

The Flying Pearls of 
Sikkim Himalaya




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A Pictorial Guidebook on The Butterflies of Sikkim.
By Nosang Muringla Limboo



©Dr. Sanjyog Rai

The Flying Pearls of 
Sikkim Himalaya

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FOREWORD



Sikkim has always been my most favourite destination for chasing butterflies with my camera. This is truly a paradise for butterfly enthusiasts. I have been visiting Sikkim since 1990. When we photographed butterflies here, village boys would often look at us in wonder as we pulled out our cameras. But today I am very happy to see the younger generation in Sikkim taking interest in not only photographing Sikkim's exquisite flora and fauna, but are aware of the need to protect their natural heritage.

Now we are witnessing a renewed interest in butterflies all over India, and I am glad that the youth of Sikkim has taken a good lead in this pursuit. I am truly delighted to see that Nosang, who hails from a small village, Darap in West Sikkim has not only graduated in English literature from St' Joseph's College Darjeeling, but has decided to write a book on the butterflies of Sikkim at a very young age. This is really a very healthy beginning and I am glad that youngsters like Nosang are now taking interest in appreciating nature and I am sure they will protect it as well.

With the advent of the digital photography, butterflies are now popular subjects among adults as well as children. There is a great revival of interest in butterfly watching and photography. There are lot more interest groups on social networks and e-groups.

On Facebook, there are two active groups on Sikkim butterflies and Nosang is the active member of these group where you can see his excellent photographs of Sikkim butterflies. He has documented several species of butterflies of Sikkim. This is his more than a year-long study which has resulted in this book on butterflies of Sikkim.

Chasing butterflies is an enjoyable pursuit where there are around 1500 species of butterflies in the Indian region, Sikkim, though a small state of India, has 690 species of butterflies. India is one of the 12-mega diverse countries of the world and hotspot for butterflies too. Butterflies like other wildlife are protected under the Wildlife Protection Act of India, 1972. Some of the butterflies are endangered like Bhutan Glory and Kaiser-e-Hind and get the same protection like the tiger, lion and elephant under this Act.

I must congratulate Nosang for bringing out such an excellent book on nature's flying jewels. After reading this book, people are surely going to fall in love with nature. And once they start appreciating nature, they will surely strive hard to protect nature, which is now the need of the hour.

Isaac Kehimkar,
General Manager (Programmes), BNHS
Joint Editor, Hornbill magazine, BNHS



PREFACE

Butterflies are very beautiful and loved by humans more than any other insects. Writers have often described them as 'Winged Jewels' and 'Flying Pearls' because of their colourful patterns and beautiful designs. I was also fascinated by this creature few years ago and I could not stop myself. I started photographing them as I used to travel most of the time in different parts of my state. I am always surrounded by persons who are always looking for a chance to contribute something to our state. And like it is said 'reputation comes from the company you keep' my reputation was growing within me.

I had already photographed more than 200 species just than the idea of this pictorial guide book with basic information on Butterflies of Sikkim hit my mind. Than there was a lot of homework to do, the identification part. Thanks to 'The Book of Indian Butterflies' by Isaac Kehimkar (BNHS) which has been of a great help. I also went through every possible materials on Butterflies, websites like ifoundbutterflies, flutters.org and specially facebook page BAMOS-Butterflies and Moths of Sikkim has been of a great help. My learning and personal observations has also been useful for the data of this book.

Most of the images used are taken by myself and some contributions are made by my co-workers Nawangla Bhutia and Sonam Pintso Sherpa who are amazing photographers and also contributed by Tenzing W Bhutia (B.O Yuksam) one of our team member.

The Identification part has taken more than a year along with the basic texts. Reference of many experts from their books and through internet has been done, still some errors could come across, I shall highly appreciate if you reach them to me and it shall be corrected in the next edition.

This Book is especially for the beginners and I hope it will be appreciated. There is still a lot to do but for now I present you '1st Edition of the Flying Perls of Sikkim Himalaya-a pictorial guidebook on Butterflies of Sikkim.



