

## Butterfly fauna of the Sanjay Gandhi National Park and Mumbai, Maharashtra

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### Introduction:

Sanjay Gandhi National Park, Mumbai (19° 18' 35" N, 72° 57' 48" E) is located in the middle of metropolitan Mumbai city, which is considered to be one of the most populated cities in the world.

The forest in SGNP is Tropical Dry Deciduous or the Southern Dry Deciduous, and is dominated by Teak *Tectona grandis*, and Bamboo *Dendrocalamus strictus*. It is located in the Sahyadri Range in the northern part of the Western Ghats. Part of it is in the adjoining district of Thane. A small portion of the Park, on the banks of the Vasai Creek is at sea level and has mangrove patches and other characteristics of a typical coastal estuarine zone. The author compiled a checklist of the butterfly fauna in SGNP, Mumbai.

### Materials and Methods:

Butterflies were observed opportunistically throughout the year from April 2010 to March 2012 in two representative areas of the SGNP, viz., Yeoor range which is the Thane side of the National Park and at Ovalekar Wadi Butterfly Garden which is located at the fringe of the National Park in a small village called Ovala, on the Ghodbunder Road. Some observations were taken in Borivali side of the SGNP, Mahim Nature Park, and few other areas in Mumbai outside SGNP. But the abundance given is of the trails in the two areas mentioned above, namely, Yeoor range and at Ovalekar Wadi Butterfly Garden.

Photography of the butterflies was done during the study period. No specimen was collected for this study. The photographs were identified using the available literature. The paper also includes those species reported by Patwardhan (2010) and those which were photographed by other fellow nature enthusiasts. The availability of photography equipment with many naturalists has helped up in better understanding of the occurrence of many species in the study area. A checklist of SGNP and Mumbai region enlisting 138 species by Sharma and Chaturvedi (2006) was referred, which in turn was based on various previous works. A recent publication by Rodrigues (2012) has described 153 species in Mumbai. Some species which were reported by Sharma and Chaturvedi (2006) but not found during the study period are marked by an

asterisk and the abundance is mentioned as very rare. The present paper provides the updated comprehensive checklist of butterflies in the study area with notes on their abundance. Butterflies were categorized into five groups based on their occurrence during the study period on the basis of frequency of sightings. Accordingly, those species observed were categorized as:

**A- Abundant-** Seen on 80-100% of field visits in most habitats

**C- Common-** Seen on 60-80% of field visits in most habitats

**U- Uncommon-** seen on 40-60% of field visits in most habitats

**R- Rare** seen on 20-40% of field visits in most habitats

**VR- Very Rare** seen on less than 20% of field visits

### Results and Discussion:

A comprehensive checklist of total of 172 species of butterflies was prepared after survey in the study area during the period of two years (2010-2012). The family wise abundance of the total species found to occur in the study area is Papilionidae: 12 species, Pieridae: 22 species, Lycaenidae: 59 species, Nymphalidae: 45 species and Hesperidae: 34 species (see Table-1). Gaonkar (1996) had reported 208 species (present study SGNP-172, Gujarat-158) in the entire Western Ghats stretch of Maharashtra.

Thus, the diversity of butterflies in SGNP and Mumbai is far less than he has reported, obviously due to the fact that his list includes the species which are found in the southern Maharashtra also which is far down south compared to the location of the study area and has higher butterfly diversity. This goes in accordance with his finding that the diversity of butterflies decreases from south towards north, i.e., Kerala (314 species), Karnataka (316 species), Tamil Nadu (316 species), Goa (249 species), Maharashtra (208 species) and is the lowest in Gujarat (158 species) (Gaonkar, 1996).

The author hereby reports occurrence of Dark Blue Tiger *Tirumala septentrionis* (Butler, 1874) which can be considered as a range extension in SGNP and in Mumbai area. It was found on many occasions both in Yeoor range and in Ovalekar Wadi Butterfly

Garden. Dark Blue Tiger is mentioned as “is found in Peninsular India upto southern Maharashtra (Kehimkar, 2008)”. Dull Babul Blue *Azanus uranus* Butler, 1886 was found in March 2012 near Thane, which was not reported here earlier. Dark Pierrot *Tarucus ananda* (De Nicéville, 1884) and Abnormal Silverline *Cigaritis abnormis* Moore, 1884 were found only once each in the Yeoor Range both on 18 March 2012. These are probably the first records of these species in Mumbai. Dark Pierrot is seen upto Phansad Wildlife Sanctuary in Raigadh district, Maharashtra (pers. comm. Mr. Isaac Kehimkar and Mr. Nikhil Bhopale).

