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INTRODUCTION

What do I see in a butterfly?

A dancing soul; a colourful dream flying past in a miniature form; a frozen rainbow descending down on earth; an enchanting fairy floating in the air. The more you delve deep in observing it, the more it will enthrall, captivate and charm you! Watching butterfly ranks first as a most popular and rewarding pas-time all over the world - a serenely beautiful experience to cherish for. It is also the most studied insect by the scientists along with birds.

Time to think of Butterfly Therapy for peace, tranquility and happiness in life – I follow it.

State of Jharkhand provides ample opportunity for watching butterflies almost every where- in private or public gardens, inside jungles, degraded grass land, village and country roads including along city streets and highways dotted with lantana or bougainvillea shrubs, marshy lands, lake or river side. It is wonder to know how many people pay attention to their presence. It is a sad affair, more so when there is drastic decline in the sighting due to diminishing number of butterflies — a disturbing phenomenon observed all over the world since last decade. Presence of butterfly in good number is an indicator of a healthy environment.

Since the last fifteen years, the photographs given in this book have taken in Jharkhand, mostly in the vicinity of human habitation and urbanized areas but the species count till date remains at about 155. It is quite a rich haul and likely to go up to 200 if species collected from forested areas are added to this

number considering the rich bio-diversity of Jharkhand. India accounts for about 1500 butterfly species out of the total 18000 species in the world that have been studied, listed and categorized scientifically.

Books on butterflies of some Indian states, Union territories and large capital cities have been brought out in comprehensive details already and the one presently in your hand will fulfill a long cherished desire by environmentalists, nature lovers, budding photographers, some educationists and other sections of society of the region including school going children, their grand parents and possibly parents also – if they find time - for the visual charm provided by the photographs of lovely butterflies of Jharkhand.

This book has been designed in the form of 'coffee table book' with utmost focus to highlight the charming beauty of butterflies composed in their natural environment around shrubs and flowers to create a synergy of their own for aesthetical appeal with the sole aim to inculcate interest in this field. There may be many shortcomings, rather faults, in not arranging the butterflies as per scientifically classified families, anatomical description, habits, and habitats. As far as possible we have tried to verify the photographs of butterflies by the experts from ZSI and ICFRE.

Prabhat Kumar



CHAIRMAN'S DESK

Jharkhand Biodiversity Board

It gives me immense pleasure to bring out the educative book on butterflies of Jharkhand. The intention is to acquaint the people with habits and role of butterflies commonly known as insects of sun with eye catching colour and dedicate charisma. They have been admired for centuries for their physical beauty.

The butterflies are special messenger, come to inspire human beings to live peacefully and to create beauty. These minute creatures are an integral and complex part of the terrestrial and the fresh water ecosystem with which the future of human is inextricably linked. Insects are always on duty to fulfill our demands round the clock and act as tiny machines which drives the engines of our ecosystem. Therefore, knowledge about their species diversity and ecological relationship is a practical necessity.

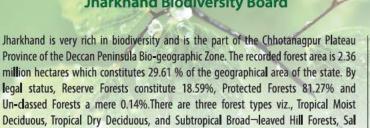
Hope this book on butterfly will serve the society to better understand this beautiful creature. I would like to compliment Shri Dinesh Kumar, IFS, Member Secretary, Jharkhand Biodiversity Board, Shri Prabhat Kumar, Retd. CGM, Coal India Ltd. and other team members involved in the making of this book.

K.P. Pandey Chairman,

Jharkhand Biodiversity Board

FROM THE MEMBER SECRETARY'S **DESK**

Jharkhand Biodiversity Board



The dependence of human beings on biological diversity is undoubted, as is evident in everyday life. The food, fibre, fuel, fodder, shelter, health and other needs of the growing world population are dependent on various components of biodiversity.

(Shorea robusta) being the major forest tree species. The Chhotanagpur Plateau is

especially rich in forest resources.

Therefore, the sustainable use of biological diversity at the global level is of critical importance. For the same reason, the access to, and sharing of, both genetic resources and technologies for their sustainable use among nations are essential.

An international Convention on Biological Diversity (CBD) was held at Rio de Janeiro in June 1992. India is one of the 17 mega biodiverse countries and is also the signatory to the CBD. The Biological Diversity Act & Rules were passed in the year 2002 and 2004 respectively. The objectives of the Act are "to provide for conservation of biological diversity, sustainable use of its components and equitable sharing of the benefits arising out of the use of biological resources".

