

Whispering Wilds

A Product of Exploring Nature Call of The Wild

Edition-3 (July 2023)

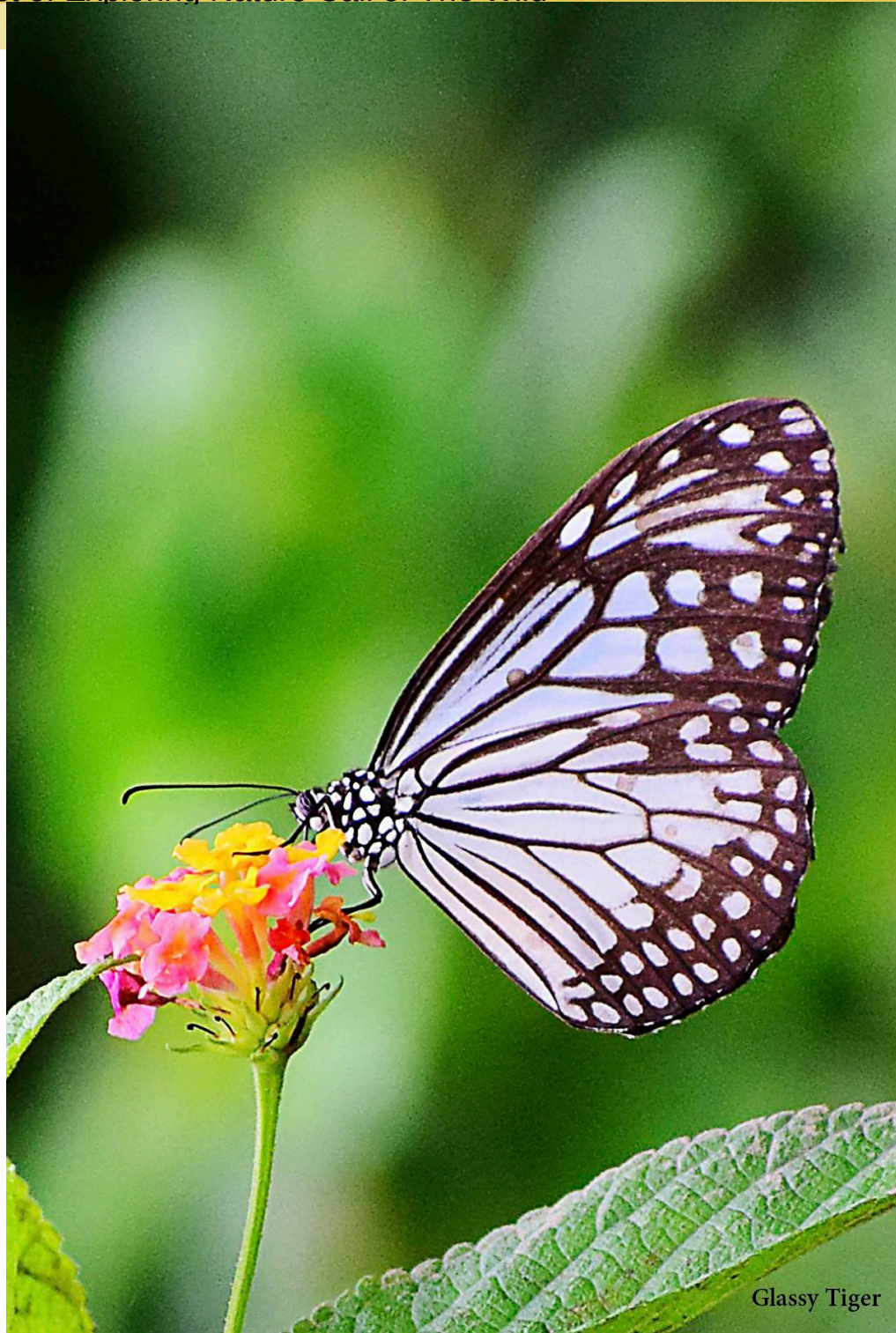


Avian World

Colours of the Kumaon
Eureka Moment
Spoon-billed Sandpiper
A Good Samaritan

Animal Kingdom

Craftsmen of the Himalayas
The Arabian Oryx
Brown Bear Painting
Beyond the King



Glassy Tiger

Cover Story

Butterflies of Hollongapar Gibbon Wildlife Sanctuary



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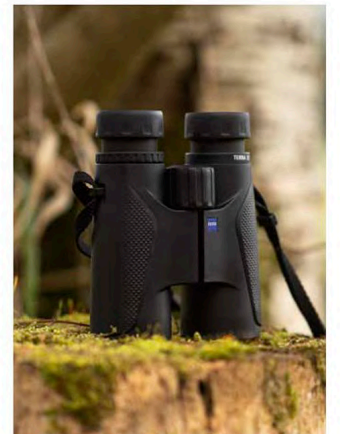
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Various studies hold humans responsible for annihilation of up to 83 per cent of all wild mammals and half of all plants

Evolution defines our existence. And to evolve, one has to adapt. This is how species on the planet – including the humans – have ensured survival. Charles Darwin articulated this process of existence as “the fittest would survive.” All the living beings have evolved different physiological traits to combat the natural challenges for survival. These physiological traits continue to evolve to cope with environmental changes. Species have gone extinct as well. Nearly 99 percent of all species on Earth have gone extinct in the last five mass extinction spells. So, evolution and extinction is very much part of the planet's life.

Researchers claim that currently the planet is going through the sixth mass extinction phase. According to IUCN, “the number of species at risk of extinction on the Red List has exceeded 40,000 for the first time.” The five extinctions in the past were caused by natural changes in the planet and disasters like huge volcanic eruptions and meteorite strikes. But the current extinction is caused by humans: our activities have altered the climate and the landscapes. This is why scientists may declare the current time as the Anthropocene, or the Age of Humans. Various studies hold humans responsible for annihilation of up to 83 percent of all wild mammals and half of all plants. Many human species have gone extinct even though we don't know yet whether the



modern human species was the reason for it.

Humans treat the planet as its fiefdom. But the natural world doesn't recognise such dominance. Either we stay together in sync with the natural world, or the law of nature gets back to us. Darwin's “survival of the fittest” principle didn't mean that one would just dominate and rule an ecosystem where others have the same roles and responsibilities to make it livable.

Gargi Mishra
Chief Editor
Whispering Wilds

The current extinction is caused by humans: our activities have altered the climate and the landscapes.

Observation of Vivipary in Papaya Fruit

The papaya (*Carica papaya* Linnaeus) plant is an exotic plant. It is a native of South America (Santapau & Henry, 1998). It has well adapted to the agro-climatic condition of India, including that of the Jharkhand state.

Fruits of papaya plants are used as green vegetables as well as ripe fruits are eaten by all age groups of humans and many birds like bulbul, Asian Koel, woodpeckers and Rufous Treepie.

The papaya plant also has economic and commercial value. A proteolytic enzyme called papain is obtained from unripe green fruit which is used in industries. Papain is also used to prepare digestive medicines. The green part and seed of papaya contain alkaloid carpaine which acts as heart stimulant and is also diuretic in action (Singh et. al., 1996).

The papaya plant is grown in many parts of India including Jharkhand state. Its fruits are found throughout the year. Its fruits differ in shape such as large globose or pyriform or cylindrical. The lumen inside the fruit is large and is filled with many black seeds.



I brought some ripe papaya from the market in 2021. It was very good in taste. So, I collected a few seeds and showed them randomly in my residential garden of Telco colony in Jamshedpur, Jharkhand, India. Six seeds were germinated into seedlings. After attaining maturity, flowering and fruiting started. Out of six plants 3 were male and the remaining 3 developed into female papaya plants.

Chief Zoologist
Dr. Mithilesh Dutta Dwivedi
Whispering Wilds

As a student of biology, it was a surprising moment for me to observe a baby papaya plant germinating in the lumen of the fruit.

On 6th July 2022, I plucked one ripe papaya fruit from the same plant that I had sown in 2021. Next morning, the fruit was cut into two equal halves longitudinally.

As a student of biology, it was a surprising moment for me to observe a baby papaya plant germinating in the lumen of the fruit. This fruit was not over ripened but moisture content was good enough inside the fruit. Before this I had never heard about vivipary in papaya plant.



The vivipary refers to germination of seeds within the fruit while they remain attached to the mother plant. This phenomenon is very common in many genera of mangrove plants or halophytes such as *Rhizophora*.

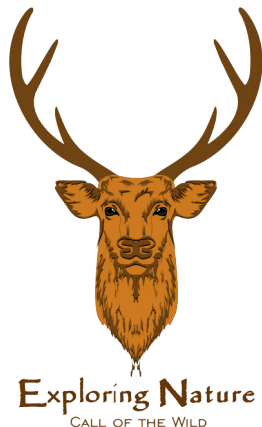
The literature available suggests that viviparous germination occurs due to excessive moisture in the surrounding atmosphere or inside the fruit. It may also occur due to failure of dormancy period regulated by phytohormones. Photoperiod and light intensity are also considered as important factors that regulate

vivipary (Gangulee et.al. , 1999). The study of vivipary in White Clover plant reveals that high atmospheric moisture after fruit ripening leads to vivipary in plants (Majumdar et.al. , 2004). During my observation I found 4-5 seedlings and many C shaped white germinating embryonic stages. After examining the seedlings, it was evident that each seedling has elongated hypocotyls having a pair of green leaves and white radicles embedded in pulp of the fruit.

I eagerly tasted the papaya fruit. The taste and flavour were intact like a normal fruit but the pulpy texture was due to a little more moisture content. I also planted the seedling in my garden but it failed to sustain and dried.

However, the vivipary in the papaya plant is not rare but is an unusual (Chakroborty et.al., 2008) phenomenon because this plant belongs to the tropical non-mangrove category of plants.

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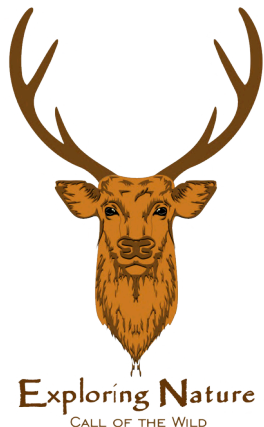
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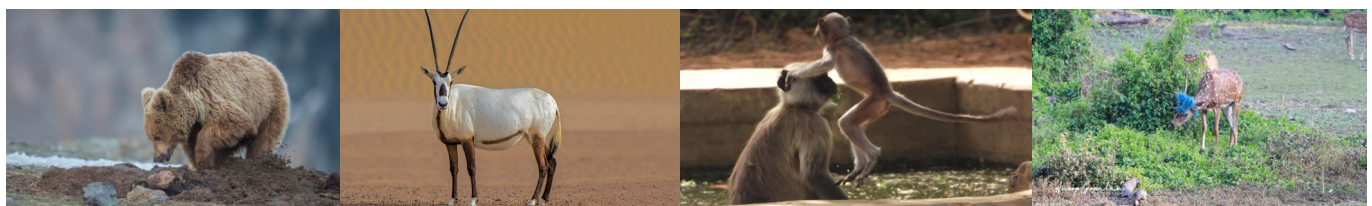


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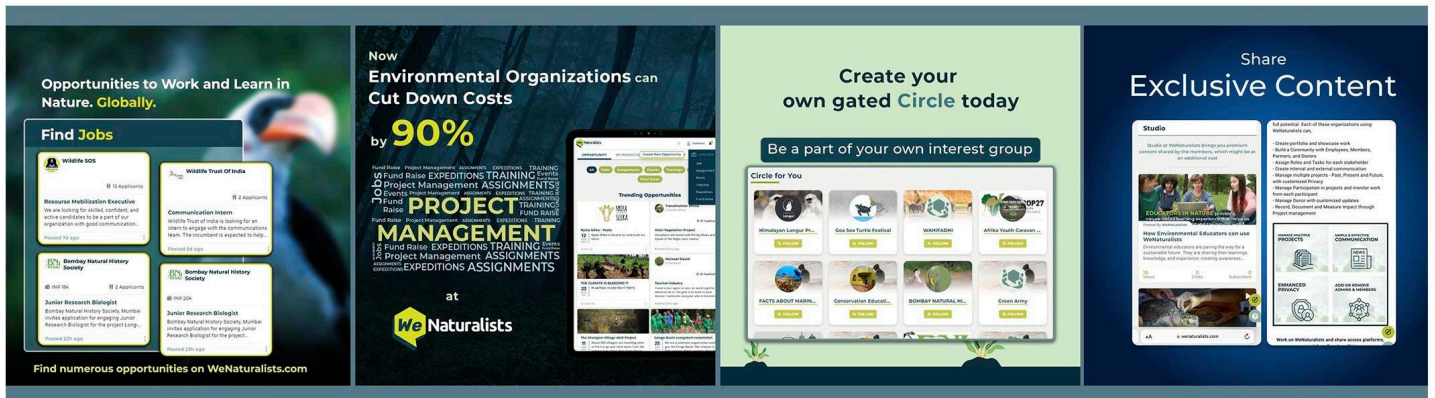
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Butterflies of Hollongapar Gibbon Wildlife Sanctuary



Author and Photographer :
Sasankar Boruah, AFIP.

