Forget-me-not Blue	<i>Catochrysops strabo strabo</i> (Fabricius, 1793)	Common
64	Grass Jewel	<i>Freyeria trochylus orientalis</i> Forster, 1980	Very Common

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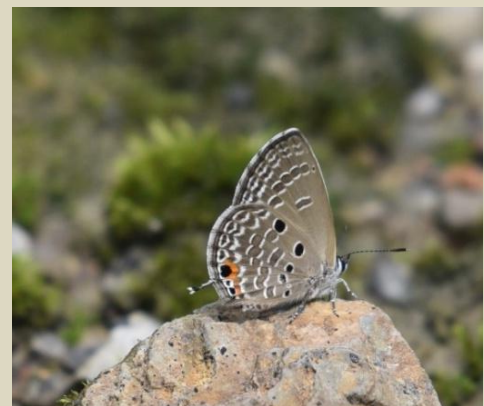
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**C** **Family LYCAENIDAE – Contd.** Page | 14

65	Least Grass Jewel	<i>Freyeria putli</i> (Kollar, [1844])	Common
66	Lesser Grass Blue	<i>Zizina otis otis</i> (Fabricius, 1787)	Very Common
67	Lime Blue	<i>Chilades lajus lajus</i> (Stoll,[1780])	Common
68	Gram Blue	<i>Euchrysops cnejus cnejus</i> (Fabricius, 1798)	Common
69	Pea Blue	<i>Lampides boeticus</i> (Linnaeus,1767)	Very Common
70	Zebra Blue	<i>Leptotes plinius plinius</i> (Fabricius, 1793)	Common

**D** **Family RIODINIDAE**

71	Double-banded Judy	<i>Abisara bifasciata suffusa</i> Moore,1882	Common
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E Family NYMPHALIDAE Page   15			
72	Common Crow	<i>Euploea core core</i> (Cramer, [1780])	Very Common
73	Striped Blue Crow	<i>Euploea mulciber mulciber</i> (Cramer, [1777])	Common
74	Dark Blue Tiger	<i>Tirumala septentrionis septentrionis</i> (Butler, 1874)	Common
75	Blue Tiger	<i>Tirumala limniace exoticus</i> (Gmélin, 1790)	Common
76	Glassy Tiger	<i>Parantica aglea melanoides</i> Moore, 1883	Very Common
77	Chestnut Tiger	<i>Parantica sita sita</i> (Kollar, [1844])	Uncommon/Winter
78	Plain Tiger	<i>Danaus chrysippus chrysippus</i> (Linnaeus, 1758)	Common
79	Striped Tiger	<i>Danaus genutia genutia</i> (Cramer, [1779])	Very Common

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E Family NYMPHALIDAE – Contd. Page   16			
80	Bamboo Treebrown	<i>Lethe europa niladana</i> Fruhstorfer, 1911	Fairly Common
81	Banded Treebrown	<i>Lethe confusa confusa</i> Aurivillius, [1898]	Rare
82	Common Argus	<i>Callerebia nirmala nirmala</i> Moore, 1865	Rare
83	Common Four-ring	<i>Ypthima huebneri</i> Kirby, 1871	Uncommon
84	Common Five-ring	<i>Ypthima baldus baldus</i> Fabricius, 1775	Very Common
85	Common Bush Brown	<i>Mycalesis perseus blasius</i> Fabricius, 1778	Very Common
86	Long Brand Bush brown	<i>Mycalesis visala visala</i> , [1858]	Very Common
87	Common Evening Brown	<i>Melanitis leda leda</i> Linnaeus, 1758	Very Common
88	Dark Evening Brown	<i>Melanitis phedima bela</i> Moore, [1858]	Common
89	Common Palmfly	<i>Elymnias hypermnestra undularis</i> (Drury, 1773)	Common