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**Table- Checklist of butterflies found in SGNP, Mumbai and their abundance**

Sr. No.	Family: Papilionidae	Abundance
1	Spot Swordtail, <i>Pathysa nomius</i> (Esper, 1798)	C
2	Common Jay <i>Graphium doson</i> (C. & R. Felder, 1864)	C
3	Tailed Jay <i>Graphium agamemnon</i> (Linnaeus, 1758)	A
4	Common Bluebottle <i>Graphium sarpedon</i> (Linnaeus, 1758)	C
5	Common Mime <i>Chilasa clytia</i> Linnaeus 1758	U
6	Lime Butterfly <i>Papilio demoleus</i> (Linnaeus, 1758)	A
7	Blue Mormon <i>Papilio polymnestor</i> (Cramer, 1775)	C
8	Common Rose <i>Pachliopta aristolochiae</i> (Fabricius, 1775)	A
9	Crimson Rose <i>Pachliopta hector</i> (Linnaeus, 1758)	C
10	Southern Birdwing <i>Troides minos</i> Cramer, 1779	VR*
11	Common Mormon <i>Papilio polytes</i> (Linnaeus, 1758)	A
12	Red Helen <i>Papilio helenus</i> Linnaeus, 1758	VR
	<b>Family Pieridae</b>	
1	Common Gull <i>Cepora nerissa</i> Fabricius, 1775	A
2	Lesser Gull <i>Cepora nadina</i> (Lucas, 1852)	VR*
3	White Orange Tip <i>Ixias marianne</i> Cramer, 1779	C
4	Yellow Orange Tip <i>Ixias pyrene</i> Linnaeus, 1764	A
5	Great Orange Tip <i>Hebomoia glaucippe</i> Linnaeus, 1758	C
6	Small Orange Tip <i>Colotis etrida</i> (Boisduval, 1836)	VR*
7	Plain Orange Tip <i>Colotis eucharis</i> (Fabricius, 1775)	VR*
8	Common Jezebel <i>Delias eucharis</i> Drury, 1773	A
9	Chocolate Albatross <i>Appias lyncida</i> Boisduval, 1836	VR
10	Striped Albatross <i>Appias libythea</i> (Fabricius, 1775)	VR
11	Common Albatross <i>Appias albina</i> (Boisduval, 1836)	VR*
12	Plain Puffin <i>Appiasindra</i> (Moore, 1857)	VR*
13	Psyche <i>Leptosia nina</i> Fabricius, 1793	C
14	Common Wanderer <i>Pareronia valeria</i> (Cramer, 1776)	C
15	Common Emigrant <i>Catopsilia pomona</i> Fabricius, 1775	A
16	Mottled Emigrant <i>Catopsilia pyranthe</i> Latreille, 1758	C
17	Spotless Grass Yellow <i>Eurema laeta</i> Boisduval, 1836	C
18	Common Grass Yellow <i>Eurema hecabe</i> Linnaeus, 1758	A
19	Small Grass Yellow <i>Eurema brigitta</i> (Stoll, 1780)	U
20	Three Spot Grass Yellow <i>Eurema blanda</i> Boisduval, 1836	VR*
21	Small Salmon Arab <i>Colotis amata</i> (Fabricius, 1775)	U
22	Pioneer <i>Belenois aurota</i> (Fabricius, 1793)	U