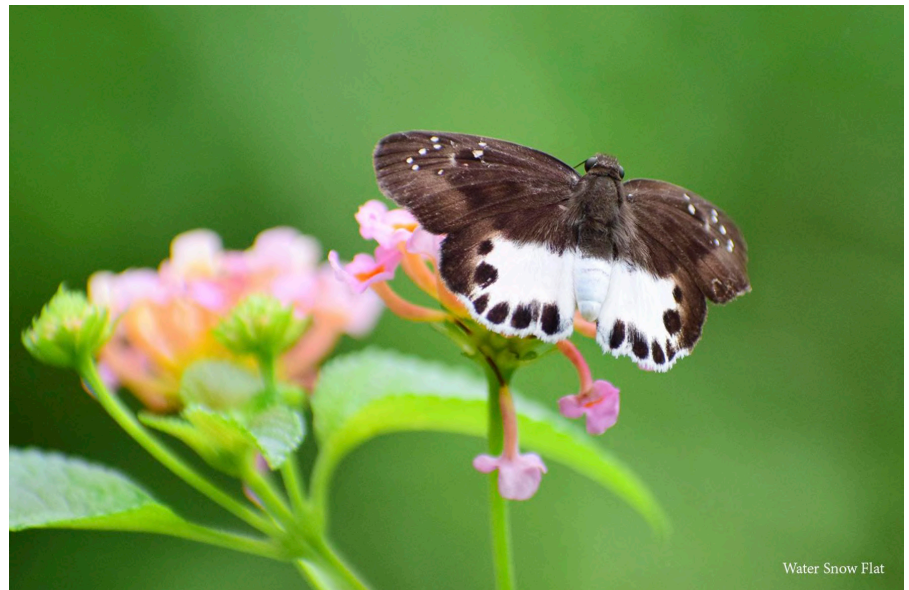
Common Pierrot

Butterflies are one of the most beautiful flying creations of nature. Along with the moths, they complete the order Lepidoptera with a total of around 180,000 species, under the class Insecta. Out of which around 17,500 species are of butterflies, some 3,700 species are of skippers (a group of small butterflies) and

rest around 159,000 species are of moths, which make them the second largest insect order after the coleoptera. Butterflies are found almost everywhere in the world and they are actually the health indicators of an

environment - highly sensitive and play vital roles in the food chain as well as being pollinators of plants. Existence of butterflies in an environment, in abundance, denotes the rich biodiversity of that area, confirming a very good air quality index (AQI).

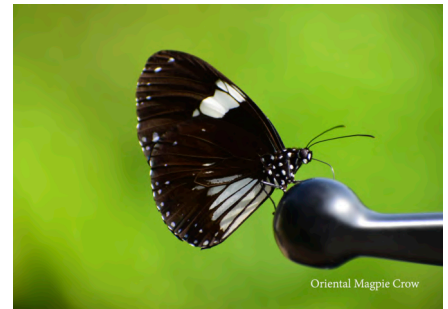
In the state of Assam, there is a wildlife sanctuary known as Hollongapar Gibbon Wildlife Sanctuary (HGWLS), some 2 km ahead of Mariani town, in the district of Jorhat. As the name itself denotes, people from around the world used to visit this wildlife sanctuary to see the only primitive ape of India, the Western Hoolock Gibbons with its family in the wild. It is the only sanctuary of India named after a primate due to its distinction for containing a dense Hoolock Gibbon population. This particular wild life sanctuary with a total area of 20.98 km², extended to the Patkai foothills, is also famous for other six



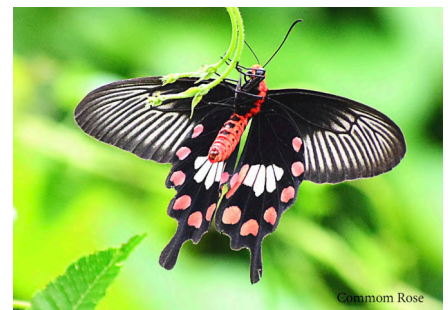
Water Snow Flat

primates found in the area, that includes the Bengal Slow Loris

(the only nocturnal primate), the Stump-tailed Macaque, the Northern Pig-tailed Macaque, the Rhesus Macaque, the Eastern Assamese Macaque and the Capped Langur. Along with these, this sanctuary is also the home of Indian elephants, leopards (*Panthera pardus*), jungle cats (*Felis chaus*), wild boars (*Sus scrofa*), three types of civets, four types of squirrels, and several others. At least 219 species of bird and several types of snakes are known to live in this sanctuary. Even pill millipedes, mabuya, gecko, stick insects and various spiders are often found dwelling around in this forest.



Oriental Magpie Crow



Common Rose

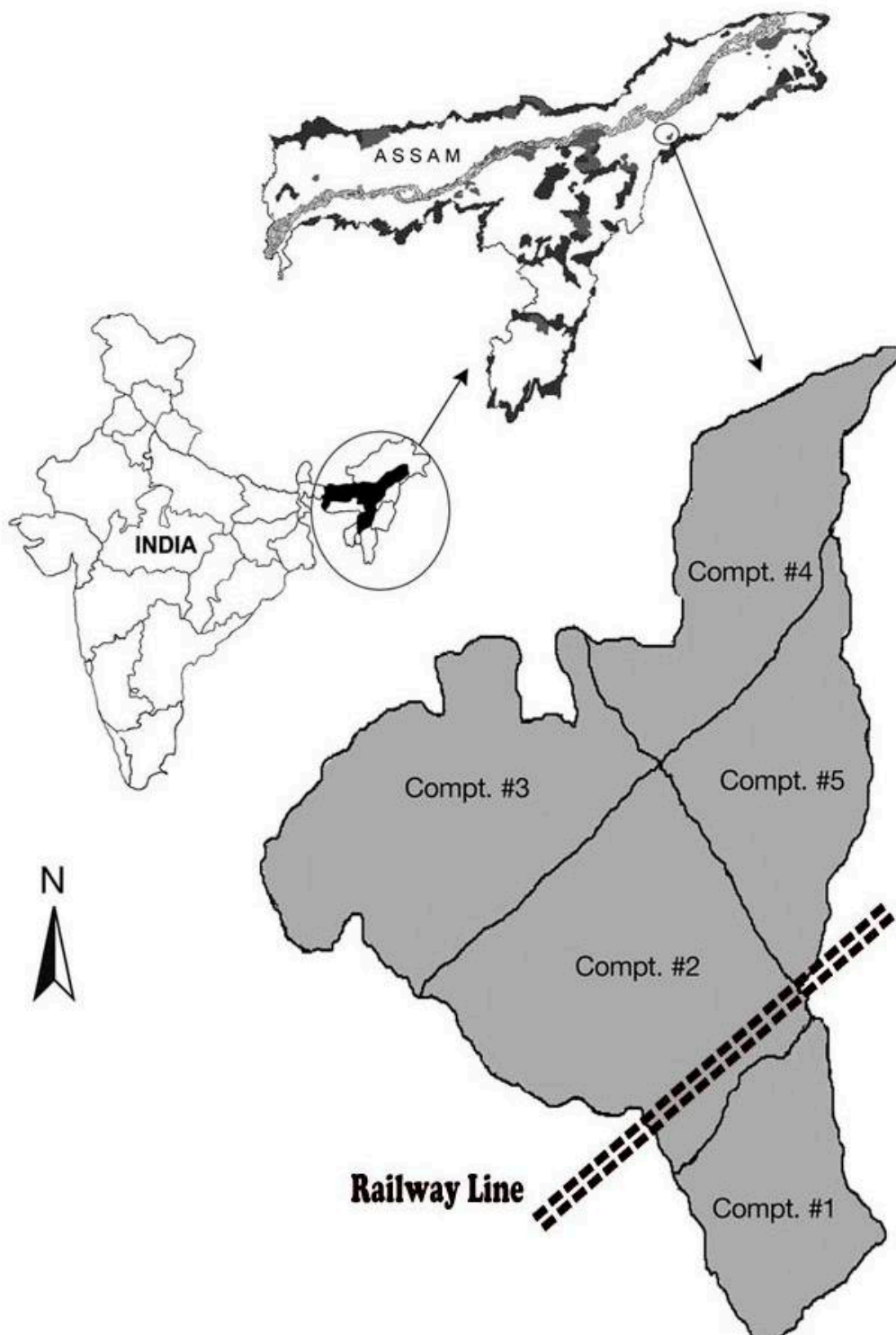
295
different
species of
butterflies
are
spotted in
HGWLS



Commander

Hollongapar Gibbon Wildlife Sanctuary is the only sanctuary of India named after a primate due to its distinction for containing a dense Hoolock Gibbon population.

**Location : Hollongapar Gibbon Wildlife Sanctuary,
Assam, India
(shaded area on the map)**





Common Nawab

The existence of 7 primates together within the sanctuary makes Hollongapar Gibbon Wildlife Sanctuary a unique place to visit.



Butterflies are all around us, in almost every part of India. We all have grown up watching butterflies flying here and there and around us in the gardens and parks. I still remember my childhood days when I used to run after butterflies with a camera in my hand. Later, after my graduation in Jorhat, as I was fond of photography, I completed my distinction of Artist Federation of Indian Photography (AFIP) and started doing wildlife photography which actually made me visit Hollongapar Gibbon Wildlife Sanctuary for the first time in April 2015. Similar to other visitors, I also went out to visit the sanctuary in the search of 7 primates along with other big creatures. But as their sightings

are very poor except Hoolock Gibbons and Capped Langurs, I had to visit the sanctuary many times in different months of a year in different seasons to get a satisfactory click of the primates which in turn makes me realise that this particular wild life sanctuary is also having a great diversity of butterflies. Their mesmerizing and adorable beauty has impressed me in such a way that unknowingly they drew my attention and I started my self-sustained

study on the butterflies of Hollongapar Gibbon Wildlife Sanctuary on 9th October 2016. I continued my study on the butterflies of that place for a span of 4 years and 10 months on a regular weekly basis documenting different data as collected season-wise based on their respective area of existence as per the width and length of Hollongapar Gibbon Wildlife Sanctuary till 8th August 2021. In this protected evergreen forest with a growing tree canopy in the Jorhat district of Assam, my study reveals an existence of 295 different species of butterflies belonging to 6 different families of species and subspecies including few rare and very rare species as per Evans list of Indian Subcontinent. These butterflies showed a strong pattern of their occurrence in the sanctuary according to the season, temperature and rainfall of that area. After rainfall, with the rise in temperature, they show a significant peak of occurrence during the month of September and October (the post monsoon season) followed by another rise in occurrence during the month of March and April, just after

winter. The numbers of a particular species in flight differs from one month to another which suggests that the pattern of seasonality in a semi-evergreen forest in Northeast India differs from that of the subtropical forest in the Himalayas. Based on the rich biodiversity of Hollongapar Gibbon Wildlife Sanctuary (HGWLS) and existence of several other species in the area including the Western Hoolock Gibbon, the high potentiality towards promoting the region for eco-tourism can't be denied. India is said to be a home of around 1501 different species of butterflies, out of which more than 1000 species are found only in the north-eastern region of India. Northeast India represents only 7.7 % of Indian landmass, but it has 68% of butterfly diversity of the Indian region (Pers. Comm. Gogoi 2015). The high species count and endemism make Northeast India an important region for conservation of biodiversity in India.

Brief History:

Butterflies are known as the 'Brand

In this protected evergreen forest with a growing tree

canopy, in the Jorhat district of Assam, my study reveals an existence of 295 different species of butterflies belonging to 6 different families of species and subspecies including a few rare and very rare species, as per Evans list of Indian Subcontinent.

Ambassador of Insects' because of their mesmerizing beauty. This actually reminds me of something that American science fiction writer R. H. Heinlein has once said, "Butterflies are self-propelled flowers."



Butterflies draw our attention for countless reasons that of course include their beauty, unique life history, various adaptations in compliance with the habitat they live in, their migration, and many more of such aspects. Beside the environmental factors, their richness in an ecosystem is also influenced by availability of larval host plants because butterflies lay eggs only on specific plants known as larval host plants. And this plant differs from species to species. Butterflies can be seen everywhere, basking on rocks, on ground, perched on a dead animal and sucking body fluids, on rotting fruits sipping alcoholic juices, on mud puddling or on a wet patch of soil sipping minerals and salts.

Butterflies are creatures with two pairs of 'scaly' wings and three pairs of legs, an abdomen, a head with two compound eyes and a thorax. They are classified in the group of 'Lepidoptera' because of the structure of their body and wings. 'Lepidoptera' is a Greek word that means 'Scaly Wings', as 'lapido' meaning scales and 'ptera' meaning wings. These iridescent dust like

scales on the wings are arranged in a particular formation and when they are touched, these scales stick to our fingers. Butterflies' association with humans relates us to ancient history, folklore, fairy tales, poetries, arts and even in many songs. Fashion designers also depict them in their works. And if we go through their nomenclature, we find that most of them are named during the British Era in India by their British army heads who are mostly naturalists. So, the names thus given to butterflies are related to their ranks – such as Commander, Sailor, Sergeant etc. After that names of Indian royals were used – such as Raja, Queen, Nawab, Emperor, and so on. They even used the names of birds, animals, plants and trees, etc. And the world is still following the same nomenclature. Today, butterflies are classified further into six different families namely Papilionidae, Pieridae, Nymphalidae, Riodinidae, Lycaenidae and Hesperidae that includes the skippers.