Jharkhand Biodiversity Board (JBB) has been established by the Government of Jharkhand in December, 2007 under section 22 of Biological Diversity Act, 2002.

Human beings are never alone as a species in the universe. They are also interconnected with the Earth, Sun, Moon, and other planets orbiting in their appointed domains. Large cities like Ranchi, Jamshedpur, Bokaro, Dhanbad and others have lots of small and big industries, vehicles and others which are polluting the environment.

Butterflies have an important role to perform in promoting awareness of the



increasingly urgent need for biodiversity of the terrestrial ecosystem, such as being a basic component in the food chain during immature stages and in pollination during the adult stage, as well as being important in studies of evaluation and co-evaluation. However, many people know little about the biology and ecology of butterflies. They are beautiful and strange, and the benefit they offer to humanity is more subtle than an everlasting cell phone battery.

The book is concerned primarily with the behavior and ecology of butterflies. We have tried to systematize information about integrated behavior of the butterflies. We study butterflies because we are charmed by them. We hope that we have contributed to society by exposing others to these creatures that go about their lives without any concern or interest in human beings. Surely, butterflies are essential parts of essential ecosystems and we have to understand them in order to keep the world functioning. I am sincerely thankful and acknowledge the contributions and efforts of Shri Prabhat Kumar, Retd. Chief General Manager, Coal India Ltd. who is passionate in capturing photographs of this winged beauty and recorded more than 150 species of butterflies from Jharkhand. I also extend my sincere thanks to Dr. Gopal Sharma, ZSI, Patna, Dr. Navneet Gill, ZSI, Patna, Dr. H. S. Gupta, MD, Jharkhand State Forest Development Corporation, Jharkhand, Dr. Arun Dev Singh, Scientist, ICFRE, Smt. Smitha Pankai, DCF, Training, Shri Sanjay Kumar Mahato, Curator, Tata Zoological Park, Ms. Munmun Mukherjee Ahmed, A&M Communication - Ranchi, Ms. Ankita Sinha, Research Supervisor, Shri Suman Sameer, Envis Centre, Ranchi, Shri Sunil Kumar and Shri Manish Kumar who helped in identification and successful completion of this book.

Dinesh Kumar

Member Secretary, Jharkhand Biodiversity Board





COMMON ROSE

Pachliopta aristolochiae 80 -110 mm On Lantana Flower



CRIMSON ROSE

Pachliopta hector 90 - 110 mm On lawtawa







PLAINS CUPID

Chilades pandava 25 - 35 mm



PLAINS CUPID

Chilades pandava 25 - 35 mm







PEAL'S PALMFLY

Elymnias pealii On chrysanthemum 75 - 85 mm



PEAL'S PALMFLY

Elymnias pealii







COMMON LEOPARD

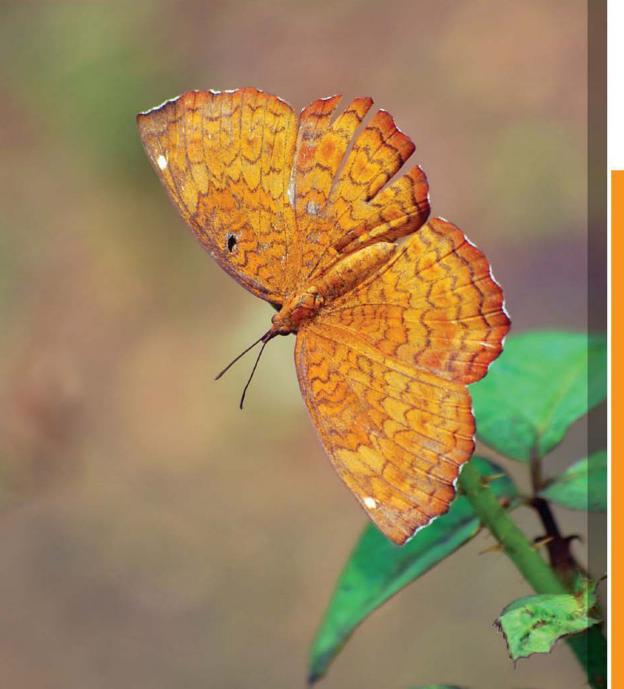
Phalanta phalantha 50 - 60 mm Basking in the Sun