	<b>Family: Nymphalidae</b>	
1	Glassy Tiger <i>Parantica aglea</i> (Stoll, 1782)	C
2	Dark Blue Tiger <i>Tirumala septentrionis</i> (Butler, 1784)	C
3	Blue Tiger <i>Tirumala limniace</i> Cramer, 1775	A
4	Plain Tiger <i>Danaus chrysippus</i> Linnaeus, 1758	A
5	Common Or Striped Tiger <i>Danaus genutia</i> Cramer, 1779	A
6	Brown King Crow <i>Euploea klugii</i> Moore, 1857	C
7	Common Indian Crow <i>Euploea core</i> (Cramer, 1780)	A
8	Double Branded Crow <i>Euploea sylvester</i> Fabricius, 1793	VR*
9	Common Bushbrown <i>Mycalesis perseus</i> (Fabricius, 1775)	A
10	Dark-brand Bushbrown <i>Mycalesis mineus</i> Linnaeus, 1758	U
11	Long-brand Bushbrown <i>Mycalesis visala</i> Moore, 1857	C
12	Common Palmfly <i>Elymnias hypermestra</i> (Linnaeus, 1763)	U
13	Common Leopard <i>Phalanta phalantha</i> Drury, 1773	C
14	Tawny Coster <i>Acraea violae</i> (Linnaeus, 1758)	C
15	Commander <i>Moduza procris</i> (Cramer, 1777)	C
16	Common Sailer <i>Neptis hylas</i> Linnaeus, 1758	A
17	Short-banded Sailer <i>Phaedyma columella</i> (Cramer, 1780)	C
18	Chestnut-Streaked Sailer <i>Neptis jumbah</i> Moore, 1857	C
19	Common Sergeant <i>Athyma perius</i> Linnaeus, 1758	VR*
20	Common Baron <i>Euthalia aconthea</i> (Cramer, 1777)	A
21	Gaudy Baron <i>Euthalia lubentina</i> (Cramer, 1777)	U
22	Baronet <i>Euthalia nais</i> (Forster, 1771)	U
23	Common Castor <i>Ariadne merione</i> (Cramer, 1777)	C
24	Angled Castor <i>Ariadne ariadne</i> Linnaeus, 1763	C
25	Painted Lady <i>Vanessa cardui</i> (Linnaeus, 1758)	U
26	Gray Pansy <i>Junonia atlites</i> (Linnaeus, 1763)	C
27	Peacock Pansy <i>Junonia almana</i> (Linnaeus, 1758)	A
28	Yellow Pansy <i>Junonia hierta</i> (Fabricius, 1798)	C
29	Chocolate Pansy <i>Junonia iphita</i> (Cramer, 1779)	A
30	Lemon Pansy <i>Junonia lemonias</i> (Linnaeus, 1758)	A
31	Blue Pansy <i>Junonia orithya</i> (Linnaeus, 1758)	U
32	Great Eggfly <i>Hypolimnas bolina</i> (Linnaeus, 1758)	C
33	Danaid Eggfly <i>Hypolimnas misippus</i> (Linnaeus, 1764)	C
34	Blue Oakleaf <i>Kallima horsfieldi</i> Kollar, 1844	C
35	Black Rajah <i>Charaxes solon</i> (Fabricius, 1793)	C
36	Tawny Rajah <i>Charaxes bernardus</i> (Fabricius, 1793)	VR
37	Common Fivering <i>Ypthima baldus</i> (Fabricius, 1775)	VR
38	Common Fourring <i>Ypthima huebneri</i> Kirby, 1871	VR*
39	Common Evening Brown <i>Melanitis leda</i> (Linnaeus, 1758)	C
40	Dark Evening Brown <i>Melanitis phedima</i> (Cramer, 1780)	U
41	Bamboo Treebrown <i>Lethe europa</i> (Fabricius, 1787)	U
42	Common Treebrown <i>Lethe rohria</i> (Fabricius, 1787)	VR*
43	Common Nawab <i>Polyura athamas</i> (Drury, 1773)	U
44	Anomalous Nawab <i>Polyura agraria</i> Swinhoe, 1887	U
45	Indian Purple Emperor <i>Apatura ambica</i> Kollar, 1844	VR*?
	<b>Family: Lycaenidae</b>	
1	Apefly <i>Spalgis epius</i> (Westwood, 1851)	VR*
2	Plum Judy <i>Abisara echerius</i> (Moore, 1901)	A
3	Red Pierrot <i>Talicauda nyseus</i> Guérin, 1843	U
4	Common Pierrot <i>Castalius rosimon</i> Fabricius, 1775	A
5	Angled Pierrot <i>Caleta caleta</i> Hewitson, 1876	U
6	Rounded Pierrot <i>Tarucus nara</i> Kollar, 1848	C
7	Dark Pierrot <i>Tarucus ananda</i> (De Nicéville, 1884)	VR
8	Malayan <i>Megisba malaya thwaitesi</i> (Horsfield, 1828)	C
9	Plain Hedge Blue <i>Celastrina lavendularis</i> (Moore, 1877)	VR*
10	Common Hedge Blue <i>Acytolepis puspa</i> (Horsfield, 1828)	U
11	Lime Blue <i>Chilades laius</i> (Cramer, 1782)	U
12	Indian Cupid <i>Everes lacturnus</i> (Godart, 1824)	U
13	Plains Cupid <i>Chilades pandava</i> (Horsfield, 1829)	C
14	Dark Grass Blue <i>Zizeeria karsandra</i> (Moore, 1865)	U
15	Pale Grass Blue <i>Pseudozizeeria maha</i> (Kollar, 1848)	VR*
16	Lesser Grass Blue <i>Zizina otis</i> (Fabricius, 1787)	U
17	Tiny Grass Blue <i>Zizula hylax</i> (Fabricius, 1775)	C
18	Grass Jewel <i>Freyeria trochylus</i> (Freyer, 1845)	A
19	Gram Blue <i>Euchrysops cnejus</i> (Fabricius, 1798)	U