How The Survey Was Done

"The Pollard Walk" method was used for butterfly sampling while walking at a slow and steady pace. Presence of different species of butterflies in flight were recorded both in notebooks as well as in photos using DSLR cameras so that species identifications can be properly done later using visual records. No butterflies are captured with nets and not even a single butterfly is harmed, during the survey. Hence, no dead species are used for sampling and identification in this particular study.

Starting from 9th October 2016 to 8th August 2021, I did a total of 143 sampling surveys on a weekly basis covering all the months of the year with an average of 2 to 3 surveys a month for 4 years and 10 months all along the roads and sites inside HGWLS. These surveys were carried out along a stretch of 2km gateway jungle path from main road of Mariani to HGWLS beat office inside the jungle, 2 and 1/2 km along the sides of the railway track inside HGWLS, inside forest trails for

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and three pairs of legs, an abdomen, a head with two compound eyes and a thorax. They are classified in the group of 'Lepidoptera' because of the structure of their body and wings. 'Lepidoptera' is a Greek word that means 'Scaly Wings', as 'lapido' meaning scales and 'ptera' meaning wings.



Leopard Lacewing

around 3 to 4 km in a day, covering the forest rest house area near beat office and to a stretch of 3km from HGWLS beat office towards Meleng Grant, inside along the jungle main way-through towards north. All the



sampling surveys were carried out between 07:00hr to 13:00hr mostly on sunny days. But days just after early morning rain or a day before were preferred the most for best results of butterflies in flight. Though time does vary from site to site, every possible date is recorded to its extent and occurrence of different species of butterflies respective to different months was also noted. The excess rise in temperature is inversely proportional to the existence of butterflies in flight, as noted in HGWLS. So, after the noon hours, very few butterflies are seen in flight. Thus, a total of approx. 392 hours of sampling was carried out in all at HGWLS. The route of survey being

marked in yellow lines on the map shown above.

Books and Websites for Identification of Butterflies

Butterflies were identified using the recorded specific data including photographs that were clicked during the survey hours with the help of field

guide book – ‘Butterflies of India’ by Peter Smetacek 2017 and other guides like Evans 1932, Wynter-Blyth 1957, Kehimkar 2008 and websites: www.ifounfbutterflies.org/ and <https://butterfly-conservation.org/butterflies/identify-a-butterfly>.

Life Cycle of Butterflies

In general, an adult butterfly has a very short life span averaging only four weeks. Their life cycle consists of four different stages – eggs, larva, pupa and adult. Each such stage lasts between 1 to 4 weeks. And this four-stage process of their growth is known as ‘complete metamorphosis’. It may differ from species to species and in some it may be longer than usual. Therefore, immediately after its emergence from the pupa, the adult butterfly has to fly and look for a mate. When an adult flies, it sprays its pheromones to attract a mate and marks its presence in the surrounding habitat. After mating, the female lays its fertilized eggs on a specific host plant. And the female butterfly dies after it has laid all

of its eggs. The female mates only once in its lifetime whereas the male flies ahead to mate with a new female till it survives. An adult butterfly hardly feeds as most of the feeding is done during their larval stages but they need protein, salt and other useful food supplements apart from the carbohydrate which they have fed upon from the host plants.

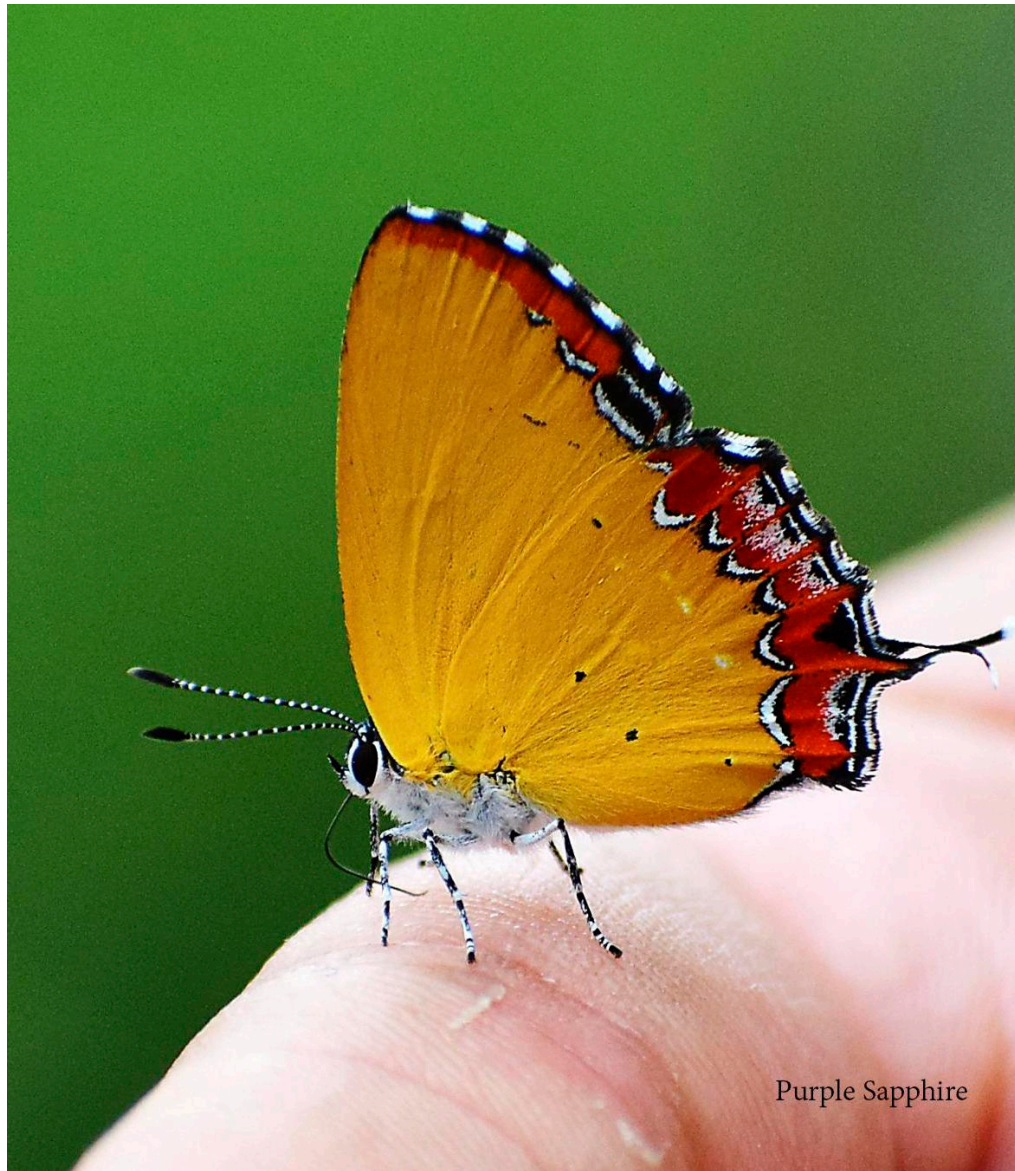
The right food plant where the female lays its eggs must be in the correct growth condition with young shoots. This is vital because an abundant supply of fresh and tender leaves of the correct food plant determines the survival of the larva once the egg hatches. So, preferences of selecting the host plant may differ among species based on their existing habitats. Depending on the species, the females lay eggs one at a time in clusters or in batches of hundreds out of which very few will reach adulthood. The eggs hatch into a larva, commonly known as the caterpillar. It is essentially a feeding stage where they voraciously feed on the leaves of the host plant on

Butterflies were identified using the recorded specific data including photographs that were clicked during the survey hours with the help of field guide book – ‘Butterflies of India’ by Peter Smetacek 2017 & other guides like Evans 1932, Wynter-Blyth 1957, Kehimkar 2008 and websites: www.ifounfbutterflies.org/ and <https://butterfly-conservation.org/butterflies/identify-a-butterfly>.

which their mothers have laid the eggs. Depending upon species, the butterfly larva could feed on a single host plant or a couple of others of the same genera or many other varieties as well. Feeding continuously, the larva or the caterpillar grows bigger by

moulting its outer exoskeleton. They can do this a few or several times before they enter into the next phase, the pupal stage.

When the caterpillar is fully grown and stops eating, it becomes a pupa. In its preparation to pupate, the larva wanders searching for the right position of the plant to pupate. Depending on the species, the caterpillar may pupate suspended under a branch, hidden in leaves or



Purple Sapphire

buried underground. This pupal stage is known as 'chrysalis' in butterflies where the insect is non-mobile and appears to be resting. Hence, needs to be camouflaged for protection against predators in order to survive to adulthood. This stage normally lasts from a week to one month, but in many species of butterflies it may last even longer due to non-availability of suitable atmospheric conditions. During this stage, inside the pupa, lots of drastic changes take place. The larva grows rapidly and thus turns into a beautiful butterfly. On getting favourable atmospheric conditions, it slowly emerges out of the pupa into an adult butterfly.

Noted Behaviours

Any living creature on the planet with small size has evolved with various defence strategies to survive and to co-exist with different predators. As known, the fittest survives in nature. Butterflies are quite efficient in this regard and their behaviour revolves around survival mechanism, be it ovipositional behaviour or feeding, mud-puddling to roosting, mimicry to polymorphism (multiple forms of one species) and much more. Everything is focused on self-defence which they are either born with or have eventually acquired and adapted to for their existence.

Basking - Butterflies are cold blooded which means that they cannot regulate their body temperature. As a result, in order to generate enough heat and energy, butterflies spread their wings flat; orient themselves towards sunlight to get maximum exposure on their bodies for strengthening their flight muscles. Their wings position, while basking, differs from species to species.

Mud Puddling - It is the aggregation of butterflies; especially males are seen along the puddles to sip moisture and nutrients from the soil. They are also seen along the moist areas full of moss, sipping moisture

and nutrients together. The nutrients they acquire consist mainly of sodium and nitrogen which increase male fertility and enhance reproductive success.



Flight Patterns - Butterflies are great motion detectors and can be surprisingly fast fliers. Their four wings, two on each side of the body, are connected in such a way that the wings can move independently allowing a wide variety of flight patterns. Some species soar slowly with only a few wing flaps while others seem to dart in any direction at once.

Mating - A male finds another butterfly of the same species by sight and then determines its sex by flying close to

detect chemical pheromones, a process that often makes them look like they are dancing around each other in the air. A male and female mate by clasping the ends of their abdomens together and remaining that way for more than 10 hours, so that the male can be sure no competitor has a chance to fertilize his eggs. The female often flies off to continue feeding which is why we sometimes see two butterflies seemingly stuck together

as they fly by. As butterflies are said to have their taste sensors in their feet, females are very selective in choosing their host plant. And in a day or two, the female lays her eggs one at a time on the appropriate host plant by landing and bending her abdomen up to deposit them. Most of the times it represents a specific pattern on the leaves.

of individuals among the members of a single species. All six legs in the adult butterfly are well developed and fit for walking. In India 107 species are found, out of which 27 species are spotted at Hollongapar Gibbon Wildlife Sanctuary (HGWLS).

Family Description

Papilionidae: The members of this family are generally referred to as swallowtails because they have tails on the hind wings although a few tropical species lack this particular character and are commonly known as birdwings. They are large in size and are strong fliers. In general, the two sexes are similar but there are cases of sexual dimorphism where males and females are different in their looks as patterns and design of the wings shows specific dissimilarity. In a few species of Papilionidae, the female butterfly shows polymorphism - a discontinuous genetic variation resulting in the occurrence of several different forms or types

Pieridae: Most species in this family of worldwide occurrence are white or yellow or orange in colour, often with black spots. The pigments that give the distinct colouring to these butterflies are derived from waste products in the body and are a characteristic of this family. Hence, the common names are white, yellow and sulphur. None of them possess any tails. The sexes usually differ, often in the pattern or number of the black markings. The male butterflies often aggregate in large numbers at roadside puddles in bright sunshine or at pools or muddy banks of rivers and streams where they imbibe salts and minerals from moist soils to boost up their reproduction system. All six legs of Pieridae butterflies are functional. The forelegs are well developed in both sexes, unlike in the