BARONET

Euthalia nais 60 - 70 mm On Chrysanthemum







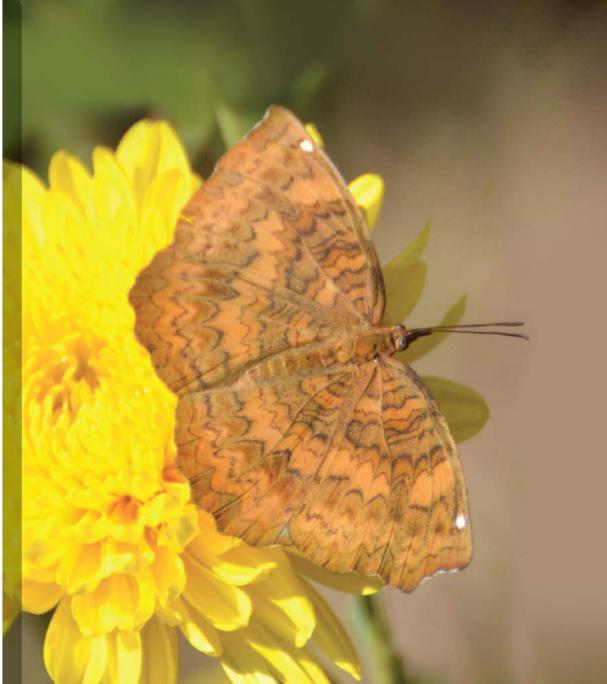
COMMON CASTOR

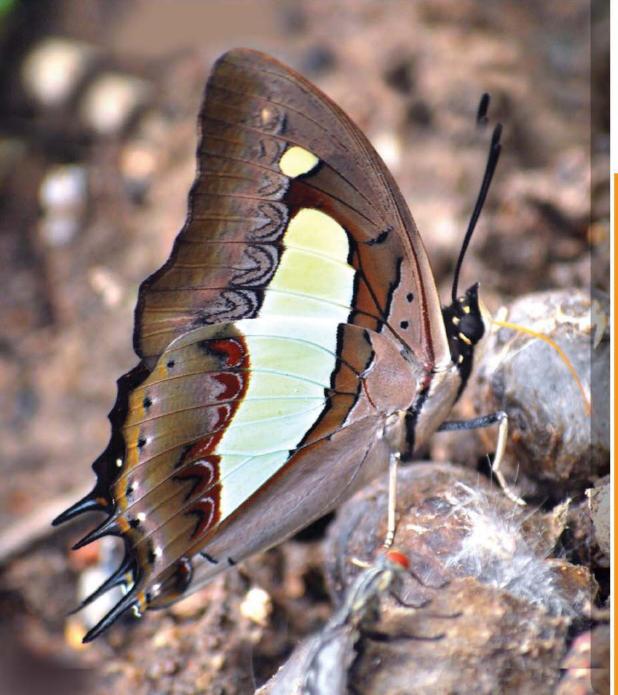
Ariadne merione 45 - 60 mm



COMMON CASTER

Ariadne merione 45 - 60 mm On chrysanthemum







COMMON NAWAB

Polyura athamas 60 - 75 mm Feeds on animal droppings



COMMON NAWAB

Polyura athamas 60 - 75 mm







PSYCHE

Leptosia nina 35 - 50 mm



TAWNY COSTER

Acraea violae 50 - 65 mm On Lantana







COMMON Wanderer

Pareronia hippia 65 - 80 mm Mimics Blue Tiger



COMMON Wanderer

Pareronia hippia







COMMON SERGEANT

Athyma perius 60 - 70 mm On Marigold



COMMON SAILER

Neptis hylas 50 - 60 mm







COMMON SAILOR

Neptis hylas 50 - 60 mm



COMMON PEACOCK

Papilio bianor 90 - 130 mm On Vinca Rosea







COMMON BARON

Euthalia aconthea 55 - 80 mm On Chrysanthemum



COMMON BARON

Euthalia aconthea

55 - 80 mm On Dahlia







Catopsilia pomona 55 - 80 mm On Lantana



Catopsilia pomona 55 - 80 mm







Catopsilia pomona 55 - 80 mm