20	Pointed Ciliate Blue <i>Anthene lycaenina</i> (C. & R. Felder, 1868)	U
21	Forget-me-not <i>Catochrysops strabo</i> (Fabricius, 1793)	A
22	Pea Blue <i>Lampides boeticus</i> (Linnaeus, 1767)	C
23	Dark Cerulean <i>Jamides bochus</i> Stoll, 1782	C
24	Common Cerulean <i>Jamides celeno</i> (Cramer, 1775)	C
25	Transparent 6-Lineblue <i>Nacaduba kurava</i> (Moore, 1858)	VR*
26	Opaque 6-Lineblue <i>Nacaduba beroe</i> (Felder & Felder, 1865)	R
27	Common Lineblue <i>Prosotas nora</i> (Felder, 1860)	C
28	Dingy Lineblue <i>Petrelaea dana</i> (de Niceville, 1884)	R
29	Tailless Lineblue <i>Prosotas dubiosa</i> (Semper, 1879)	C
30	White-tipped Lineblue <i>Prosotas noreia</i> Felder, 1868	VR
31	Indian Sunbeam <i>Curetis thetis</i> (Drury, 1773)	VR
32	Toothed or Angled Sunbeam <i>Curetis dentata</i> Moore, 1879	U
33	Silverstreak Blue <i>Iraota timoleon</i> Stoll, 1790	VR
34	Leaf Blue <i>Amblypodia anita</i> Hewitson, 1862	U
35	Large Oakblue <i>Arhopala amantes</i> (Hewitson, 1862)	U
36	Western Centaur Oakblue <i>Arhopala pseudocentaurus</i> (Doubleday, 1847)	VR*
37	Common Acacia Blue <i>Surendra quercetorum</i> Moore, 1858	VR
38	Yamfly <i>Loxura atymnus</i> (Cramer, 1782)	R
39	Monkey Puzzle <i>Rathinda amor</i> (Fabricius, 1775)	VR*
40	Common Silverline <i>Spindasis vulcanus</i> (Fabricius, 1775)	R
41	Long-banded Silverline <i>Spindasis lohita</i> (Horsfield, 1829)	R
42	Abnormal Silverline <i>Cigaritis abnormis</i> Moore, 1884	VR
43	Common Shot Silverline <i>Spindasis ictis</i> Hewitson, 1865	R
44	Redspot <i>Zesius chrysomallus</i> Hubner, 1819	VR
45	Tufted White Royal <i>Pratapa deva</i> Moore, 1857	VR
46	Peacock Royal <i>Tajuria cippus</i> (Fabricius, 1798)	R
47	Plains Royal <i>Tajuria jehana</i> Moore, 1883	VR*
48	Orchid Tit <i>Chliaria othona</i> (Hewitson, 1865)	VR*
49	Cornelian <i>Deudorix epijarbas</i> (Moore, 1875)	VR
50	Common Guava Blue <i>Virachola isocrates</i> Fabricius, 1793	R
51	Large Guava Blue <i>Virachola perse</i> Hewitson, 1863	VR*
52	Slate Flash <i>Rapala schistacea</i> (Moore, 1879)	U
53	Indian Red Flash <i>Rapala iarbus</i> (Fabricius, 1787)	U
54	Indigo Flash <i>Rapala varuna</i> Horsfield, 1829	VR*
55	Common Tinsel <i>Catapaecilma major</i> (Druce, 1895)	VR
56	African Babul Blue <i>Azanus jesous</i> (Guérin-Méneville, 1849)	U