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ACKNOWLEDGEMENTS

There are a lot of people who have encouraged and supported me in writing this book, from my state, country and abroad. To start from my state, I am deeply thankful to Dr. Sanjyog Rai who introduced me with the Butterflies, followed by National Center for Biological Science (N.C.B.S) Field Biologist Mr. Tarun Karmakar with whom I travelled different parts of my state Sikkim photographing and identifying Butterflies. Dzongu in North Sikkim has always encouraged naturalists from different part of our country and even the world with its rich biodiversity. I would like to thank Revenue Inspector Govt. of Sikkim Mr. Kuschel Gurung for helping us traveling in Dzongu, Mr. Thinley Lepcha for providing us a delicious lunch on the river banks of Kanaka who also keeps a strong interest on nature photography and the Mayal Lyang Home Stay for a lovely and cozy stay in Dzongu. To travel into the areas where Official Permits were required from the Forest Dept. Govt. of Sikkim, the Forest Officers has supported us in every way they can keeping strictly in mind the Forest Rules and Schedules. I would like to thank DFO (Wildlife) West Sikkim Mr. Tshering Pintso Bhutia, DFO North Sikkim Mr. Sugen Saring, B.O. Rinchenpong Mr. Rajeev Gurung and B.O. Yuksam Mr. Tenzing W. Bhutia for all the support they have given.

The field work in South Sikkim was a memorable one with our stay in Dr. Sanjyog Rai's Home. I would like to thank from the deepest point of my heart to his family for the wonderful hospitality they offered us and I would also like to thank 'Lallan' for driving us down to Mikhola where we had a very clear and good sighting of White Comodore and also for dropping us down till Kitam Bird Sanctuary. There are people who helped me turn into a definite Naturalist or in fact to fall in love with nature whom I would also like to thank as much as I can, Ace Birders Mr. Peter Lobo, Mr. Chewang Bonpo and Mr. Lakpa Sherpa, Travelers like Mr. & Mrs. Ricardo Meissner from Columbia, Mr. Allan Pearson - Author 'A FIELD GUIDE TO THE BIRDS OF PENINSULAR MALAYSIA AND SINGAPORE' - Author 'A FIELD GUIDE TO THE BIRDS OF WEST MALAYSIA AND SINGAPORE' and his wife Mrs. Anne Pearson from England. I would also like to thank my French Traveler friends Miss. Agatha, Mr. Bernard and Mr. Staphane and my backbone friends, Inspector Mr. Silash Tamang, HRDD MDM Co-Ordinator Mr. Sonam Palzor Bhutia and V.L.W. Tashiding Mr. Phurba Tshering Bhutia (Botanist).

The identification part took us more than a year it would have taken even longer if experts from all over our country had not guided me. My deepest gratitude to Mr. Monsoon Jyoti Gogoi, Mr. Isaac Kehimkar B.N.H.S



General Secretary and Joint Editor Hornbill Magazine, Mr.Peter Smecteck, Mr.K.kunte(N.C.B.S), Mr.Prashant Bhatt and Mr.Ganesh Mani Pradhan. My BOS team Mr.Sonam Pintso Sherpa and Mr.Nawangla Bhutia are such persons whom I have no enough words to thank for encouraging and supporting me since the beginning.

This book would not have been complete if MLA Yangthang Constituency Mr.P.L.Subba had not blessed me with his good wishes and his kind support. Also Mr. Sangay Tamang and Mr.Yousen Gurung who believed in me and my efforts which took more than three years to complete.

I am very thankful to Raju Khati for working in the designs of this book day and night and shall always remain greatful to him for his efforts in making this book what it is today.



INTRODUCTION

Sikkim our splendid state has become one of the most loved and visited state in India by naturalists. Different organisations realted to Nature have been working in our state in different subjects of nature, plants and flowers ,Birds,mammals,frogs,dragonfly and Butterflies.We own nearly sixty percent Birds of the Indian sub-continent, around hundreds of mammal and more than six hundred species of butterflies.

We are naturally rich and its a matter of great pleasure and proudness to be a son of such Naturally rich state.We own so much and at the same time it is also a very important matter to keep a good record on them and search out different measures of prevesence as we live only till we are naturally rich.

Our state is decorated with more than six hundred species of colourful flying pearls,butterflies.In every part of our state we see them from the lower Rangeet belts to the high currents of Kanaka and Teesta,they just makes our beautiful state more beautiful.And Beside their immense contribution to nature we also have a duty towards them which is 'duty of protecting them and their habitat'.