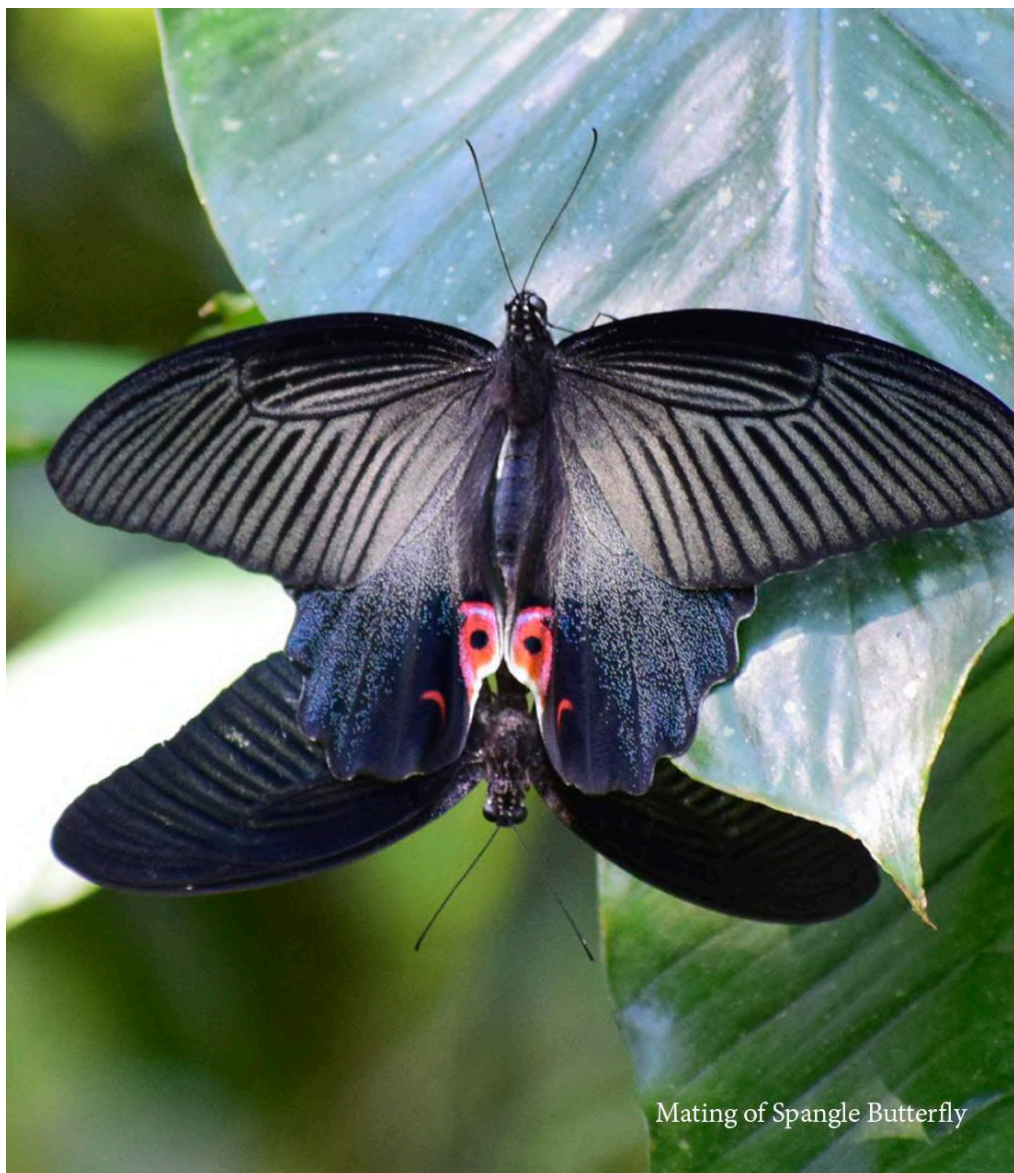
Butterfly Families

Papilionidae
Pieridae
Nymphalidae
Riodinidae
Lycaenidae
Hesperiidae

Nymphalidae and the tarsal claws are bifid unlike in the Papilionidae. In India 109 species are found, out of which 22 species are spotted at Hollongapar Gibbon Wildlife Sanctuary (HGWLS).

Nymphalidae: The Nymphalidae are the largest family of

butterflies, commonly known as brush footed butterflies or four-footed butterflies. Most species have a reduced pair of forelegs and many hold their colourful wings flat when resting. These fore-legs are useless for walking and usually serve as sense organs. Many species are brightly coloured however the under wings are, in contrast, often dull and in some species look remarkably like dead leaves, or are much paler producing a cryptic effect that helps the



butterflies to blend into their surroundings. This group is very diverse and some species show seasonal dimorphism with the autumnal generation being hairy and lighter-coloured. Some also exhibit sexual dimorphism with the female being less conspicuous than the male. In India 521 species are found, out of which 121 species are spotted at Hollongapar Gibbon Wildlife Sanctuary (HGWLS).

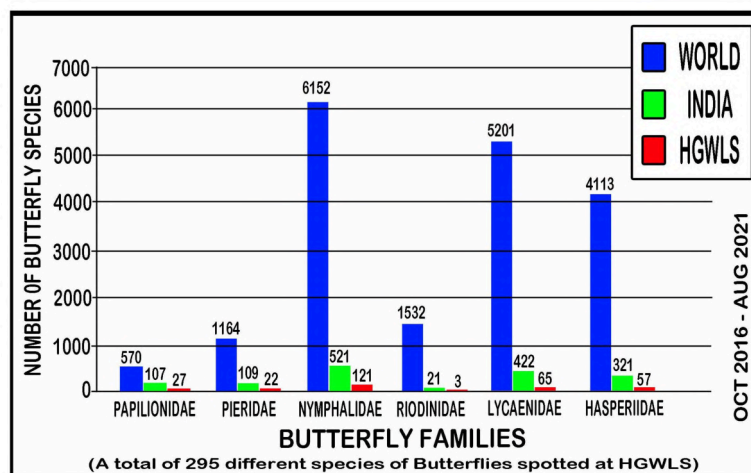
Riodinidae: Riodinidae is the family of metalmark butterflies. The name 'metalmarks' refers to the small, metallic

looking spots commonly found on their wings. The wing shape is very different within the family. They may resemble butterflies of other groups. The males of this family have reduced forelegs while the females have full-sized and fully functional forelegs. The species of this particular family has hind wings that exhibit unique venation and most species perch on the undersides of leaves with the wings held open and completely flat. In India they are better referred to as the family of Punches and Judies and 21 species are found, out of which 3 species are spotted at Hollongapar Gibbon Wildlife Sanctuary (HGWLS).

Lycaenidae: This is the second largest family of butterflies after Nymphalidae. They are commonly known as blues,

coppers and hairstreaks. The species of this family are also called gossamer-winged butterflies. Adults are small, brightly coloured and sometimes with a metallic gloss and often have hairy antenna-like tails with black and white annulated (ringed) appearance. They have 1-3 pairs of filamentous tails on the hind wings and many of them have a spot at the base of their tail. They fly rapidly. The majority of them inhabit primeval forest but quite a number of them are common in gardens and by the roadsides. Not all Lycaenid butterflies need ants but about 75% of their species are seen having an association with ants, a relationship called 'myrmecophily'. Some of them are even seen inducing ants to feed on them by regurgitation, a process called Trophallaxis. The male forelegs are

reduced in size and lack claws compared with the mid and hind legs. All legs are fully functional in both sexes. Eyes may be smooth or hairy often with a border of lash like dense white scales. Sexual dimorphism is usually well defined. In India 422 species are recorded, out of which



65 species are spotted at HGWLS.

Hesperiidae: Skippers are a family of Lepidoptera newly classified under family Hesperiidae. They are considered as an intermediate form between butterflies and moths. But being diurnal means active during the day or non-nocturnal, they are generally called butterflies. And when they rest, most skippers hold their first pair of wings vertically as butterflies do. Their darting flight habits make them unique fliers but the flight is short and not sustained. These species have stockier bodies with large compound eyes. Adult Hesperiidae butterflies have a large head, stout hairy body with relatively small wings and three pairs

of functional legs. The antennae are club-shaped like those in the true butterflies but often bent backwards at apex giving a slightly hooked appearance. Most of them have a fairly drab colouration of browns and greys and richly coloured. The markings when present on the upper side are confined to the forewing. Most of them look very alike. Often there is little or no difference in the wing pattern between related species. Sexual dimorphism is present in some and male generally have a blackish

streak or patch of scent scales on their forewings. In some species the adults rest with the forewings and hind wings in different planes, a characteristic never found in other families of butterflies. Eyes are smooth with distinct eyelashes. All legs are fully developed and functional in both sexes. In India 321 species are recorded, out of which 57 species are spotted at HGWLS.

Conclusion

Plants are the essential source of nourishment of butterflies; some specific plant species provide the trophic resources for caterpillars while others provide nectar for adults. The vegetation thus plays an important role for butterfly's survival offering particular structural elements for sun-basking or mating and determining certain suitable microclimates (Dover et al. 1997). However, the butterflies of Northeast India include many climax forest species. The climax forest species are known to have smaller geographical ranges and hence, higher conservation values (Leps & Spitzer 1990).

Analysis of data suggests that HGWLS of India is rich in butterfly species with 295 species belonging to 6 families. Nymphalidae was the most representative family with 121 species

followed by Lycaenidae (65), Hesperiidae (57), Papilionidae (27), Pieridae (22) and Riodinidae (3). Out of 295 species recorded from the Hollongapar Gibbon WildLife Sanctuary, existence of species location wise varies from month to month although 87 species are found common to almost all the area of the specified location. In other words, the species composition in HGWLS showed much similarity between post-monsoon and spring season. The existence of the number of species seen in flight during the rainy season decreases a lot as compared to the other dry seasons which may be (in turn) related to the life history patterns of these butterflies at HGWLS. And also, the occurrences of different species in the regions of HGWLS surprises many as high altitude mountains are very close to the respective sanctuary and as such many of the high-altitude species of butterflies are seen in this region of the sanctuary during the seasonal changes and after monsoon period. So, this highly bio-diverse Hollongapar Gibbon WildLife Sanctuary is a paradise for butterfly watchers and will be a great place for researchers in future to understand the pattern of existence of these different species of butterflies.

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FROM **MAXIMUM FIELD OF VIEW** TO MAXIMUM **MAGNIFICATION**. **VICTORY HARPIA**

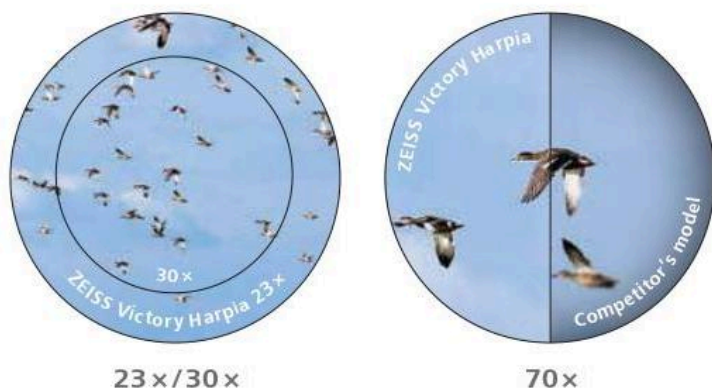
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Field of view comparison of a spotting scope at 30 × minimum magnification (small circle) with the field of view of the Harpia at 23 × minimum magnification (large circle).

**Author and
Photographer:
Reva Duraphe**

Among the serene Himalayan mountains lay two small villages - Pangot and Sattal - that are rapidly becoming popular bird-watching destinations. Situated in the Kumaon Mountain Range, Uttarakhand, these Himalayan villages are bursting with biodiversity.

Pangot, at an elevation of 1984 meters from sea level



Colours of the Kumaon

(6509 ft.), is home to the vulnerable Cheer Pheasant and uncommon Koklass Pheasant. The Cheer Pheasant found in Pangot (which, unfortunately, we did not get the opportunity to watch) is a vulnerable bird. It is found along the grassy slopes and has an impressive camouflage ability. The Koklass Pheasant, which prefers to stay on trees or skulk in the grass, is found only in the Himalayas below the tree line. Due to its habit of skulking, it is hard to spot. Surprisingly, the Koklass Pheasant is more on the grouse

side than on the pheasant side! The Kalij Pheasant, unlike the other two, is very common and bold. It may also come into the bird hide but prefers thickets and forests in the Himalayas.

Sattal, at an elevation of 1370 meters from sea level (4495 ft.), is packed to the brim with multi-coloured birds and surprises at every corner. Some of these are:

Peaceful Panoramas

Hearing the melodious song of the Blue Whistling-Thrush at the



Black-headed Jay



Blue-winged Minla

crack of dawn, watching the sun rise majestically over the gorgeous Himalayas and setting off in search of the Koklass Pheasant is a typical start to a day in Pangot.

The thick canopy of trees seldom allows sunlight to reach the road.

However, in some open patches terrace-farmed hillocks are visible with Steppe Eagles and Himalayan Griffon Vultures circling overhead. The fog that gathers at dawn clears away by noon leaving a spectacular mountain view behind that paints a pretty picture.

Sattal, at relatively lower elevation, is full of gurgling streams and cascading waterfalls in all directions with sudden flashes of colour around every corner. Water birds such as redstarts and forketails occupy the wet rocks in the shallow streams, the stinging nettle plants line up along the road waiting to sting an unwary victim, and tall pine trees stretch into the blue sky almost as if chatting away with the wispy clouds!

Agile Animals

Agile creatures appear suddenly on the steep, grassy slopes of Pangot. They run down the slope



Common Green Magpie

confidently knowing that they won't lose their footing. These are mostly goat-antelopes that

are shy, rare and solitary, and are known as Himalayan Gorals. Found throughout the Himalayas, these swift animals are sadly categorised as 'Near Threatened' on the IUCN Red List mostly due to hunting for

meat and habitat loss.

Lithsome Lizards

Pangot is full of grey coloured rocks. But it is in the nooks and crannies of these rocks that the Himalayan Rock Agama Lizard (*Paralaudakia Himalayana*) is found. This fascinating creature has excellent camouflage abilities and is found throughout the

lower elevations of the Himalayas. It turns a bluish shade during the summer, which is its mating season and is as grey as ash at other times.