Catopsilia pomona 55 - 80 mm On Rose







COMMON Emigrant

Catopsilia pomona 55 - 80 mm



LEMON EMIGRANT

Catopsilia pomona







LEMON Emigrant

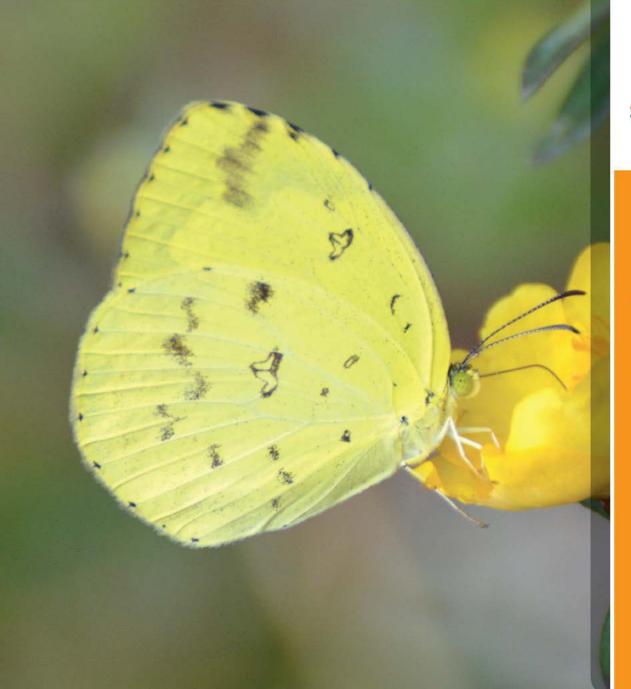
Catopsilia pomona



COMMON GRASS YELLOW

Eurema hecabe 40 - 50 mm On Vinca Rosea







THREE Spot grass Yellow

Eurema Blanda 40 - 45 mm



THREE Spot grass Yellow

Eurema Blanda 40 - 45 mm







PALE CLOUDED YELLOW

Colias erate 45 - 55 mm On Chrysanthemum



INDIAN Palm Bob

Suastus gremius 32 - 45 mm







GRASS DEMON

Udaspes folus 40 - 48 mm



PALE PALM DART

Telicota colon 32 - 36 mm On Lantana







COMMON Banded Awl

Hasora chromus 45 - 50 mm



COMMON MIME

Papilio clytia 90 - 100 mm On Lantana Flower







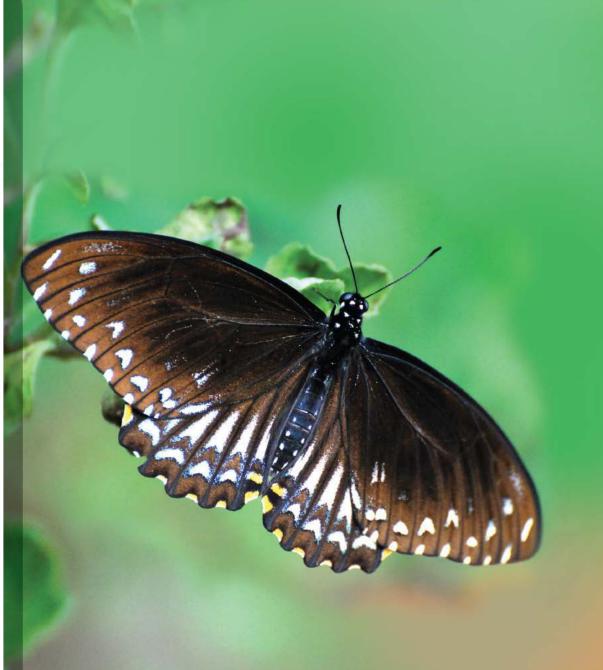
COMMON MIME

Papilio clytia 90 - 100 mm Form clytia



COMMON MIME (WINGS OPEN)

Papilio clytia 90 - 100 mm







BLUE GLASSY Tiger

(WINGS OPEN)

Ideopsis similis 75 - 85 mm



BLUE GLASSY TIGER (WINGS CLOSED)

Ideopsis similis 75 - 85 mm







DANAID EGGFLY (FEMALE)

