

SOME ECOLOGICAL NOTES ON THE BUTTERFLIES OF VISAKHAPATNAM, ANDHRA PRADESH

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Visakhapatnam is situated on the east coast (17°42'N; 82°18'E) of India. It consists of hills/ghats, the plains and the sea coast. The area receives rain during south-west monsoon and also retreating showers. The average temperature ranges from 18°C in January to 40°C in May. The area shows a graded diversity in species composition and in the quality of vegetation. The plain areas show mostly scrub jungles and the herbaceous vegetation thrives well during rainy season. Visakhapatnam is a rapidly expanding industrial city which has taken a heavy toll on the quality and quantity of wild vegetation. The various anthropogenic activities are constantly posing a great threat to the still available wild flora and fauna. The surviving plant and animal species have only two options - either to adapt to degrading and disturbing habitats or to disappear permanently.

The present study is an attempt to provide a checklist of butterflies based on a two-year field study from October 2000 to October 2002 in Visakhapatnam (Table 1). The status of each butterfly species is also given in Table 1. Earlier, there was a study on the butterflies of Visakhapatnam by Reddi and Bai (1985). These authors reported that there are only 46 butterfly species in Visakhapatnam. Further, they wrongly reported the status of some butterflies. Later, they added four more species to the list, while making a rare butterfly species, *Spindasis vulcanus* (Reddi & Bai, 1985) as a common one (Ramana *et al.*, 2001). These reports show many errors. In view of these confusing records with incomplete checklist of butterflies for Visakhapatnam, the present study was made to provide a comprehensive list of butterflies together with their status. We make a special mention that there are at least 10 more butterfly species which may have escaped our eyes. We are still continuing our studies on the butterflies of Visakhapatnam with reference to their host-plants for egg-laying and larval feeding and period of occurrence. As and when we finish our studies, we will report our findings.

Our studies during the period indicate that the habitats where butterflies were found and captured are disturbed areas and are strongly influenced by man's activities. These range from city lots to pastures, abandoned fields, road sides, parks, urban plantings, etc. Many of these habitats have been found to support butterflies because of the occurrence of weedy exotics like *Lantana camara*, *Hyptis suaveolens*, *Antigonon leptopus*, etc. and a wide variety of herbaceous species. These plant species with their colourful flowers and also colour shifts as in *Lantana* flowers attract butterflies even from a long distance and provide them with floral nectar. More than 30 butterfly species were found utilising the floral nectar of *Lantana*. Although *Lantana camara* is an alien invasive species and a proven competitor for native grasses, herbs and shrubs, its showy, colourful flowers serve as alternate floral nectar source for butterflies. Although its abundant growth in Visakhapatnam and also in the entire tropical belt seems like a provisioning post and a nectar source for adult butterflies (Raju & Reddi, 1995), the negative effects of this alien invasive on native food and host plants of butterflies could affect the long-term sustainability of butterfly populations in the wild.

The study reveals that there are 68 butterfly species occurring in Visakhapatnam, representing all five families of the suborder *Rhopalocera* of the order *Lepidoptera*. The Papilionidae is represented by three genera with 10 species, Pieridae by nine genera with 13 species, Nymphalidae by 14 genera with 23 species, Lycaenidae by 17 genera, each with one species only and Hesperidae by five genera, each with one species only. In Papilionidae, the genus *Pachliopta* is represented by two species, *Graphium* by three species, *Papilio* by five species. In Pieridae, *Catopsilia* and *Eurema*, each represented by two species, *Colotis* by three species and all other genera by one species only. The Nymphalidae genera, *Mycalesis*, *Euthalia*, *Hypolimnas*, *Tirumala* and *Danaus* are represented by two species each, *Junonia* by five species and all others by one species only. In all five families, *Papilio* and *Junonia* genera are best represented than any other genera in Visakhapatnam.

Our study shows that the sustained interference and disturbance seem to affect the occurrence and numerical strength of each butterfly species. If this situation goes unabated, the abundant butterflies may become rare and the less abundant ones could disappear permanently. Further, the decline in the number of butterflies largely allows inbreeding which becomes fatal in course of time. Modified habitats with reduced plant cover contribute to warm conditions and these conditions might allow some butterflies to extend their distribution to different habitats. The butterflies which control certain plant pests, if decline in number or disappear from the habitat, plants too get affected because of the unchecked plant pests. Therefore, the very presence of butterflies in species and numbers may be taken as an indication of the health of the habitat(s) (Raju & Rao, 2002).