Interesting Insects

Many species of multi-coloured butterflies can be seen flitting about in the air. Butterflies like Large Blue

Crow, Fritillary, Purple Sapphire, and Albatross are present all around. The Himalayan Tortoiseshell Butterfly, an endemic and high-altitude butterfly can also be seen quite commonly.

The Hummingbird Hawk-moth is another species found here. It is a rare treat to the eyes and is also considered a lucky omen. Having a body of only an inch long, this moth is named due to its flying pattern being similar to the hummingbirds' and the proboscis resembling a

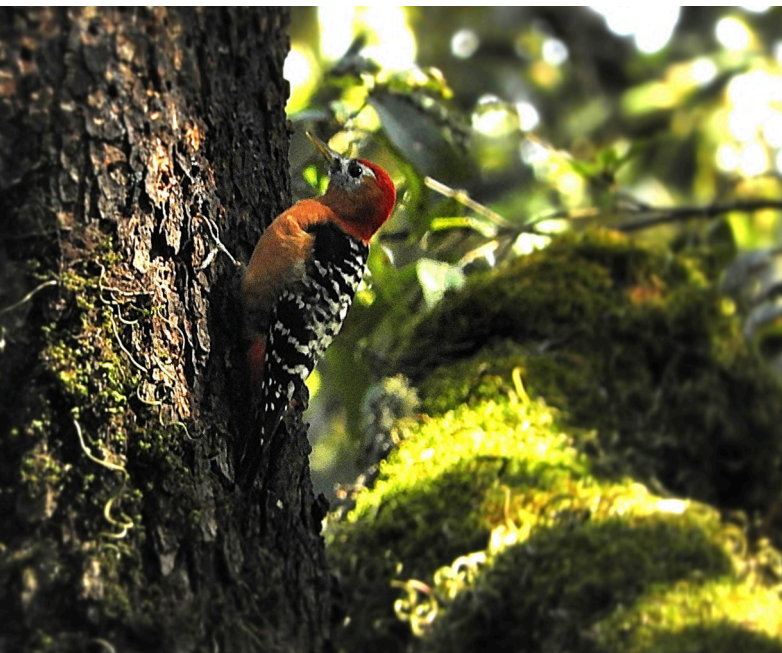
hummingbird's long beak. It can generally be found hovering and if close enough the buzz of its rapid wing beats can be heard clearly!

Winged Wonders

Resplendent sunbirds, nocturnal owls, migratory finches, colourful magpies, arboreal treecreepers, beautiful woodpeckers, rare pheasants, colourful water birds... these forests have them all. Even the sparrows found in this region are known as Russet Sparrows! Other than the fact



Maroon Oriole



Rufous-bellied Woodpecker



Tawny Fish Owl

that they appear darker in colour, they don't look much different from the House Sparrows.

Belonging to the sparrow family is also the European Goldfinch. These birds migrate in large flocks and travel from higher altitudes

to lower ones but are rarely found in Pangot and Sattal.

The Blue-winged Minla is a bird found in the lowlands and the foothill forests and usually travels in large flocks. It is often a major part of mixed hunting parties.

The Black-throated Bushtit is another bird that travels in flocks. It is predominantly found in broadleaf and mixed forests in foothills and sub-montane areas.

The Red-billed Leiothrix is a small babbler (unbelievable, isn't it?) and is found in dense forest understorey. Many species of flycatchers such as Rufous-gorgeted Flycatcher, Slaty-backed Flycatcher and Ultramarine Flycatcher can also be seen.

The tiny Green-tailed Sunbirds, charming Black-throated Sunbirds, attractive Crimson Sunbirds, delightful Fire-tailed



Lesser Yellownappe

Sunbirds can be found hovering around the flowers of the Scarlet Clock Vine (*Thunbergia coccinea*). Although, in this winter season, they are all in their eclipse



plumages, they are a beautiful sight to behold. All of these sunbirds can be found in the Himalayan regions of the Indian subcontinent.

The Bar-tailed Treecreepers are endemic to the Himalayas. Their dull brown colour provides excellent camouflage ability, and if spotted, they either freeze on the spot resembling the bark of the tree or

shimmy to the other side of the trunk. They fly to the bottom of the tree and then hop in circles around the trunk, looking for food.

The Chestnut-bellied Nuthatches are found in montane and lowland forests in the Himalayan regions of the Indian subcontinent.

Brown-fronted Woodpeckers are found only in the lower Himalayas in the Indian subcontinent, the Grey-headed Woodpeckers are on a strict ant diet, whereas the yellownape woodpeckers prefer thick trees and are usually hard to spot.

pairs, or in groups.

The Rufous Sibia, a common bird here is a mimicry artist! It feeds on berries and insects, and its natural habitat is the temperate forest of the lower and middle Himalayas.

The Rufous-bellied Woodpecker or Rufous-bellied Sapsucker has a unique habit of making a series of small holes on the bark of trees because of which it was earlier thought to be a member of the Asiatic sapsucker family. Although listed under 'Least Concern' on the IUCN red list of threatened species, as it has a wide range, it is a rare bird. It has faced a population decrease due to the clearing of deciduous forests necessary for its survival.

Among all the parakeets in India, the Slaty-headed Parakeet is the only one that exhibits altitudinal migration.

The noisy jays and the beautiful Himalayan magpies surprisingly belong to the crow family! The Eurasian Jay is found from Europe to Africa to Asia while the Black-headed Jay is common but not as popular. It is found throughout the Himalayas. The Red-billed Blue Magpie can be seen only up till 6561 feet, and the Common Green Magpie, a highly social bird, is a rarity (ironic to its name) which can be seen flying high in the canopy of trees.

Pangot and Sattal

Popular bird-watching destinations of Kumaon

Pangot, at an elevation of 1984 meters from sea level (6509 ft.), is home to the vulnerable Cheer Pheasant and uncommon Koklass Pheasant.

Sattal, at an elevation of 1370 meters from sea level (4495 ft.), is packed to the brim with multi-coloured birds and surprises at every corner.

The Maroon Oriole is another beautiful bird seen here. Its natural habitat is subtropical or tropical moist lowland forests, and it can be found alone, in



White-crested Laughingthrush

Many species of the laughing thrushes are also found here, such as the Rufous-chinned Laughingthrush, White-crested Laughingthrush, Streaked Laughingthrush and White-throated Laughingthrush. They have weak flight and can be seen upturning leaves looking for insects underneath.

Many water birds are found in the nalas or streams of Sattal.

Blue-capped Redstarts are found in open dry forests with the male resembling a Magpie Robin.

Blue-fronted Redstarts are found in temperate forests whereas the White-capped Redstarts and Plumbeous Water Redstarts are found only in water bodies. The Spotted Forktails and Slaty-backed Forktails are also seen here, with the Spotted Forktail being larger. Crested Kingfishers, the largest of all Indian kingfishers, can be seen too. The Brown Dipper, an aquatic songbird, found in clear flowing streams is the only bird entirely brown in its range. Even nocturnal raptors such as the Tawny Fish Owl can be seen in the streams.

Spending time in the Himalayas and witnessing such amazing creations has been an unforgettable and humbling experience! We have witnessed so many beautiful species of birds and savoured every minute of our time here. It has been an eye-opening experience and one can proudly say that the Himalayas are nature's best gift to humankind. Let's help preserve them together by protecting its flora and fauna.

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I was out in my garden after my morning chores finished. That was the time I indulged in watching the birds. That day, the little birds were too active; flying and playing through the trees. I was familiar with the birds but didn't know their names. I was keen on identifying them. So, zoomed in my cell phone camera and focused on one bird and tried to click. But the



Eureka Moment!

phone camera somehow didn't work. A little dejected, I switched off the camera and started gazing at the birds through the thicket. I was enjoying watching their flight when my eye lenses captured the sight of a pair of owls, cosily perched on a thick branch of a Pipal tree that was deep inside the thicket, invisible from outside. What an intelligent choice of spot, I wondered! The choice had camouflaged them completely. It was serendipity, a Eureka moment for me.

I gestured to my daughter and

we stealthily kept watching the birds for a long time until we realised that we were disturbing them. We tried to take pictures with our cell phones and this time

our cell phones worked. It seemed as though it was a lucky day for us! Had my camera clicked the small birds earlier, I would have missed these owls.

We identified the pair as Indian Scops Owls, a common bird but rarely found these days, usually spotted in dense forests, orchards and groves.

I considered myself to be very lucky to spot it at my home garden in Bhopal. Owls are auspicious birds, harbingers of wealth, good health, and prosperity. With a sharp sight they can pierce through the darkest of night

and so can ride Goddess Laxmi safe. The sight of a pair of owls was considered a good omen and had made my day!

Though the owl is considered a nocturnal bird, we seemed to be on an owl-prowl the entire day. We wanted to watch them in action without disturbing them. Paradoxical indeed but we managed both till dusk.



Each time we stole a glimpse, it bobbed its head as if judging us. Very vigilant, very intelligent, sensitive to the slightest stirs and silent leaf-falls and footfalls. No wonder it has a sage-like face reflecting wit and wisdom. No wonder the oft used phrase, "as wise as an owl!" It holds all the secrets of the dark night and so it is considered to be the clever old man of the forest.

I spent the whole night in a restless sleep fearing that it might change its place after it was discovered.

I also feared the poachers that are constantly on an owl hunt. Their life is in danger. I wished and prayed for their safety.

Early in the morning, I went and checked for them. They were not there. My apprehension turned out to be true. I was feeling helpless and disappointed. I managed to compose myself and carried out my daily activities. Restless as I was, I checked once again and to my pleasant surprise they were back again. All night they might have guarded my home, must have fed on

rodents and other pests, and then fled back to their isolated nest.

Ever Since I have discovered them, unfailingly I have shown my smiling face to them. They get a little tense but continue to be there. They keep playing hide and seek with us and once I even lost track of them for many days. I was feeling guilty but could not do anything except pray. So, I wrote a letter to them to let them know of my wish to see them again.



"Dear Darling Owls,

I am sure you are happy and in good health! We have been missing you so much since this morning. We looked for you in every tree of this garden but could not find you. Wherever you are, please come back. If we had been intruding your privacy too much, we promise, we will not disturb you again. This garden has lost its charm without you. You were perfect watch-owls at the gate. How swiftly and dexterously you could swing and roll your neck, the

gesture that classical dancers learn with great effort. I miss your presence in my home. Please come back.

I am sure you will not disappoint me.

Your admirer. "

And to my extreme surprise the prayer was heard. They showed up once more. Now, they were not two but four!

Eureka moment again!

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Author
and
Photographer:
Gururaj
Moorching,
Bird
Photographer,
Bangalore.

Spoon-billed Sandpiper

I spent my childhood days not very far from Hesaraghatta, the beautiful location of Bharat Electronics Limited (BEL) quarters. Cycling down to Hesaraghatta, 12 kms from home as the crow flies, was almost the same distance to reach there through fields and narrow walking paths. During the 1970s, Bangalore was known as the 'pensioners paradise'. I had a nostalgic attraction to the city. There were birds all around in Hesaraghatta. I never paid attention to any of them, somehow. Finding a place to unpack a loaf of bread and spreading ketchup and jam mash-up was a very interesting activity. I never bothered about birds around.

The grassland of Hesaraghatta.

It was in June of 2012, I started scouting for birds in the grasslands. Clement Francis showed me the birds of Hesaraghatta. Clement is a topnotch bird photographer. I was amazed at his skills. He could identify every bird there and explained their features and behaviour. We roamed around the grasslands in our car and upon sighting a raptor on the ground, Clement would



approach the bird from the car, going around it in wide circles and gradually reducing the distance from the bird. As I sat on the passenger seat with my lens resting on the car door, Clement hissed to me, "Don't make eye contact with the bird and don't make any large movement with your hands" and parked the car at a comfortable distance with the sunlight behind us. He approached the bird with such skill that it never felt threatened as he mumbled the ideal camera settings under his breath for perfect photographs. He gave me very valuable lessons in approaching various species of the grasslands while advising on the ideal light conditions and inculcated patience in making handsome

pictures.

Clement Francis highlighted the need to shoot near perfect raw images that required minimal use of photoshop and insisted on presenting the bird as you saw them. Never alter the colour of the birds was his motto. He insisted WISIWIG... 'what I saw is what I got'. He himself makes such magical pictures and his pictures are inspiring to most of the bird photographers in India.

India Nature Watch

Those were the times when the famous wildlife website of India 'India Nature Watch' had become very popular. It was a treat to watch Clement and various enthusiasts from all over India post pictures as members could post one picture a day. Information on location and camera settings were also posted beside the photograph. It was a huge boon for beginners like me. Birds and Mammals of India popped on your desktop each day. The digital camera

Spoon-billed Sandpiper among other birds

era was ushered in with discussions on the prowess of gear that was a learning experience to all the budding photographers. India Nature Watch, popularly known as INW, had offered a veritable platform to amateur and professional photographers alike and to several dreamers, a desire to travel in India and experience wildlife.