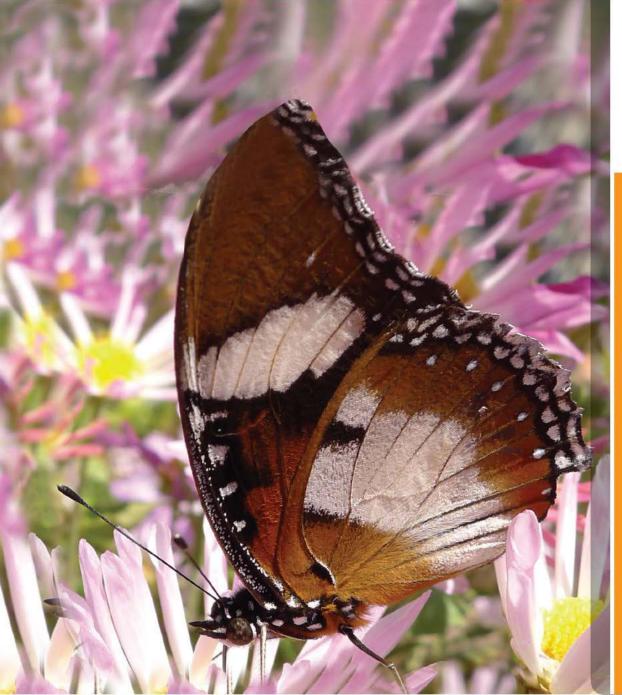
Hypolimnas misippus 70 - 85 mm



DANAID EGGFLY (MALE)

Hypolimnas misippus







DANAID EGGFLY

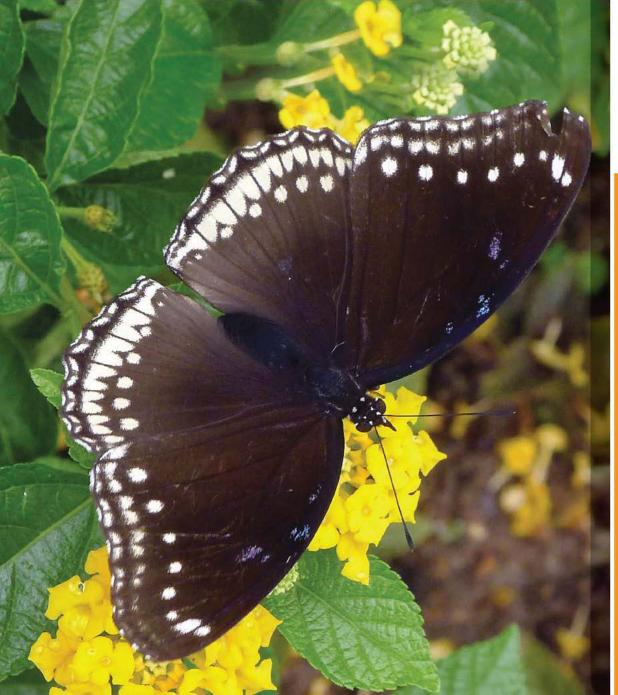
Hypolimnas misippus On Chyrasthemum



GREAT EGGFLY (MALE)

Hypolimnas bolina 70 - 100 mm







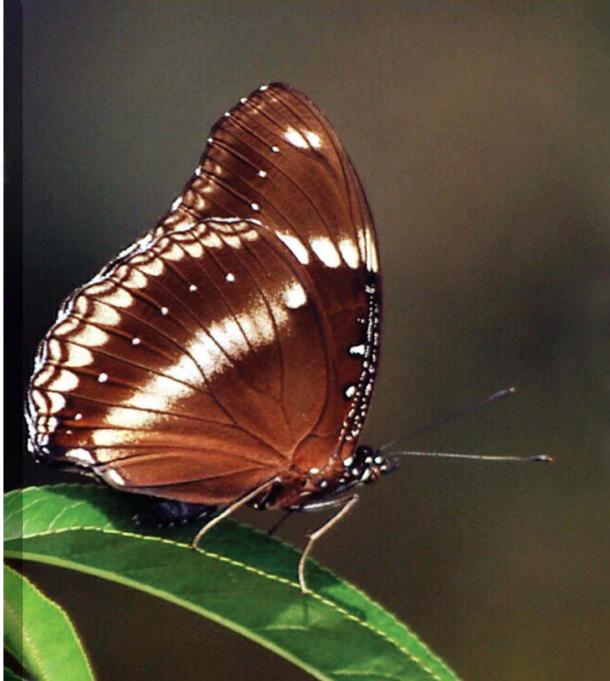
GREAT EGGFLY (FEMALE)