Table 1. Butterflies of Visakhapatnam, Andhra Pradesh

Scientific name	English name	Status	Collection numbers	No. of specimens
Papilionidae				
<i>Graphium agamemnon</i> Linnaeus	Tailed Jay	VC	VSKPPAP1:1 - VSKPPAP1:38	38
<i>Graphium doson</i> C & R Felder	Common Jay	R	VSKPPAP2:1 - VSKPPAP2:3	3
<i>Graphium nomius</i> Esper	Spot Swordtail	R	VSKPPAP3:1 - VSKPPAP3:4	4
<i>Pachliopta aristolochiae</i> Fabricius	Common Rose	C	VSKPPAP4:1 - VSKPPAP4:28	28
<i>Pachliopta hector</i> Linnaeus	Crimson Rose	C	VSKPPAP5:1 - VSKPPAP5:32	32
<i>Papilio demoleus</i> Linnaeus	Lime Butterfly	C	VSKPPAP6:1 - VSKPPAP6:29	29
<i>Papilio polymnestor</i> Cramer	Blue Mormon	R	VSKPPAP7:1 - VSKPPAP7:5	5
<i>Papilio polytes</i> Linnaeus				
<i>Papilio polytes polytes</i> Linnaeus	Common Mormon	C	VSKPPAP8A:1 - VSKPPAP8A:32	32
<i>Papilio polytes romulus</i> Cramer	Common Mormon	C	VSKPPAP8B:1 - VSKPPAP8B:26	26
<i>Papilio polytes stichius</i> Hubner	Common Mormon	UC	VSKPPAP8C:1 - VSKPPAP8C:10	10
Pieridae				
<i>Anaphaeis aurota</i> Fabricius	Pioneer or Caper white	C	VSKPPIE1:1 - VSKPPIE1:29	29
<i>Appias albina</i> Boisduval	Common Albatross	UC	VSKPPIE2:1 - VSKPPIE2:13	13
<i>Catopsilia pomona</i> Fabricius	Common Emigrant	VC	VSKPPIE3:1 - VSKPPIE3:40	40
<i>Catopsilia pyranthe</i> Linnaeus	Mottled Emigrant	VC	VSKPPIE4:1 - VSKPPIE4:45	45
<i>Cepora nerissa</i> Fabricius	Common Gull	UC	VSKPPIE5:1 - VSKPPIE5:12	12
<i>Colotis danae</i> Fabricius	Crimson Tip	C	VSKPPIE6:1 - VSKPPIE6:34	34
<i>Colotis eucharis</i> Fabricius	Plain Orange Tip	C	VSKPPIE7:1 - VSKPPIE7:31	31
<i>Colotis fausta</i> Olivier	Large Salmon Arab	R	VSKPPIE8:1 - VSKPPIE8:3	3
<i>Delias eucharis</i> Drury	Common Jezebel	VR	VSKPPIE9:1 - VSKPPIE9:2	2
<i>Eurema blanda</i> Boisduval	Three Spot Grass Yellow	C	VSKPPIE10:1 - VSKPPIE10:29	29
<i>Eurema hecabe</i> Linnaeus	Common Grass Yellow	VC	VSKPPIE11:1 - VSKPPIE11:38	38
<i>Leptosia nina</i> Fabricius	Psyche	VC	VSKPPIE12:1 - VSKPPIE12:39	39
<i>Pareronia valeria</i> Cramer	Common Wanderer	C	VSKPPIE13:1 - VSKPPIE13:32	32
Lycaenidae				
<i>Arhopala amantes</i> Hewitson	Large Oak Blue	VR	VSKPLYC1:1	1
<i>Azanus ubaldus</i> Cramer	Bright Babul Blue	C	VSKPLYC2:1 - VSKPLYC2:30	30
<i>Castalius rosimon</i> Fabricius	Common Pierrot	C	VSKPLYC3:1 - VSKPLYC3:28	28
<i>Catochrysops strabo</i> Fabricius	Forget-me-not	UC	VSKPLYC4:1 - VSKPLYC4:12	12
<i>Chilades pandava</i> Horsfield	Plains Cupid	UC	VSKPLYC5:1 - VSKPLYC5:11	11
<i>Curetis thetis</i> Drury	Indian Sunbeam	R	VSKPLYC6:1 - VSKPLYC6:4	4
<i>Euchrysops cnejus</i> Fabricius	Gram Blue	C	VSKPLYC7:1 - VSKPLYC7:24	24
<i>Everes lacturnus</i> Godart	Indian Cupid	C	VSKPLYC8:1 - VSKPLYC8:29	29
<i>Jamides celeno</i> Cramer	Common Cerulean	C	VSKPLYC9:1 - VSKPLYC9:26	26
<i>Prosotas nora</i> C & R Felder	Common Lineblue	C	VSKPLYC10:1 - VSKPLYC10:31	31
<i>Pseudozizeeria maha</i> Kollar	Pale Grass Blue	C	VSKPLYC11:1 - VSKPLYC11:32	32
<i>Rapala iarbus</i> Fabricius	Indian Red Flash	R	VSKPLYC12:1 - VSKPLYC12:2	2
<i>Rathinda amor</i> Fabricius	Monkey Puzzle	UC	VSKPLYC13:1 - VSKPLYC13:11	11
<i>Spalgis epius</i> Westwood	Apefly	UC	VSKPLYC14:1 - VSKPLYC14:9	9
<i>Spindasis vulcanus</i> Fabricius	Common Silverline	C	VSKPLYC15:1 - VSKPLYC15:26	26
<i>Talicauda nyseus</i> Guerin Meneville	Red Pierrot	C	VSKPLYC16:1 - VSKPLYC16:28	28
<i>Zizeeria karsandra</i> Moore	Dark Grass Blue	UC	VSKPLYC17:1 - VSKPLYC17:13	13
Nymphalidae				
<i>Acraea violae</i> Fabricius	Tawny Coster	VC	VSKPNYM1:1 - VSKPNYM1:37	37
<i>Ariadne merione</i> Cramer	Common Castor	VC	VSKPNYM2:1 - VSKPNYM2:36	36
<i>Danaus chrysippus</i> Linnaeus	Plain Tiger	VC	VSKPNYM3:1 - VSKPNYM3:45	45
<i>Danaus genutia</i> Cramer	Striped or Common Tiger	UC	VSKPNYM4:1 - VSKPNYM4:13	13
<i>Elymnias hypermenstra</i> Linnaeus	Common Palmfly	R	VSKPNYM5:1 - VSKPNYM5:2	2
<i>Euploea core</i> Cramer	Common Indian Crow	VC	VSKPNYM6:1 - VSKPNYM6:40	40
<i>Euthalia aconthea</i> Cramer	Common Baron	UC	VSKPNYM7:1 - VSKPNYM7:10	10