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E Family NYMPHALIDAE - Contd. Page   17			
90	Club Beak	<i>Libythea myrrha sanguinalis</i> Fruhstorfer, 1898	Common
91	Indian Nawab	<i>Charaxes bharata</i> C.&R.Felder,[1867]	Common
92	Blue Pansy	<i>Junonia orithya ocyale</i> Hübner,1816	Very Common
93	Yellow Pansy	<i>Junonia hierta hierta</i> (Fabricius,1798)	Common
94	Lemon Pansy	<i>Junonia lemonias lemonias</i> (Linnaeus,1758)	Very Common
95	Peacock Pansy	<i>Junonia almana almana</i> (Linnaeus,1758)	very Common
96	Grey Pansy	<i>Junonia atlites atlites</i> (Linnaeus,1763)	Common
97	Chocolate Pansy	<i>Junonia iphita iphita</i> (Cramer,[1779])	Very Common
98	Commander	<i>Moduza procris procris</i> (Cramer,[1777])	Uncommon

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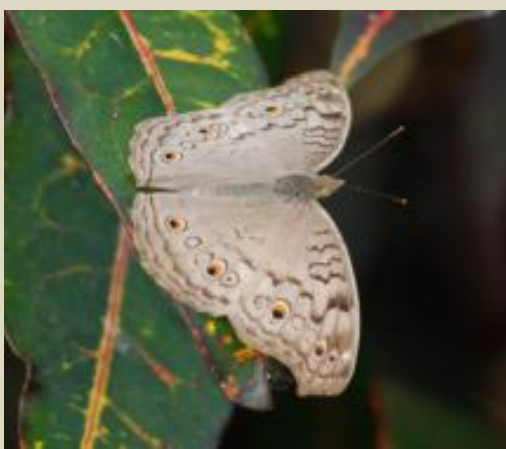
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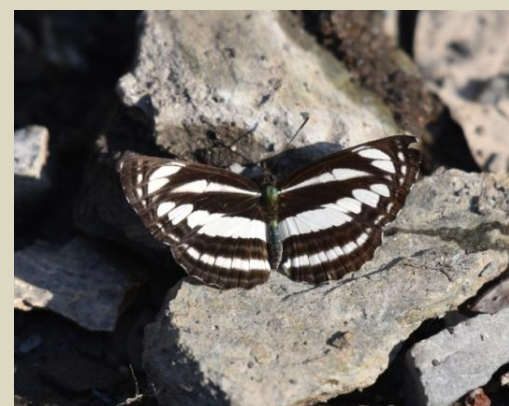
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<div> <div>E</div> <div>Family NYMPHALIDAE - Contd.</div> <div>Page   18</div> </div>			
99	Sullied Sailer	<i>Neptis clinia praedicta</i> Smetacek, 2011	Common
100	Common Sailer	<i>Neptis hylas varmona</i> Moore,1872	Very Common
101	Himalayan Sailer	<i>Neptis mahendra mahendra</i> Moore,1872	Fairly Common
102	Short-banded Sailer	<i>Phaedyma columella ophiana</i> (Moore,1872)	Uncommon
103	Pallas's/Rusty Sailer	<i>Neptis sappho astola</i> Moore,1872	Uncommon
104	Creamy Sailer	<i>Neptis soma butleri</i> Eliot,1969	Fairly Common
105	Staff Sergeant	<i>Athyma selenophora selenophora</i> (Kollar, [1844])	Uncommon
106	Hill Sergeant	<i>Athyma opalina opalina</i> Kollar,1844	Rare
107	Common Sergeant	<i>Athyma perius perius</i> (Linnaeus,1758)	Common