Hypolimnas bolina 70 - 100 mm



GREAT EGGFLY

Hypolimnas bolina 70 - 100 mm







PLAIN TIGER

Danaus chrysippus 70 - 80 mm



PLAIN TIGER

Danaus chrysippus 70 - 80 mm







STRIPED TIGER

Danaus genutia 72 - 100 mm On Lantana



STRIPED TIGER

Danaus genutia 72 - 100 mm







COMMON JAY

Graphium doson 70 - 80 mm On Lantana



TAILED JAY

Graphium agamemmon 85 - 100 mm







COMMON CROW

Euploea core 85 - 95 mm On Lantana flower



COMMON CROW

Euploea core 85 - 95 mm On Lantana Flower







COMMANDER (WING FOLDED)

Moduza procris 60 - 75 mm



COMMANDER

Moduza procris 60 - 75 mm On chrysanthemum







COMMON JEZEBEL

Delias eucharis 66 - 83 mm On Lantana Flower



SPOT SWORDTAIL

Graphium nomius 75 - 90 mm







SPOT SWORDTAIL

Graphium nomius 75 - 90 mm



Papilio demoleus 80 - 100 mm







Papilio demoleus

80 - 100 mm A pair on Sunflower



Papilio demoleus

80 - 100 mm On Water lily Wing Closed





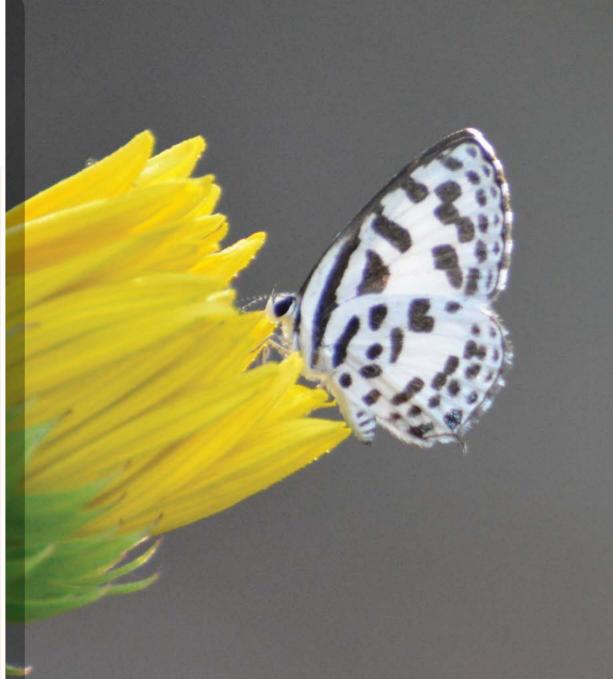


Papilio demoleus 80 - 100 mm



COMMON PIERROT

Castalius rosimon 24 - 34 mm







RED PIERROT

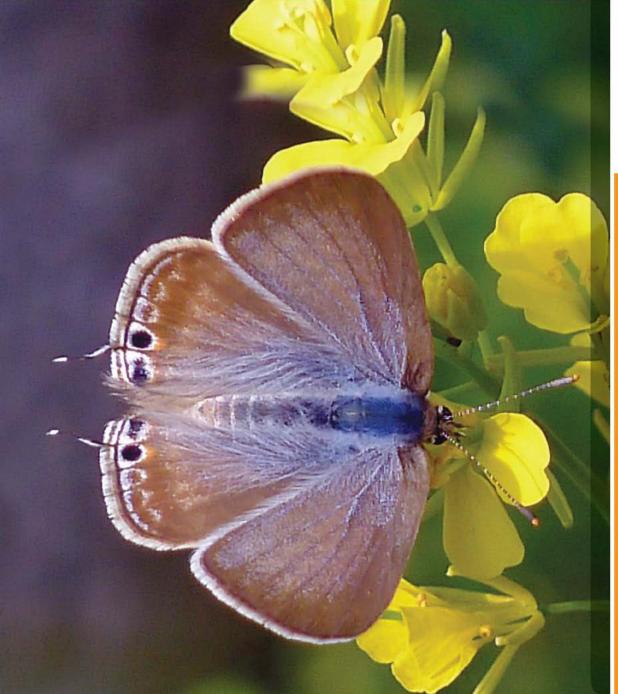
Talicada nyseus 32 - 36 mm



RED Pierrot

Talicada nyseus 32 - 36 mm In pair







GRAM BLUE

Euchrysops cnejus 25 - 33 mm



GRAM BLUE

Euchrysops cnejus 25 - 33 mm







INDIAN RED FLASH

Rapala iarbus 33 - 40 mm



INDIAN Red Flash

Rapala iarbus 33 - 40 mm







INDIAN SKIPPER

Spialia galba 20 - 27 mm



GUAVA BLUE

Virachola isocrates 34 - 50 mm







COMMON SILVERLINE

Spindasis vulcanus 26 - 37 mm



LESSER GRASS BLUE

Zizina otis 19 - 26 mm







COMMON HEDGE Blue

Acytolepis puspa 28 - 35 mm



Papilio polytesOn Chrysanthemum flower







Papilio polytes
On Ixora flower
Form Cyrus



Papilio polytes 90 - 100 mm Form Stichus







Papilio polytes



BLUE Mormon