Tawny Eagle

I visited Hesaraghatta grasslands thrice with Clement and never missed seeing Kiran Poonacha. He was always a lone birder and he was popularly known as the Raptor King of India. He is totally accomplished and during recent years, I have watched several presentations made by him on the raptors of India.

Every bird photographer wanted to make pictures like Kiran. He has a huge influence on raptor lovers.

During such trips, Clement spoke to me about the birds of India and their struggles due to habitat loss and the dangers of using pesticides on crops. As an example, he pointed out the defective knees of some of the Paddyfield Pipits. There were horrifying stories and yet the birds continued their battles and successfully raised their families. One such story impacted me in a

huge way.

The story of Spoon-billed Sandpiper. A tiny bird which travelled between the Tundra and the South Asiatic regions. While they breed in Tundra, they migrate southwards during winters. The migratory route of this tiny bird is 8000 kilometres. Just 200 pairs of these birds existed back then. Now due to human intervention and adapting captive breeding programmes the population is reaching a decent number.



Tawny Eagle

Spoon-billed Sandpiper

The International Union for Conservation of Nature (IUCN) has listed the Spoon-billed Sandpiper under the 'Critically Endangered' species. During one of our trips Clement showed me the picture of the bird in its breeding plumage which was shot in Siberia. From that moment on, my mind was set to see the bird. Not to over exaggerate, the bird appeared



in my dreams quite often and the desire to see this bird grew stronger every day. At that time the bird was migrating to a small patch in the Sunderbans. It eventually stopped its annual visit to Sunderbans and started showing up in Thailand often. Spoon-billed Sandpiper, however, continued to be seen on the shores of Bangladesh. My dream to see the bird didn't come true till February 2018. As I was doing a 'Big Year' in 2018, it was not easy for me to take a break while doing it.

Sompong Paan Nuamsawat, a guide from Thailand called me up on 28th January and offered to show me the bird. "It is possible to be seen easily", he said. I was birding with Rofikul Islam in Kaziranga when this conversation happened. I booked my ticket to Thailand during lunch break that day. A three-day trip which I eventually cut short to two days after seeing the Spoon-billed Sandpiper, 'Spoony' on the first day reaching Thailand itself.

As soon as I landed on 2nd February 2018, Paan drove me

straight to the site after we grabbed some sandwiches and ate as we drove to the site. In the morning the tide was high and we had to find the bird before noon. The salt pans, adjacent to the shore, were full of Plovers and Red-necked Stints and other waders in large numbers. We had to locate one tiny bird with a paler face and paler chest among hundreds of similar looking birds. We have to focus on the beak which was a give-away for this bird. Paan set off with his field scope and halted briefly to scan the salt pans with his scope.

Spoon-billed Sandpiper with other birds

I was trying to locate the bird with the 500 mm lens and was walking on the ridges. To make things worse it had rained in the morning and the ridge was slippery. After about two hours of scanning the area there was no sight of Spoony.

The salt pans ran into several miles. At around 9 am the salt workers arrived in hoards and



started their work. After a brief break, we set out to scan for the bird again. A huge flock arrived on a salt pan close by and there in that flock Paan spotted a Spoony. It was a task to spot a unique beak among the similar looking beaks. Quite often with a short flight of the flock it would merge with the rest of the birds and you would lose it again. One time the entire flock moved to the far end of a distant pond. Luckily, we could drive closer to the pond. So, we ran to the car, hopped in and drove off towards the pond.

Parking right next to the pond, Paan pulled out his binoculars and spotted the bird. I could see the different beak amongst a big flock. The bird played hide and seek for a while as I focused and took a few bursts of shots. That was the most satisfying moment in my birding life. Seeing a critically endangered bird is like feeling as if it is speaking a story of its own life which is almost on the verge of extinction. Each time I see an endangered or vulnerable species there is a surge of heaviness in me. That unexplainable feeling to learn

that humans sometimes or more often contribute to the irrevocable loss of a species. With this, we all have a question to ask ourselves - "where are we heading?"

There are many fighting to save various species of turtles, birds, mammals and other wildlife from going extinct and the huge World Wide Web of mutual cooperation between living creatures for survival is being fought bravely every day.

Author:
Gargi Mishra
Ornithologist

Indian Vulture
Photograph
by: Athiya
Mahapatra

Some 30 years ago, while holidaying in my ancestral village in Odisha, I didn't realise that the ecosystem would soon become a rarity. So rare that I would plan to experience that in some other places.

The most common part of this ecosystem was the vulture. Like any other birds, I saw flocks of them. Growing up



A Good Samaritan

with many myths, I kept a distance from them. Once I came closest to a flock of nearly 300 vultures. Seeing them doing what they are assigned in the ecosystem to do - scavenging dead animals - I was frightened. I ran away.

Now we search for them. As a bird watcher, I long for them in their natural habitats. One way, I tend to run to them as a wish. But they are on an extinction path.

According to a report in Down to

Earth magazine, the vulture population has declined by 53 per cent since 2003.

Encountering 30 to 40 vultures every day in our village during those days was a natural sight. They had their nests on the top leafless branches of a huge, more than 150 years old, banyan tree at the outskirts of our village. But by the late 1990s, the sighting became rare. Now sighting them is a rarest of rare event.

Far away, I came closest to a

vulture recently. In the Sariska Tiger Reserve in October 2022, I spotted a single Indian Vulture (*Gyps indicus*). The 'rarest of rare' sighting calls for a description of this incredible and

very important bird.

This critically endangered species is a resident of India as the name suggests. It prefers to build nest on the cliffs but if there are no cliffs around their habitats then they nest in trees as well.

They are often seen soaring high with the thermals (an upward current of warm air) while searching for food. They deploy wing-locking structure that allow them to hold their wings outstretched for hours with a little muscle strain. They are bestowed with an excellent sense of smell and sight to locate food from miles away. Vultures prefer fresh meat but can consume the rotten flesh which can be toxic to other animals. Hence, prevent the spread of diseases.

Their bill has been designed to tear the flesh from the carcass but cannot hunt any prey. The weak legs and feet with blunt



Photographs by: Athiya Mahapatra

talons prohibit them to grasp and carry food back to their chicks. Therefore, they gorge upon the carcass and store it in their crops (a muscular pouch located on the front of a bird's neck serves as a storage place for food). Later they regurgitate the food from the crop to feed their young.

They are well known for their feast-or-famine scavenging lifestyle; feast when food is abundant but fast when there is none. They can sustain the



What is killing them?

Diclofenac (NSAIDs)
Failure of kidney

Do you wonder why Indian Vultures (along with White-rumped and Slender-billed vultures) only got affected by Diclofenac, why not other vultures?

Few identification clues of Indian Vulture:

The blackish/dark grey head and neck of the adults are almost none to sparsely cover and that of the juveniles are fully covered with whitish down. The long and pale-yellow bill, dark brown eyes, greenish grey to pinkish yellow cere, pale medium-built bulky body with darker flight feathers and pale coverts, not so visible ear opening, and short tail are few other physical features.

Indian Vultures communicate with grunts, wheezes and hissing.

Maybe, they have a degenerated or underdeveloped syrinx (the vocal organ which allows birds to sing, call or tweet.) I guess. Because, till now the reason behind this kind of adaptation is not clearly known.

They are slow breeders, hence raise only a single chick per breeding season. Perhaps, they are the k-strategist; the producer of fewer offspring to ensure a quality life for the chicks to survive till adulthood.

hunger for a couple of weeks without any problem.

What is killing them?

Diclofenac is a non-steroidal anti-inflammatory drug (NSAIDs), or



painkiller used to treat humans as well as livestock. We are still using it in the form of pain balms. For the farm and domestic animals, it was used to treat lameness, inflammatory conditions, fever and even as a general purpose-cure for undiagnosed illnesses. Few users (human as well as animals) had been reported sensitive towards the drug because they developed kidney failure when ingested it. Vultures are a few species among those sensitive users. They are scavengers by nature. Therefore, when they feed upon the carcass of any animal administered with Diclofenac accidentally ingest the drug as well.

Failure of kidney (otherwise known as renal failure: a condition in which the kidney stops working and unable to remove waste and extra water from the blood, hence, cannot maintain a balance of the body chemicals) accumulates uric acid in the blood stream that crystalizes on the vitals like heart, liver and kidney leading to the visceral gout and subsequent death of the vultures.

Aceclofenac, Nimesulide, Ketoprofen, Carprofen and Flunixin have been introduced as the suitable alternative to Diclofenac. But they also proved equally harmful as the Diclofenac.

mainly on scraps or small pieces of meat on and around the carcasses. Hence, stay away from consuming the drug loaded internal organs or may consume an amount which might not affect them.

Do you wonder why Indian Vultures (along with White-rumped and Slender-billed vultures) only got affected by Diclofenac, why not other vultures? Here are the reasons. Vultures are either gulpers or rippers or scrappers. Indian Vultures are gulper by nature. All the gulpers have slender skulls, long bald necks and bald heads, an evolutionary adaptation to reach the soft tissues located deep inside the carcass without getting infected. Gulpers feed on soft tissues like internal organs. Through skin openings of the carcass, they insert their head and neck to remove pieces of soft meat and engulf them by raising their head.

From National Institute of General Medical Sciences' website, I found how medicines generally work inside the body. When taken orally they are shuttled from the digestive tract to the liver. Other ways of drug administration (like injection) bypass the liver, enter the bloodstream directly or via the skin or lungs. Everything that enters the bloodstream - whether swallowed, injected, inhaled or absorbed through the skin-is carried to the liver. Therefore, when the Indian Vultures consume internal organs, they ingest some amount of the administered drugs. That is the reason why Indian Vultures got affected by diclofenac at the first place (along with White-rumped and Slender-billed vultures, the other gulpers) as compared to other vultures.

Whereas rippers (Cinereous and Red-headed vulture) tear off and feed on the tough skin and muscles. Scrappers (Egyptian vulture) feed

Aceclofenac, Nimesulide, Ketoprofen, Carprofen and Flunixin have been introduced as the suitable alternative to Diclofenac. But they also proved equally harmful as the Diclofenac.



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Craftsmen of the Himalayas



Author and Photographer :
Puskar Basu

Himalayan Brown Bears

A sweeping sound and a looming shadow drove my attention towards the sky. I looked up and saw a solitary Lammergeier encircling implausibly close in desperate search for food. This formidable and parched high-altitude desert does not seem to spare even these skilled survivor of the Himalayas.



The barren valley of Drass is terribly bereft of nutrients and does not appear to be conducive to life. Even though the summer brings some solace, winter is unbearably severe. Every drop of water freezes and every fleck of green disappears. Surprisingly, in the cracks and crevices of this lifeless landscape, a remarkably adaptive ecosystem has been thriving.

The food chain over here is dominated by the largest land carnivore of the subcontinent. I have been photographing Himalayan wildlife for almost two decades. But none of my experiences are as bizarre as that of the critically endangered Himalayan Brown Bears. It is the story of an alarming human-wildlife conflict at Drass that set me on a trail. I chose the month of April to get a fair combination of clear visibility and adequately cold temperature when the bears emerge from hibernation and sneak into human settlements in

desperate search for food. This would have offered the best chances to photograph them from close quarters and also to portray their struggle at the peak of the conflict.

With the onset of spring, life sprouts back in settlements of Drass. Locals, dressed in traditional 'Phirans', go about their daily business of farming and raising cattle. The valley had once witnessed one of the worst battles (Kargil War in 1999) ever fought in the history of mankind – evidences of which are still



etched on the walls of the houses and minds of the locals. Despite the damage, turquoise blue waters and magenta-draped apricot fields make Drass one of the most beautiful habitations on the lap of the Himalayas.

After reaching Drass, I spent the evening at my camp. My quest for tracking the bears started from the very next morning. Clambering along the steep slopes with hefty camera gear left me panting for breath. But the thrill of photographing such an incredible yet elusive mammal kept pushing my endurance limits.

Every day I returned to the base of the hills before the first light and started scanning the slopes which make easy routes for the

bears to approach the villages. Two chance sightings came my way as a result of following the pugmarks and scats. But these extremely shy mammals always maintained a distance from where they appeared like mere specks. I spent the evenings scouting the dumping grounds of military camps which are popular with bears, especially during this hyperphagic phase.

In the initial few days, both my luck and the bears eluded me. The situation turned even worse when heavy snowfall started and visibility reduced drastically. Due to such untimely and unpredicted precipitation events in the Himalayas, the bears have to endure lengthier periods of starvation. The curse is

especially borne by the cubs born during hibernation. Mother bears exhaust their last bit of energy in nursing them out of no resources.

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Himalayan Brown Bear with a carcass

The whiteout persisted for four days, leaving me with no choice but to engage in village chats and take in the incredible tales of “Dren-Mo” (Living with the Bears).

Despite being blighted on multiple fronts, these master craftsmen have developed innovative adaptive strategies to subsist with urbanisation. The bears lack the agility to



chase their prey. It is almost impossible for them to ambush, unless the prey is injured, cornered or surprised. Hunting at night gets even more challenging due to poor eyesight. Therefore, the bears have developed a technique of navigating cliffs by sensing with their thickly padded paws to move more quickly on tricky surfaces. This was demonstrated in a few rare instances where bears unintentionally got their heads locked in containers yet managed to flee blindfolded across jagged ridges.