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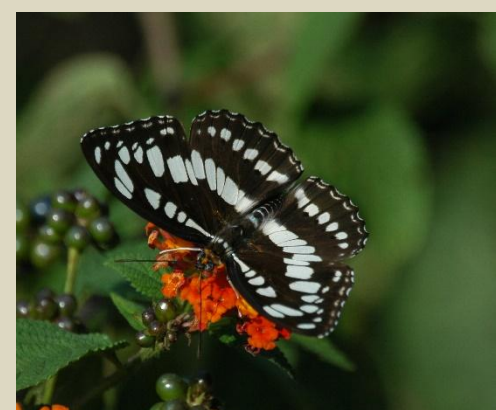
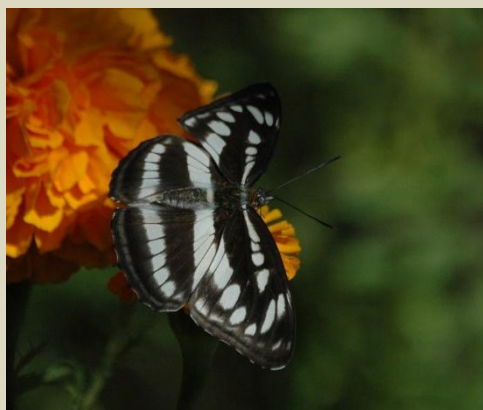
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E Family NYMPHALIDAE - Contd. Page   19			
108	Common Map	<i>Cyrestis thyodamas ganescha</i> Kollar, 1848	Common
109	Common Jester	<i>Symbrenthia lilaea khasiana</i> Moore, [1875]	Very Common
110	Common Lascar	<i>Pantoporia hordonia hordonia</i> (Stoll, [1790])	Common
111	Common Castor	<i>Ariadne merione tapestrina</i> (Moore, 1884)	Very Common
112	Common Leopard	<i>Phalanta phalantha phalantha</i> , (Drury, [1773])	Very Common
113	Vagrant	<i>Vagrans egista sinha</i> (Kollar, [1844])	Common
114	Common Baron	<i>Euthalia aconthea garuda</i> (Moore, [1858])	Fairly Common
115	Gaudy Baron	<i>Euthalia lubentina lubentina</i> (Cramer, [1777])	Uncommon
116	Great Eggfly	<i>Hypolimnias bolina jacinta</i> (Drury, 1773)	Very Common

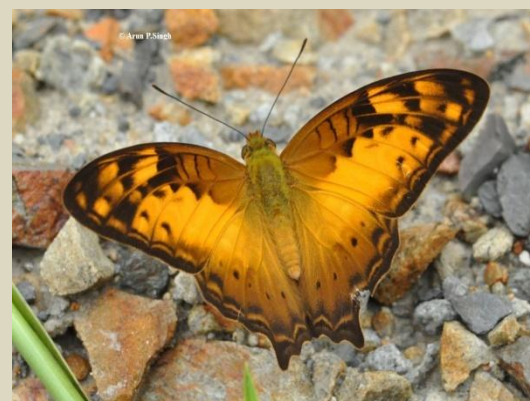
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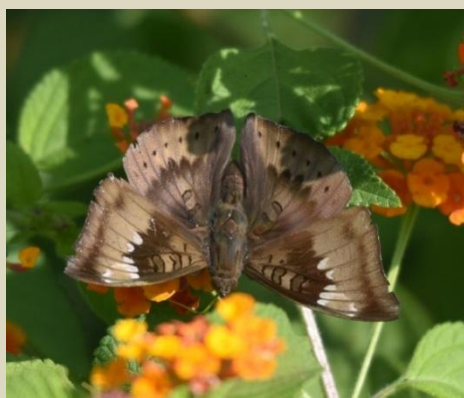
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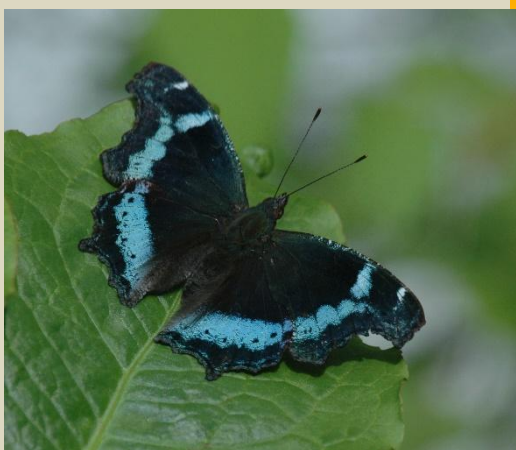
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E Family NYMPHALIDAE - Contd. Page   20			
117	Indian Fritillary	<i>Argynnis hyperbius hyperbius</i> (Linnaeus, 1763)	Uncommon
118	Blue Admiral	<i>Kaniska canace canace</i> (Linnaeus, 1763)	Fairly Common
119	Indian Red Admiral	<i>Vanessa indica indica</i> (Herbst, 1794)	Common
120	Indian Tortoiseshell	<i>Aglais caschmirensis aesis</i> (Fruhstorfer, 1912)	Uncommon/Winter
121	Painted Lady	<i>Vanessa cardui</i> (Linnaeus, 1758)	Common
122	Rustic	<i>Cupha erymanthis lotis</i> (Sulzer, 1776)	Very Common
123	Orange Oakleaf	<i>Kallima inachus inachus</i> (Doyère, [1840])	Very Common
124	Black Rajah	<i>Charaxes solon solon</i> (Fabricius, 1793)	Rare
125	Commodore	<i>Auzakia danava danava</i> (Moore, [1858])	Rare/Winter
126	Grey Count	<i>Tanaecia lepidea lepidea</i> (Butler, 1868)	Rare
127	Yellow Coster	<i>Acraea issoria issoria</i> (Hübner, [1819])	Uncommon
128	Tawny Coster	<i>Acraea terpsicore</i> (Linnaeus, 1758)	Uncommon