57	Bright Babul Blue <i>Azanus ubaldus</i> (Stoll, 1782)	U
58	Dull Babul Blue <i>Azanus uranus</i> Butler, 1886	VR
59	Zebra Blue <i>Leptotus plinius</i> (Fabricius, 1793)	A
	<b>Family: Hesperidae</b>	
1	Brown Awl <i>Badamia exclamationis</i> (Fabricius, 1775)	C
2	Orange Awlet <i>Bibasis jaina</i> (Moore, 1865)	VR
3	Orange-tail Awl <i>Bibasis sena</i> (Moore, 1865)	R
4	Common Awl <i>Hasora badra</i> (Moore, 1857)	U
5	Common Banded Awl <i>Hasora chromus</i> (Cramer, 1780)	U
6	Plain Banded Awl <i>Hasora vitta</i> (Butler, 1870)	U
7	Bevan's Swift <i>Pseudoborbo bevani</i> (Moore, 1878)	U
8	Rice Swift <i>Borbo cimara</i> (Wallace, 1866)	C
9	Blank Swift <i>Caltores kumara</i> (Moore, 1878)	VR*
10	Straight Swift <i>Parnara guttatus</i> (Bremer & Grey, 1852)	U
11	Conjoined Swift <i>Pelopidas conjuncta</i> (Herrich-Schäffer, 1869)	U
12	Small Branded Swift <i>Pelopidas mathias</i> (Fabricius, 1798)	U
13	Indian Skipper <i>Spialia galba</i> (Fabricius, 1793)	U
14	Chestnut Bob <i>Iambrix salsala</i> (Moore, 1865)	U
15	Vindhyan Bob <i>Arnetta vindhiana</i> (Moore, 1883)	U
16	Indian Palm Bob <i>Suastus gremius</i> (Fabricius, 1798)	U
17	Dark Palm Dart <i>Telicota ancilla</i> (Herrich-Schäffer, 1869)	U
18	Pale Palm Dart <i>Telicota colon</i> (Fabricius, 1775)	R
19	Angled Flat/Black Angle <i>Tapena twaitthesi</i> (Moore, 1881)	U
20	Golden Angle <i>Caprona ransonnetti</i> (Felder, 1868)	U
21	Moore's Ace <i>Halpe porus</i> Mabille, 1876	VR
22	Tamil Grass Dart <i>Taractrocera ceramas</i> (Hewitson, 1868)	VR*
23	Common Grass Dart <i>Taractrocera maevius</i> (Fabricius, 1793)	VR*
24	Himalayan Dart <i>Potanthus dara</i> Koll	VR*
25	Common Dart <i>Potanthus pseudomaessa</i> Moore	VR*

26	Malabar Spotted Flat <i>Celaenorrhinus ambareesa</i> (Moore, 1865)	R
27	Common Spotted Flat <i>Celaenorrhinus leucocera</i> (Kollar, 1848)	C
28	Tricoloured Pied Flat <i>Coladenia indrani</i> (Moore, 1865)	U
29	Common Small Flat <i>Sarangesa dasahara</i> (Moore, 1865)	A
30	Spotted Small Flat <i>Sarangesa purendra</i> (Moore, 1882)	A
31	Fulvous Pied Flat <i>Pseudocoladenia dan</i> Fabricius, 1787	VR*
32	Common Redeye <i>Matapa aria</i> (Moore, 1865)	U
33	Giant Redeye <i>Gangara thyrasis</i> (Fabricius, 1775)	VR*
34	Grass Demon <i>Udaspes folus</i> (Cramer, 1775)	U

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