Moreover, global warming has caused prey populations to move towards higher reaches, making it more difficult for the bears to hunt. Hence, the bears have devised skills to gain access silently to the kitchens and stores by gently creating holes in window panes and walls without smashing them. Their massive and powerful claws work together as a versatile tool for hunting, digging and climbing. While all these stories earned my surprise, I never imagined that I was about to witness something stranger than any of these accounts which

has neither been documented nor heard of.

As the weather cleared up slowly, I started venturing out to the hills of Mushkoh, Goshan and Hulyal to make the most out of the few days I had left in my expedition. One fine morning, we suddenly stumbled upon a cadaver of a domestic horse, carefully buried under a heap of soil. While I was wondering, who could have done such a neat cremation, Ahmad Ali exclaimed, “Bhaloo”! Ahmad has seen these bears since his childhood and seems to know



them just as well as his family. He resumed his explanation before I had a chance to consider his perspective. The bears are too bulky to hurl their prey up along the steep



terrain and it is also not safe for their cubs to accompany them during the hunt. As a result, they turn to creative techniques. Such covering up of the carcass was planned most likely to conceal it from its rivals like wolves and free-ranging canines, so the bear can buy time to fetch her famished cubs from the lair. Stuck in a dilemma of what to believe and what not, I chose to remain hidden and wait.

As the day passed by, I gradually started smiling at Ahmad's tale. It was almost dusk and the last light was about to fade off behind the peaks in less than an hour. Suddenly my attention was pulled towards three moving boulders near the summit. A chill ran down my spine. It was a family of two cubs accompanied by their mother. In no time

they started climbing down towards the kill. I was so spellbound that if Ahmad wouldn't have jolted me back to my senses, I probably would have forgotten to click.

When the bears reached the carcass, they were greeted with their next challenge – a pack of free-ranging dogs. Initially, the dogs were as naive and clueless as me. But when the mother bear started digging out the horse, they got a hint of the situation and started running around restlessly. Knowing that they are no match for the heavyweight mom, they started chasing the cubs. The mother bear single-handedly took on the herculean task of digging out the entire horse and simultaneously kept on chasing away the dogs. It was possibly her last chance to keep the cubs alive. The cubs, who were oblivious of such struggles of life, kept on pulling out morsels from the well-served

meal. The mother merely took some nibbles and concentrated more on keeping the dogs at bay so that her cubs could eat peacefully. It was hard for me to comprehend my unbelievable proximity to one of the rarest and most elusive mammals of the Himalayas. The true essence of Wildlife photography lies in such blissfully gratifying experiences when a notoriously shy species considers you a lesser threat and allows you into her comfort zone.

It was almost dark when I had a last glimpse of the family and felt happy to witness the cubs playing with each other after a satisfying and sumptuous meal. Probably that is why nature has made mothers able enough to devise anything out of nothing so that their offspring can flourish!

I made my way back to my camp with a happy camera and a heavy heart. Himalayan Brown

When the bears reached the carcass, they were greeted with their next challenge – a pack of free-ranging dogs. Initially, the dogs were as naive and clueless as me.



Bears are one of those few species, who are making all endeavours to learn, adapt and survive in this Anthropocene epoch. However, they are losing the battle in the hands of retaliatory killings like none other. At times villagers are left with no choice as the raids cost them a fortune. However, I did not notice any personal hatred amongst people for the bears. Their priority lies in keeping the bears away, for which they have fortified their houses with deterrents like bottles, cans and fences.

I even found an energetic group of youngsters who were eager to voluntarily hike along with me and help me spot the bears. Whenever I visited the villages, I often found inquisitive eyes peeking into my laptop to catch a glimpse of the bears. It was evident that they take pride in showing their mascot which forms an integral part of their habitat, unless they are forced to choose between the bears and their own survival.

Wings of Creativity

Artist and Author: Partha Sarathi

The journey of my art dates to the time when I was made to sit for studies as a child. Being a distracted kid, I used to scribble into the last page of my copy instead of focusing on the task at hand!

Art is a medium which helps us express our emotions, a tool we can use to appreciate and express beauty in ordinary places and things. Born and raised in Dhanbad, in the Jharkhand state of India, I have the deepest passion for exploring nature and try to recreate them on paper.



I started working as a researcher in the Wildlife Institute of India, Dehradun, where I got the opportunity to see wild animals from close proximity.

When I was in the first standard, I got enrolled into an art school and that is when my creativity got the wings. I was exposed to different art mediums like crayons, oil pastels, pencil shadings, watercolours, oil paintings and acrylic paintings. Among these, watercolour has always been my favourite medium and I have experimented doing different types of paintings through watercolours.

My parents have always encouraged me in art. I completed my 5th year in painting from Pracheen Kala Kendra, Chandigarh Board while I was in my 10th standard. During these years we also designed the idols and pandals during Durga puja. Our pandal used to win awards most of the time. I had to discontinue art owing to my studies after my matriculation. I took up Zoology honours in Visva Bharati, Santiniketan, West Bengal; the birthplace of the renowned poet Rabindranath Tagore. Once there, I got an opportunity to explore my art and music as well. Soon, I started making caricatures and portraits of my friends during my free time.

I started participating in different art exhibitions, competitions and started to get in touch with my friends in the Art Department, Kala Bhavana, one of the greatest centers for art and sculpture in India. Quite often I used to explore different places around Santiniketan looking for ideas that I can incorporate into my art. Meanwhile, I got interested in nature and wildlife as well. I used to carry a notepad and started doodling illustrations of birds and other species that I observed.

Later, I started working as a researcher in the Wildlife Institute of India, Dehradun, where I got the opportunity to see wild animals from close proximity. A photograph with a Brown Bear resting on a valley full of flowers attracted me very much. So, I decided to paint it with watercolor on paper. Hope you all like it!



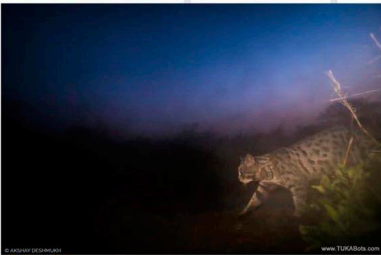


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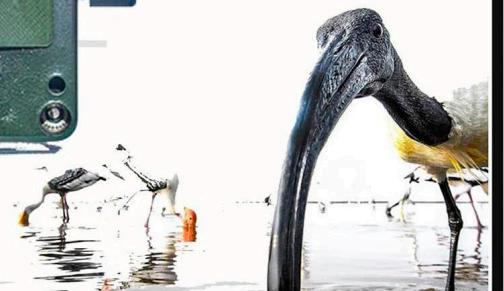
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Dass,
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The Arabian Oryx

Once extinct in the wild, a species of the white antelope has reclaimed its territory. A medium-sized antelope, native to the desert but in the Arab region, however, it is the largest desert mammal. Renowned as the largest desert mammal in the Arab region is the Arabian Oryx (*Oryx leucoryx*). Otherwise known as the White Oryx due to its dazzling white coat.

The scientific name *Oryx leucoryx* has been derived from the Greek 'orux' which means 'gazelle' or 'antelope' and 'leukos' means 'white'. Peter Simon Pallas, a Prussian zoologist, introduced 'oryx' into the scientific literature in 1767.





Its white coat reflects the sun rays. Its hooves, which are shovel-like, gives it a large surface area to walk with grace and ease on the desert sand which is its natural habitat. It has a bump on its shoulder and a tufted tail.

During the winter months, they acquire a darker brown color in their legs which enable them to absorb and retain heat to keep themselves warm.

Both males and females have long, straight, but ringed horns. The horns



of a female are thinner and longer than those of a male. The horns must have helped them to defend themselves from their natural predators' wolves once but now, as I feel, they accentuate the beauty of these gentle giants many folds. Because, now they don't have any natural predators left in the desert. Their only predators were humans who used to hunt them for their hides and meat. As a result, by the early 1970s Arabian Oryx were declared extinct in the wild. They were classified as 'Endangered' on the IUCN Red List in 1986.

However, due to the conservation efforts of various organizations and the government, they have made a dramatic comeback. It was the first animal to revert to vulnerable status from endangered status in 2011. Now hunting them is an illegal and punishable act as per the law.

They can detect rainfall and move towards it to eat the new plants that grow after rain. The food basket of the Arabian Oryx consists mainly of grasses, but they also eat a large variety of vegetation, including buds,

herbs, fruit, tubers and roots.

I have seen hundreds of them roaming freely in the desert. It is a wonderful sight to see them walk slowly, steadily but gracefully. I have observed them digging shallow depressions in the soft ground under shrubs or trees for resting when they are not feeding or wandering.

They become aggressive only when someone approaches their young ones. They are most active during the early morning and late evening.

**Danaid Eggfly
Butterfly by:
Athiya
Mahapatra**

**Author: Anirudh Chaoji
Chief Naturalist,
Tadoba Andheri Tiger
Reserve,
Maharashtra.**



Beyond The King

Those were the days when one of the Khans was the Shahenshah of Bollywood. I would make it a point to watch all his movies. A friend would always suggest that I should also watch other Khans, Khannas, Kapoors and many others too. Finally, I went and watched one such movie... I was so impressed by the movie that I immediately made up my mind to start exploring the rest of Bollywood, Hollywood, Tollywood, as well as vernacular cinema.

Almost similar is the story of many of our wildlife photographers. I stand corrected – tiger photographers! They have captured some of the best emotions, actions and portraits of tigers. Tiger is one of the most glamorous animals and highly photogenic too. There is also no

doubt that a tiger like the Big Khan of cinemas is a charismatic entity. Also, cinema and jungle businesses have immensely benefited from their glamour. However, I would state that the benefit ends there. Like all other film stars who also have made a niche in the cinema ecosystem, other animals too have an important role to play in the jungle, not just tiger.

Unfortunately, in their single-minded devotion, the tiger-wallahs have missed out on the other residents of the forest. They could easily have missed a Glory Lily flowering, a Tiger Centipede devouring a frog, very different looking Danaid Eggfly butterflies mating, Racket-tailed Drongo mimicking a Spotted Deer call as it annoyed a leopard or even watching a troupe of



Langur by: Athiya Mahapatra



**Spotted Deer by:
Athiya Mahapatra**

We wouldn't want the tiger to go hungry. Would we?

langurs at play. Thus, some forest managers, like those at Tadoba, have been promoting the concept of exploring the forest in totality. Many of my friends too agreed to change their views of the forest. Some even kept their cameras down and instead took along binoculars. They returned from safaris and confided that they experienced a much different forest from the earlier safaris. Later they also shared that they started to visit

forests not known for tigers and suddenly they were enchanted by the totality of the wilderness. They made it a point to tell me how much their local guide could share the medicinal importance of trees, the peculiar behaviour of animals and even the variation of nesting habits of birds based on the rainfall patterns. Earlier, the guide's role was restricted to searching for the striped big cat. If despite his best efforts a tiger was not sighted, the "kuch nahi dikhaya" comment was regularly heard at the exit gates of many prominent tiger reserves.

Some forest managers fortunately had a wider vision and promoted unique activities and remote locations very well. The British era rest-houses of Melghat are today attracting tourists. The adventure activities at Hazra waterfalls

guarantees an adrenaline rush. Boating on the open waters of Irai lake at Moharli is attracting more and more people every day. Lesser known Phansad Sanctuary today is probably just as famous among nature photographers as any prominent tiger reserves. The message is very simple. The local authority needs to identify a USP for the location and then promote it well. The success of such locations with good signage, trained guides and decent tourism infrastructure is almost guaranteed.

Similarly, the managers of tiger forests also need to plan their tourism beyond just tigers, as getting its confirmed 'darshan' would mean that the tiger would be visible to all its prey animals too. We wouldn't want the tiger to go hungry. Would we?



Unfortunately, in their single-minded devotion, the tiger-wallahs have missed out on the other residents of the forest. They could easily have missed a Glory Lily flowering, a Tiger Centipede devouring a frog, very different looking Danaid Eggfly butterflies mating, Racket-tailed Drongo mimicking a Spotted Deer call as it annoyed a leopard or even watching a troupe of langurs at play.