Papilio polymnestor 120 - 150 mm On Vinca rosea flower The largest butterfly of Jharkhand







COMMON JAY

Graphium doson 70 - 80 mm On Lantana flowers



COMMON JAY

Graphium doson 70 - 80 mm







PEACOCK PANSY

Junonia almana 45 - 60 mm On Nargis Flower Sipping Nectar



PEACOCK PANSY

Junonia almana 45 - 60 mm







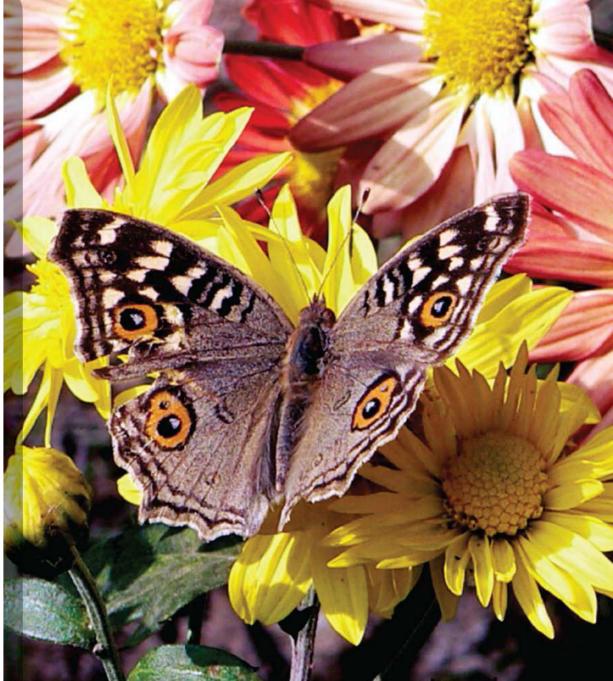
YELLOW PANSY

Junonia hierta 45 - 60 mm



LEMON PANSY

Junonia lemonias 40 - 60 mm On Chrysanthemum







BLUE Pansy

Junonia orithiya 45 - 60 mm On Lantana Flower



BLUE Pansy

Junonia orithya







GREY Pansy

Junonia atlites 55 - 65 mm On Marigold Flower



GREY Pansy

Junonia atlites 55 - 65 mm







CHOCOLATE PANSY

Junonia iphita 55 - 80 mm On Marigold Flower



GREY Pansy

Junonia atlites 55 - 65 mm







DARK Evening Brown

Melanitis phedima 60 - 85 mm



COMMON Evening Brown

Melanitis leda 60 - 80 mm







COMMON EVENING Brown

Melanitis Leda 60 - 80 mm



SMALL Branded Swift

Pelopidas mathiasFabricious







COMMON BANDED AWL

Hasora chromus Cramer



PLUM JUDY

Abisara echerius 40 - 50 mm







COMMON CASTOR

Ariadne merione Cramer



SMALL Branded Swift

Pelopidas mathias







BARONET

Symphaedra nais



COMMON GULL

Cepora nerissa







LIME BLUE (DSF)

Chilades lajus (Stoll) 26 - 30 mm



ZEBRA BLUE

Leptotes plinius Fabricius





LIME BLUE

Chilades lajus 26 - 30 mm







LIME BLUE (WSF)

Chilades lajus 26 - 30 mm





COMMON CERULEAN

Jamides celeno bhairana 30 - 40 mm



COMMON CERULEAN

Jamides celeno Cramer







GARDEN Lizard

- An enemy of Butterfly



EMERGENCE OF CATERPILLAR FROM EGGS







SPIDER

- An enemy of Butterfly



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Jharkhand Biodiversity Board

Block D, Van Bhawan Campus, Doranda Ranchi-834002, Jharkhand | Phone No.: 0651-2482013

email: jbbranchi@gmail.com Website: http://jbbjharkhand.org