Butterflies are the most fascinating group of insects of which humans are fond of since many years. Because of their beauty and the way they present themselves they have attracted naturalists to study them in a large scale.Before it was not used in a good purpose in contrast with the natural law,they were collected by people as postage stamps and soveniers which created a huge gap and disturbance in their study.Today Laws have been made to protect special species of this creature to study and identify its habitat which are nearing to extinction.





Striped Tigers

The anatomy of a Butterfly

1. Antennae....They are used for detecting smells and for a sense of Balance.
2. Compound Eyes....These are good for detecting colour and movement. The eye of a butterfly can see simultaneously in all directions. Their ultra violet vision helps them find flowers and mates.
3. Proboscis....This is a long straw-like tube used for drinking nectar or fluids. Normally coiled when not in use.
4. Legs....All Butterflies have six segmented legs. A butterfly's feet also have sense organs to taste food and detect their host plants.
5. Thorax...The wings are attached to the Thorax. This area contains the muscles that activate the legs and wings of the butterfly.
6. Abdomen...This contains a flexible tube-like heart, its digestive and reproductive organs. It also contains hole like structures called spiracles, which helps a butterfly to breathe.
7. Cell...This is an area enclosed by the veins. The arrangement of the veins around the cell is helpful in the identification of different groups of butterflies.
8. Veins...These rib-like tubes support and strengthen the wings and take nourishment to them.
9. Hindwings...Lower wings close to the abdomen.
10. Forewing...Upper wings, close to the head.
11. Underside...When a butterfly closes its wings, what you see is the underside of the butterfly.
12. Upperside...When a butterfly opens its wings, what you see is the upperside of the butterfly.





Moon Moth

BUTTERFLIES AND MOTHS

Butterflies and Moths fall under a large group of insects called the Lepidoptera-lepis in Greek meaning scale and pteron meaning wings. Both butterflies and moths has two pair of wings with scales overlapping them which makes them different from the other group of insects.

The scales that cover their bodies and wings are actually modified hairs. There are many more moths in number as compared to butterflies. Though they share some similarities they have a large difference in them.

BUTTERFLY :

- 1: Butterflies fold up their wings vertically up.
- 2: Butterflies do not have frenulum.
- 3: Butterflies are diurnal, flying in day time.
- 4: There are butterflies which flies at dawn and dusk which are called- Crepuscular.
- 5: Butterflies have slender and clubbed tip antennae.

MOTHS :

- 1: Moths holds their wings like a roof hiding their abdomen-their wings are not seen vertical.
- 2: Moths have frenulum which locks the forewings and holds the wings together.
- 3: Moths are mostly nocturnal – flying at night but still some moths are diurnal like the Bee hawk moth, Humming bird moth etc.
- 4: Moths have feathery antennae totally different from Butterflies.



BUTTERFLY BEHAVIOURS AND HABITS

1) **BASKING** – One of the reason that we don't see butterfly activity in a cold and cloudy day is because butterflies are coldblooded creatures and they do not have constant body temperature. It's the surrounding temperature which help butterflies to maintain their body temperature. This is why we see butterflies with their wings open in the sunlight often on the ground and above the leaves this activity of warming up themselves is called basking.



2) **PATROLLING & HILL-TOPPING** – This is an amazing behavior of male butterflies to attract female butterflies for mating. The male often tops a tree, a hill or a steep slopes and sits still trying to attract a female. Patrolling occurs in the forest openings and paths where the males look for a female to mate sometime perching above the leaf with extended hair pencil attracting the females.



3) **MUD PUDDLING** – In this behavior too males are more active. The newly hatched males engage themselves in sucking of salt and water as needed by their body from wet and muddy areas. These salts are an essential requirement in the production of healthy eggs and also for passing on the nutrients to the females during mating. Almost all species of butterflies are mud-puddlers and are often seen in a large group together.





Yellow Coaster

IMPORTANCE

Butterflies are an important agents of pollination ,they are fond of flowering plants which inturn appears to be a vital role in the life of plants.They are also a very important role player in biodersivity.They form the food of birds,other insects(arthropods) and reptiles therefore they play a huge role in the food chain too.Butterflies are also used as an indicators of environmental variation as some species of butterflies like The Appolo have special environmental requirements.