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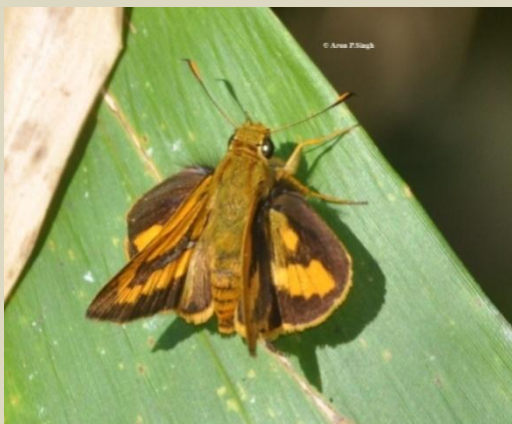
F	Family HESPERIIDAE	Page   21
129 Common Orange Awlet	<i>Burara jaina jaina</i> (Moore, [1866])	Fairly Common
130 Himalayan Dartlet	<i>Potanthus dara</i> Kollar,1842	Fairly Common
131 Common Dartlet	<i>Oriens goloides</i> (Moore,[1881])	Common
132 Pale Palm Dart	<i>Telicota colon colon</i> (Fabricius, 1775)	Very Common
133 Dark Palm Dart	<i>Telicota bambusae bambusae</i> (Moore, 1878)	Very Common
134 Asian Grizzled Skipper	<i>Spialia galba galba</i> (Fabricius, 1793)	Uncommon
135 Restricted Demon	<i>Notocrypta curvifascia curvifascia</i> (C. & R. Felder, 1862)	Common
136 Grass Demon	<i>Udaspes folus</i> (Cramer,[1775])	Common
137 Water Snow Flat	<i>Tagiades litigiosa litigiosa</i> Möschler, 1878	Common

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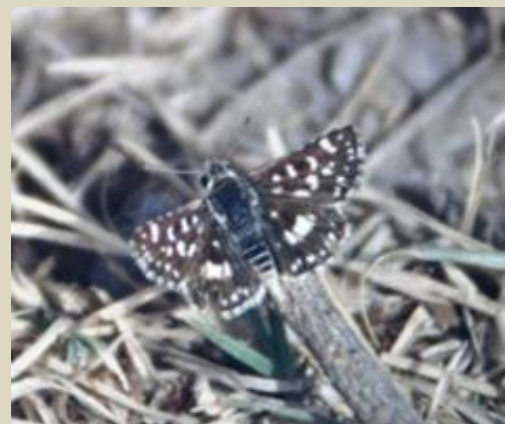
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F				Family HESPERIIDAE - Contd.	Page   22
138	Fulvous Pied Flat	<i>Pseudocoladenia dan fabia</i> (Evans, 1949)	Very Common		
139	Common Small Flat	<i>Sarangesa dasahara dasahara</i> (Moore, [1866])	Very Common		
140	Spotted Small Flat	<i>Sarangesa purendra purendra</i> Moore, 1882	Common		
141	Common Spotted Flat	<i>Celaenorrhinus leucocera</i> (Kollar,[1844])	Very Common		
142	Common Branded Red-eye	<i>Matapa aria</i> (Moore,[1886])	Fairly Common		
143	Acute Palm Red-eye	<i>Erionota thrax thrax</i> (Linnaeus, 1767)	Rare		
144	Indian Palm Bob	<i>Suastus gremius gremius</i> (Fabricius, 1798)	Uncommon		
145	Tree Flitter	<i>Hyarotis adrastus praba</i> (Moore, [1866])	Uncommon		
146	Chinese Branded Swift	<i>Pelopidas sinensis</i> (Mabille,1877)	Fairly Common		
147	Large Branded Swift	<i>Pelopidas subochracea subochracea</i> (Moore, 1878)	Common		