Scientific name	English name	Status	Collection numbers	No. of specimens
<i>Euthalia nais</i> Forster	Baronet	C	VSKPNYM8:1 - VSKPNYM8:32	32
<i>Hypolimnys bolina</i> Linnaeus	Great Eggyfly	UC	VSKPNYM9:1 - VSKPNYM9:11	11
<i>Hypolimnys misippus</i> Linnaeus	Danaid Eggyfly	VC	VSKPNYM10:1 - VSKPNYM10:38	38
<i>Junonia almana</i> Linnaeus	Peacock Pansy	UC	VSKPNYM11:1 - VSKPNYM11:10	10
<i>Junonia hierta</i> Fabricius	Yellow Pansy	C	VSKPNYM12:1 - VSKPNYM12:31	31
<i>Junonia iphita</i> Cramer	Chocolate Pansy	UC	VSKPNYM13:1 - VSKPNYM13:10	10
<i>Junonia lemonias</i> Linnaeus	Lemon Pansy	VC	VSKPNYM14:1 - VSKPNYM14:34	34
<i>Junonia orithya</i> Linnaeus	Blue Pansy	UC	VSKPNYM15:1 - VSKPNYM15:13	13
<i>Melanitis leda</i> Linnaeus	Common Evening Brown	UC	VSKPNYM16:1 - VSKPNYM16:9	9
<i>Melanitis phedima</i> Stoll	Dark Evening Brown	UC	VSKPNYM17:1 - VSKPNYM17:10	10
<i>Mycalesis perseus</i> Fabricius	Common Bush Brown	UC	VSKPNYM18:1 - VSKPNYM18:14	14
<i>Mycalesis subdita</i> Moore	Tamil Bush Brown	UC	VSKPNYM19:1 - VSKPNYM19:13	13
<i>Neptis hylas</i> Moore	Common Sailor	C	VSKPNYM20:1 - VSKPNYM20:28	28
<i>Parantica aglea</i> Stoll	Glassy Tiger	UC	VSKPNYM21:1 - VSKPNYM21:12	12
<i>Phalanta phalantha</i> Drury	Common Leopard	C	VSKPNYM22:1 - VSKPNYM22:31	31
<i>Tirumala limniace</i> Cramer	Blue Tiger	C	VSKPNYM23:1 - VSKPNYM23:26	26
<i>Tirumala septentrionis</i> Butler	Dark Blue Tiger	UC	VSKPNYM24:1 - VSKPNYM24:10	10
<i>Ypthima asterope</i> Klug	Common Three-Ring	UC	VSKPNYM25:1 - VSKPNYM25:10	10
Hesperiidae				
<i>Borbo cinnara</i> Wallace	Rice Swift	UC	VSKPHES1:1 - VSKPHES1:28	28
<i>Halpe homolea</i> Hewitson	Indian Ace	UC	VSKPHES2:1 - VSKPHES2:12	12
<i>Pelopidas mathias</i> Fabricius	Small Branded Swift	C	VSKPHES3:1 - VSKPHES3:33	33
<i>Saustus gremius</i> Fabricius	Indian Palm Bob	C	VSKPHES4:1 - VSKPHES4:29	29
<i>Spialia galba</i> Fabricius	Indian Skipper	C	VSKPHES5:1 - VSKPHES5:26	26

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