Greater Racket-tailed Drongo by Shera Kumar Gupta



EXPLORING NATURE AWARDS

World Environment Day



Bappa Debnath
Admin

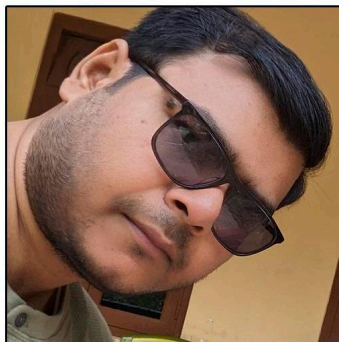


Grace Marian
Judge

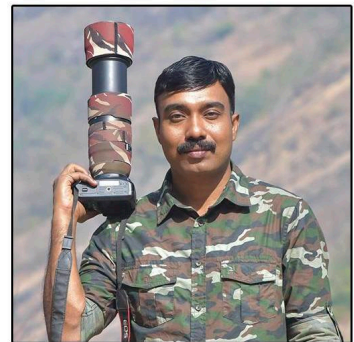
AWARDEES



Dhaval Solanki
Winner

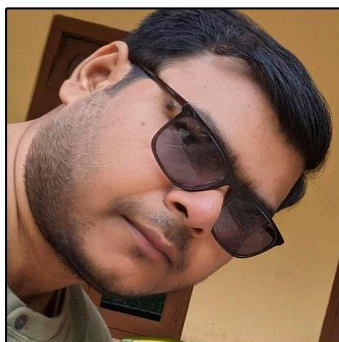


Subho Das
1st Runner Up



Anoop Gopalan
2nd Runner Up

ACCEPTANCE



Subho Das



Rhesus Macaque (Rhesus Monkey)
Dhaval Solanki
Winner



Bronze-winged Jacana
Subho Das
1st Runner Up



Spotted Deer
Anoop Gopalan
2nd Runner Up



Citrine Wagtail
Subho Das
Acceptance



EXPLORING NATURE AWARDS

JUNE 2023



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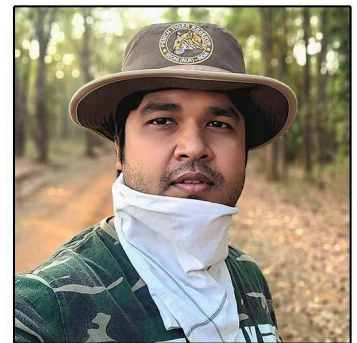
TOP ARTISTS



Ron Conigliaro
Winner

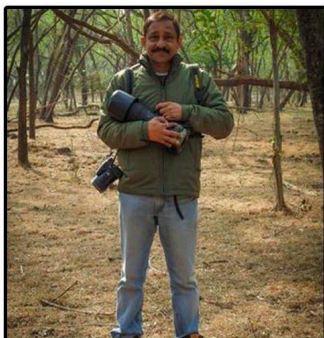


Harshad Takle
1st Runner Up



Anthony Suraj Gomes
2nd Runner Up

TOP CONTRIBUTORS IN THE FORUM



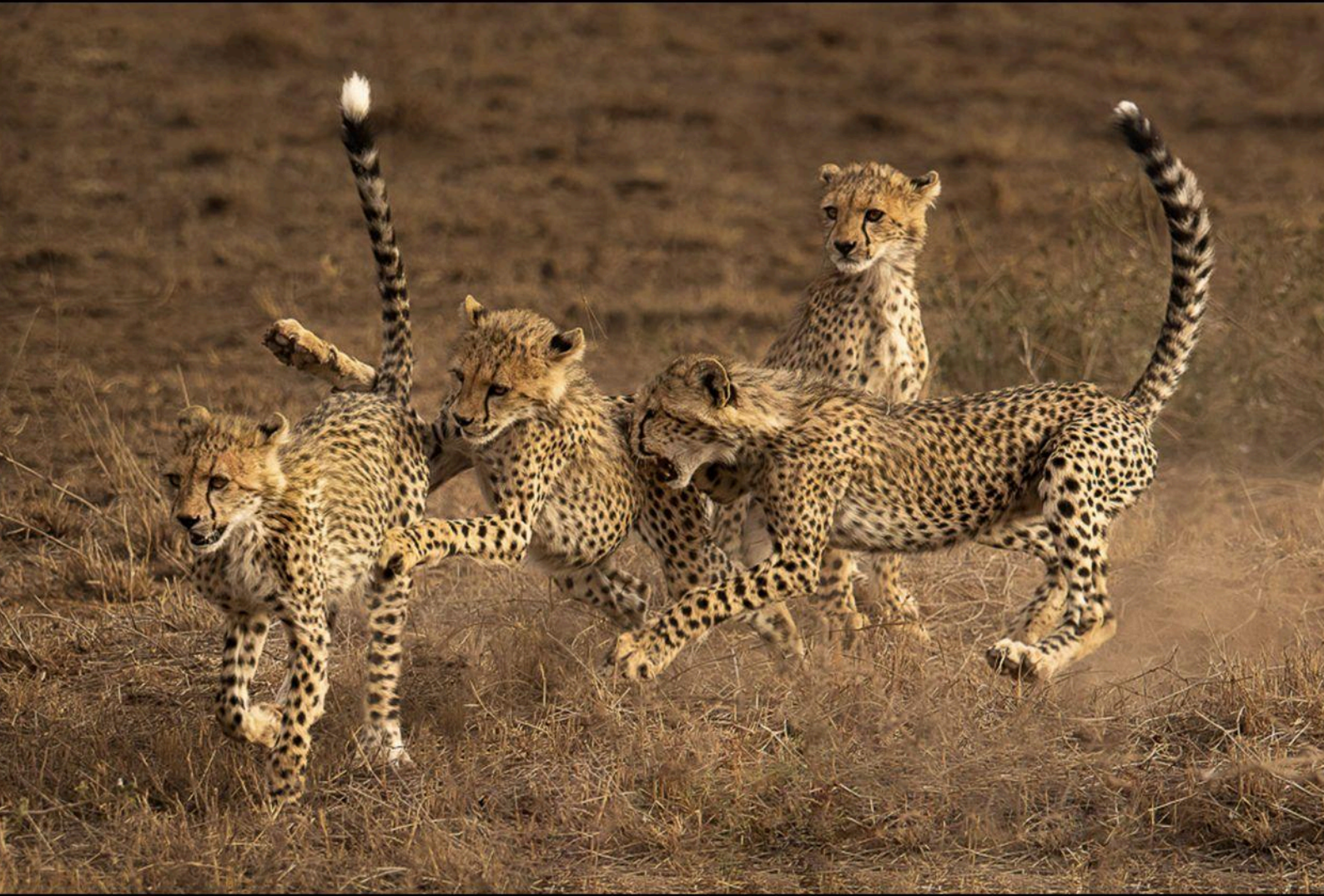
Arun Tyagi



Syamala Rupakula



Samar Jana



African Cheetah
Ron Conigliaro
Winner



Changeable Hawk-Eagle
Harshad Takle
1st Runner Up



Oriental Magpie-Robin
Anthony Suraj Gomes
2nd Runner Up



EXPLORING NATURE AWARDS

MAY 2023



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Grace Marian
Judge

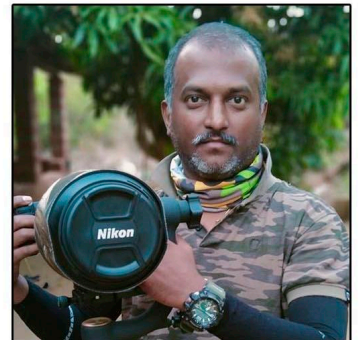
TOP ARTISTS



Somdiptya Chakraborty
Winner

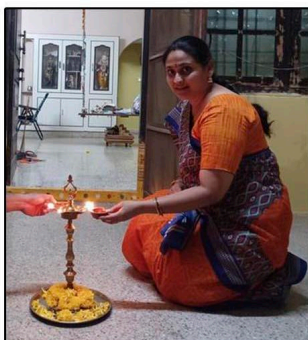


Mukim Mutwa
1st Runner Up



Raj Pise
2nd Runner Up

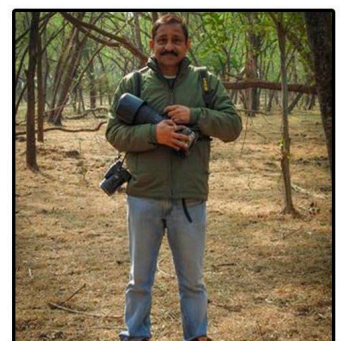
TOP CONTRIBUTORS IN THE FORUM



Syamala Rupakula



Bipad Taran Mandal



Arun Tyagi



Oriental Darter
Somdiptya Chakraborty
Winner



Indian Golden Jackal
Mukim Mutwa
1st Runner Up



Long-nosed Vine Snake
Raj Pise
2nd Runner Up

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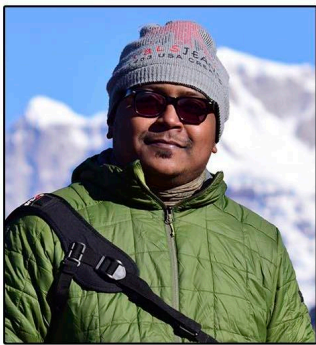


Bappa Debnath
Admin



Grace Marian
Judge

TOP ARTISTS



Saptarshi Dasgupta
Winner

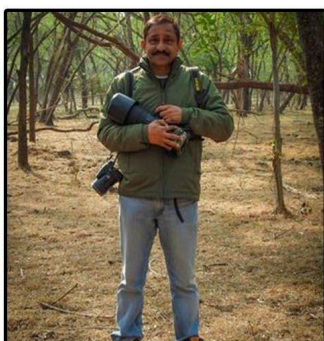


Samar Jana
1st Runner Up



Bipad Taran Mandal
2nd Runner Up

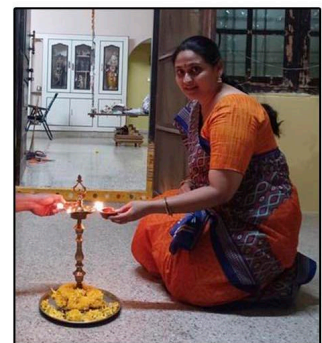
TOP CONTRIBUTORS IN THE FORUM



Arun Tyagi



Hitesh Patel



Syamala Rupakula



Olive Ridley Turtle
Saptarshi Dasgupta
Winner



Purple Sunbird
Samar Jana
1st Runner Up



Jumping Spider
Bipad Taran Mandal
2nd Runner Up



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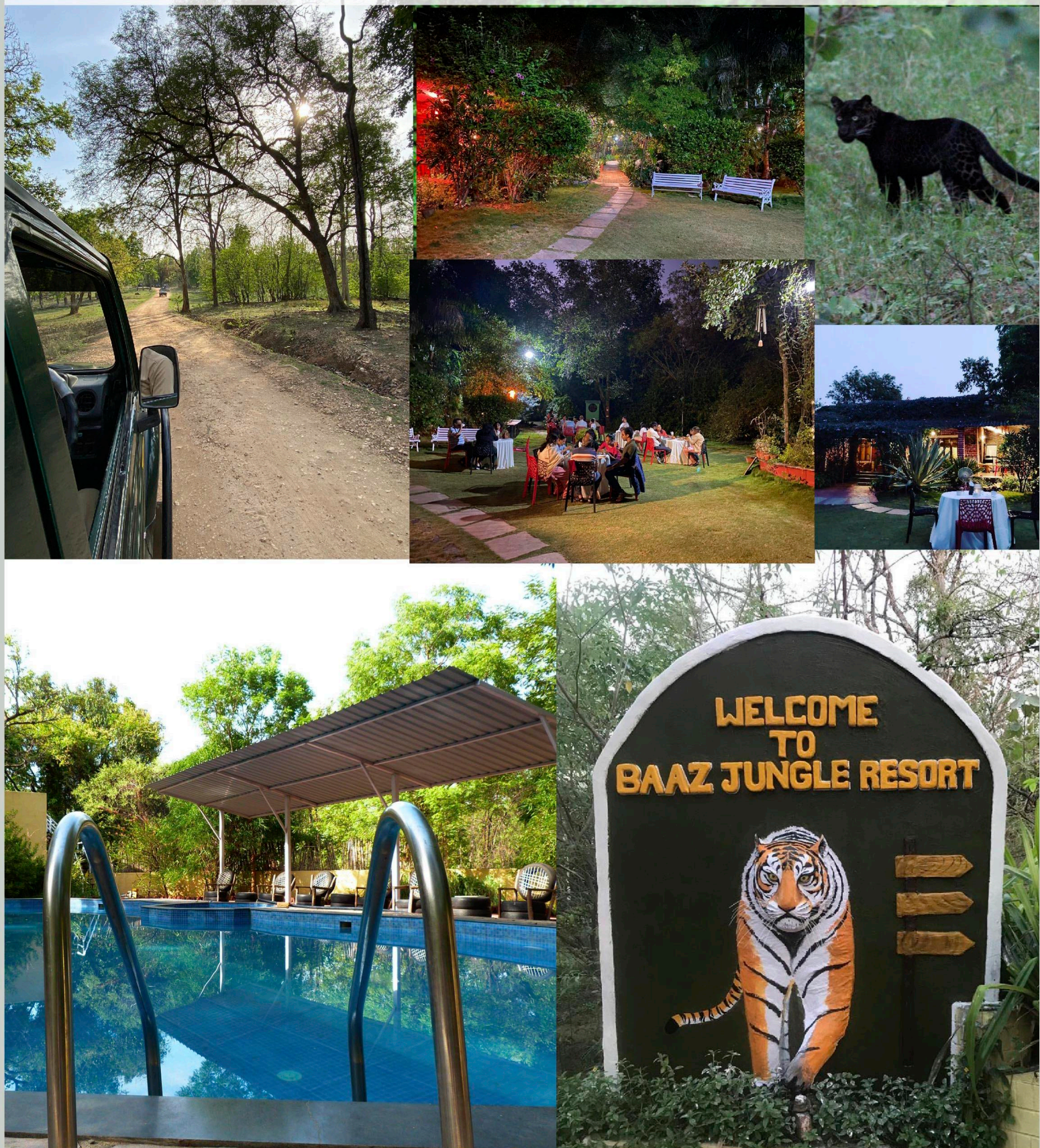
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