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F Family HESPERIIDAE - Contd. Page   23			
148	Small Branded Swift	<i>Pelopidas mathias mathias</i> (Fabricius, 1798)	Common
149	Paint-brush Swift	<i>Baoris farri</i> (Moore, 1878)	Rare
150	Straight Swift	<i>Parnara guttatus mangala</i> (Moore, [1866])	Fairly Common
151	Conjoined Swift	<i>Pelopidas conjuncta conjuncta</i> (Herrich-Schäffer, 1869)	Uncommon
152	Great Swift	<i>Polytremis eltola eltola</i> (Hewitson, 1869)	Common
153	Yellow-spot Swift	<i>Polytremis eltola eltola</i> (Hewitson, 1869)	Common
154	Rice Swift	<i>Borbo cinnara</i> (Wallace, 1866)	Uncommon
155	Spotted Angle	<i>Caprona agama agama</i> (Moore, [1858])	Rare

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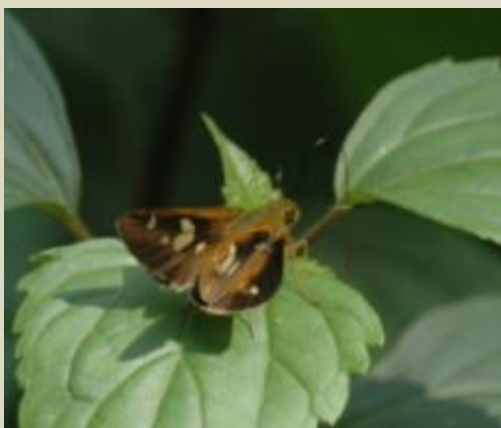
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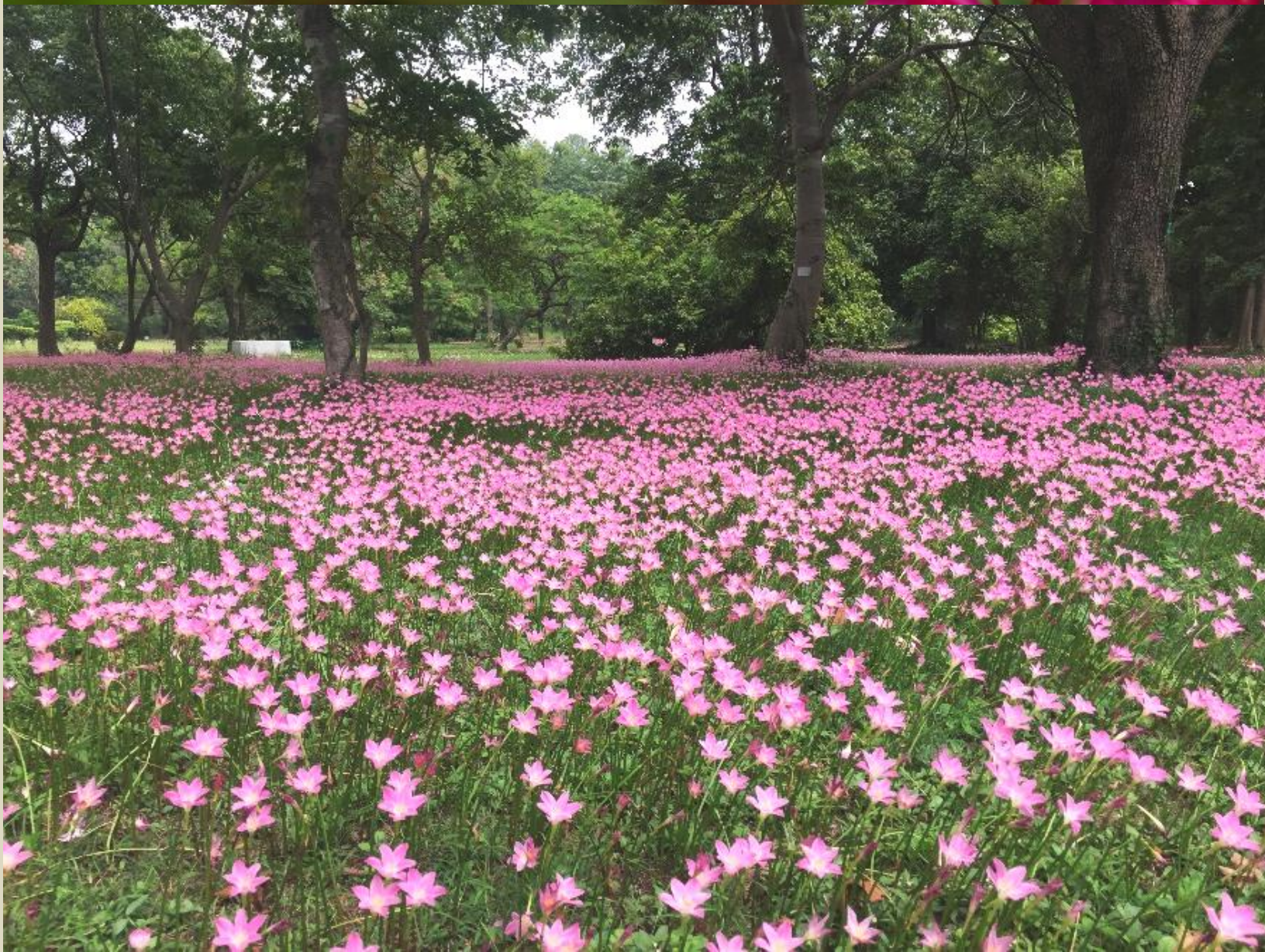
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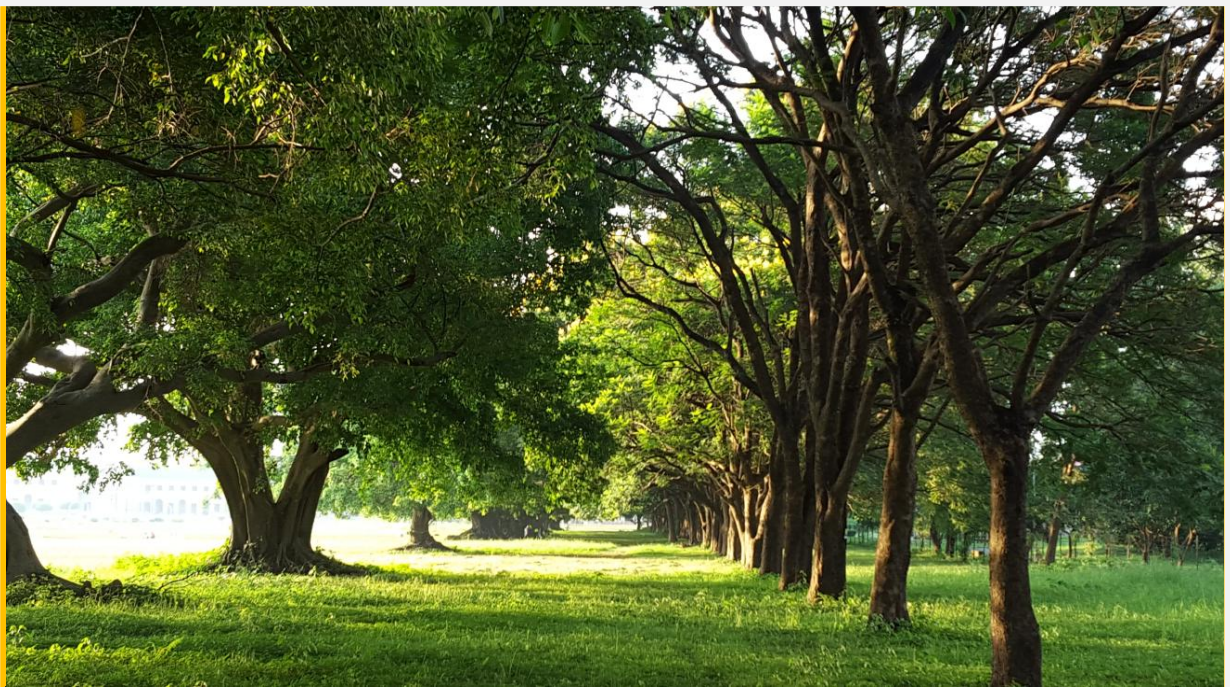
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