Butterflies are also a very important components of Eco-tourism like the butterfly parks and Butterfly Gardens in rearing them which is a protection and growth of different spices,play its role in itself. It is also said that in some countries they are reared and released in special occasions which are in high demands.



CLASSIFICATION

Butterflies are classified into two superfamilies called the Hesperioidea and Papilionoidea.

Hesperioidea include the entire Skippers.

Papilionoidea includes the rest of the butterflies. Papilionoidea further comprises of four different groups of different families :

- 1 : Papilionoidea – Swallowtails
- 2 : Pieridae – Whites and Yellows
- 3 : Nymphalidae – Brush-footed butterflies
- 4 : Lycaenidae – Blues

There are around 18,000 species of butterflies in the world and our country India covers 1,501 species and our state Sikkim nearly around 700 of them. Out of 1501 Indian species there are 321 skippers 107 swallowtails 109 whites and yellows 521 brush-footed butterflies and 443 blues.



Red Breast male



Black Vein Redeye



Pedong Tiger



Copper Flash



Tailed Sulphur





PAPILIONIDAE SWALLOW TAILS

The butterflies of this family are mostly bigger than the butterflies belonging to the other families. Some of the most beautiful butterflies come under this family. They are commonly known as 'Swallowtails' and this is because they have tailed hindwings. These are the butterflies having broader hindwings and forewings long and narrow. The lifespan of butterflies in this family are much more longer than butterflies in the other families.





Common Batwing

Scientific name: *Atrophaneura varuna* (White)

Wings span: 88-136mm

Status: Not Rare

Location: Rangeet Belts

Common Birdwing

Scientific name: *Troides helena* (Linnaeus)

Wings span: 140-170mm

Status: Not Rare

Location: Namchi



PAPILIONIDAE

©S. Pinto



Golden Birdwing

Scientific name: *Troides*
aeacus(C.&R. Felder)

Wings span: 119-188mm

Status: Not Rare

Location: Rimbi

Glassy Bluebottle

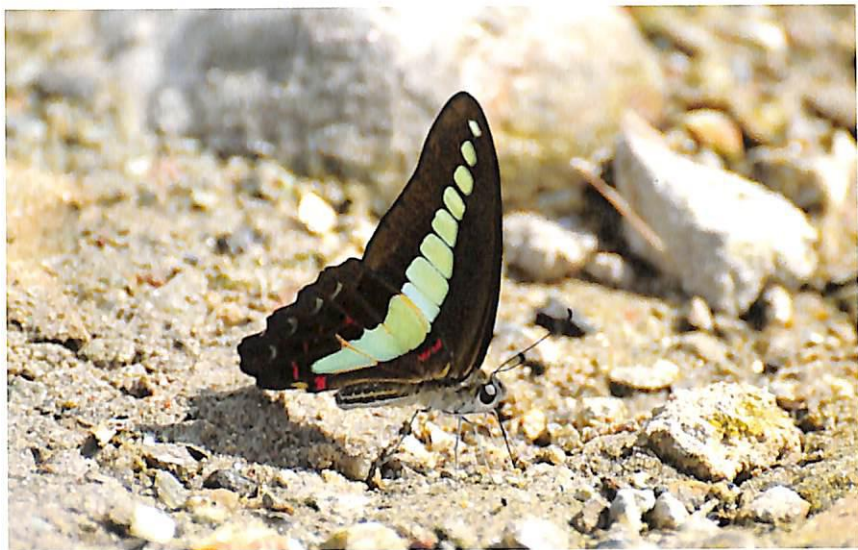
Scientific name: *Graphium*
cloanthus Westwood

Wings span: 82-95mm

Status: Not Rare

Location: Kanchendzonga Waterfalls





Common Bluebottle

Scientific name: *Graphium sarpedon* (Linnaeus)

Wings span: 80-90mm

Status: Common

Location: Singtam

Yellow Helen

Scientific name: *Papilio nephelus*

Boisduval

Wings span: 115-130mm

Status: Not Rare





Red Helen

Scientific name: *Papilio helenus*(Linnaeus)

Wings span: 110-130mm

Status: Common

Location: Yuksam

Veined Jay
Scientific name: *Graphium chironides*(Honrath)
Wings span: 75-100mm
Status: Not Rare





Tailed jay

Scientific name: *Graphium agamemnon*(Linnaeus)

Wings span: 85-100mm

Staus : Common

Location: Singtam

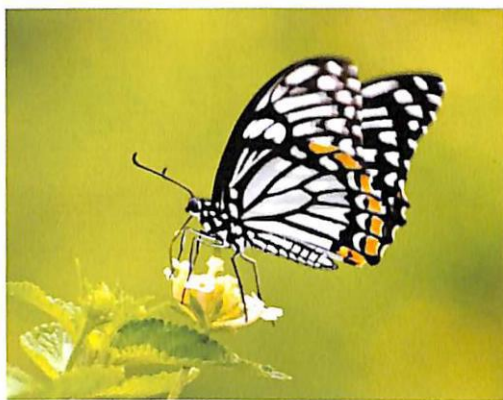
Common Mime

Scientific name: *Chilasa clytia*(Linnaeus)

Wings span: 90-100mm

Staus : Not Rare

Location: Singtam





Tawny Mime

Scientific name: *Chilasa agestor*(Gray)

Wings span: 83-120mm

Staus : Locally Common

Location: Rimbi

Female Common

Mormon

Location: Singtam

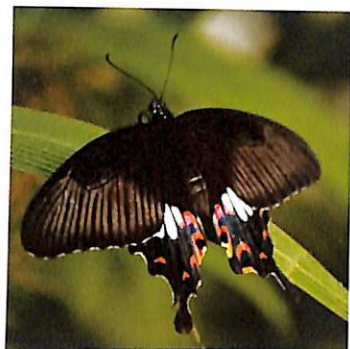
Male Common Mormon

Scientific name: *Papilio polytes* Linnaeus

Wings span: 90-100mm

Staus : Very Common

Location: Yuksam





Male Great Mormon

Scientific name: *Papilio memnon* (Linnaeus)

Wings span: 120-150mm

Status: Locally Common

Location: Pakyong



Female Great

Mormon

Location: Sang

Spangle

Scientific name: *Papilio protenor* Cramer

Wings span: 100-130mm

Status: Common

Location: Tashiding



PAPILIONIDAE



Male Redbreast
Scientific name: *Papilio alcmenor*
C. & R. Felder
Wings span: 110-130mm
Staus : Not Rare
Location: Dentam



Female
Location: Tashiding

©S. Pintso



Common Windmill
Scientific name: *Atrophaneura polyeuctes*(Doubleday)
Wings span: 110-140mm
Staus : Not Rare
Location: Rimbi





Great Windmill

Scientific name: *Atrophaneura dasarada* (Moore)

Wings span: 100-140mm

Status : Not Rare

Location: Rimbi

Gorgon

Scientific name: *Meandrusa sciron* (Leech)

Wings span: 105-115mm

Status : Rare

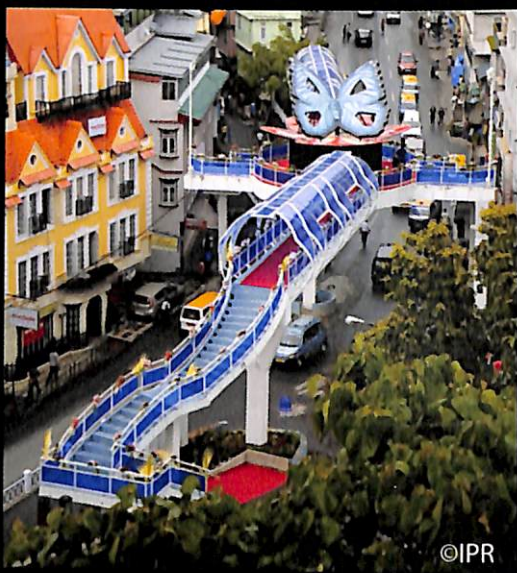
Location: Yuksam





Nosang Muringla Limboo was born on 22nd may 1987 in a small village in west Sikkim, Darap. He completed his graduation from St.Josephs College Darjeeling(North Point) in English Literature. He loves photography, travelling, writing and he also enjoys birding.

My deepest gratitude to the Engineer who came up with such creativity and added beauty to our town Gangtok. I would also like to thank the concerned Department for supporting the idea and making it a reality and hope more such 'Creativity' and 'Innovations' from the young minds of our Sikkim will be depicted and passed on generation to generation.



Butterfly Flyover at Deorali, Gangtok, Sikkim

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