

Indian Lepidoptera

(Insects as Umbrella species)

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*Flutter by
Butterfly
Floating flower
in the sky
Kiss me with your
Petal wings
Whisper secrets
Tell of spring*

□ Author Unknown

Welcome to the beautiful and colorful
World of Indian butterflies!!!!
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An Invitation

Editorial

Dear All,

With the arrival of Pre-monsoon showers, its time to enjoy yet another butterfly season amidst all the chaos that has come to pass in the world.

Off late, the world is slowly waking up to global warming. The future looks grim with the constant depletion of tree cover in the name of 'so-called' development projects.

According to a documentary by filmmaker, Krishnendu Bose, the number of wild tigers in India is less than 1000. With the poaching still rampant in the remaining tiger reserves, no one can be certain for how long we will be able to save our national animal.

There have been constant efforts of denuding Western Ghats by various well-planned development projects. Proposal of Pathrakadavu hydroelectric project has again come up in the Silent Valley National Park. This is one of the last remaining pristine habitats for Lion Tailed Macaques, Nilgiri Langur, and Nilgiri Tahr. There is one more proposal for the network of canals which will cut through some of the rainforests in Karnataka. This project is named as "Soubhagya Sanjeevini", the name may only be appropriate for the people who will amass wealth out of it.

Although it's very much necessary to involve yourself in protesting some of these mindless projects, it's equally important to document remaining wildlife to squash such projects in future.

Let us hope for a better future for Indian wildlife.

Happy insecting,
Kishen Das,
Editor

Hazards of butterfly collecting: From the Nilgiri to the Biligiriranga Mountains – South India, 1986

On 30 May, 1986 I woke up in a rather derelict guest house of the Glenburn Estate in the Nilgiri Mountains in southern India – I had already been advised that the better one was being renovated. I had been rudely expelled from my comfortable lodgings 30km away in Kotagiri and 600m up. Actually ... rudely is not the correct term. When I took up residence for six months in Kotagiri at the old boarding-school, where I had earlier lived between the ages of 10 and 14, I was warned that my stay would be disrupted. The caveat was issued by the last Danish missionaries in India – two splendid ladies running a couple of universally acclaimed secondary schools for girls in Tamil Nadu.

My eviction had been tempered by the ladies bringing me a huge stack of Danish newspapers and magazines. My aspirations for the first day in exile were simple. I would sit on the porch, admiring the splendid view, dipping into the jack-fruit that had thoughtfully been provided by my host, and perusing the Danish press. That was not to be.

Just after settling on the porch with a Danish paper it became evident that a large butterfly migration was beginning: slightly tentative at 08.00 hrs, quite clear half an hour later. Newspapers had to be exchanged for butterflies. The lead species was the lemon pansy (*Junonia lemonias* Linné, 1758) with some 33 % of the total (see inset photo). Second was the yellow emigrant (*Catopsilia pomona* Fabricius, 1775) with 21%, then the danaid southern blue tiger (*Tirumala septentrionis* Butler, 1874) with 13% and two crows which could not be told apart on the wing (*Euploea core* Cramer, 1780 and *E. sylvester* Fabricius, 1783) with about 10%. These species constituted three-quarters of the entire migration, but another twenty were also involved (Larsen, T.B. 1988. *Atalanta*, 18:267-281).

The next three days things were very similar – and I kept maintaining my counts. I also drove up and down the mountain to calculate the width of the migration – about 35-40km. The migration density, species composition, and behaviour were the same everywhere, but numbers fell away at the edges of the main track of the migration.

Then at about 10.00 hrs on 2 June something strange happened. A smaller migration started moving at almost right angles to the main migration, flying north instead of nearly east. Most of the same species

were involved, but in very different proportions (*J. lemonias* was only 8% of the total while the two crows had 29% between them). At any given time I could see about 100 migrants – there was never the least doubt as to which of the two streams any individual belonged. I concentrated on observing a change of direction in any butterfly – I never saw one. And whenever a resident butterfly – whether or not a potential migrant – wandered into the stream of migrants it flew about with no thought of what was happening around it (the simile of a ‘streaker’ invading the immaculate military performance in London of the “Beating of the Retreat” struck me as apposite).

Nearly all migration observations are snapshots of what happens in one place at one moment in time. Here, for the first time in my life, I was actually able to do a bit more. I had a car and the necessary freedom. I checked my maps. So I headed east to see if the situation was the same there in respect of the main migration. Well, I did not exactly head east, because the topography of Nilgiri Mountains does not allow this. I had to go far south to Coimbatore to join the only road that would re-connect me – I hoped – with the migration. This was a great experience. Less than an hour after leaving Glenburn, at the foot of the mountains, there was no sign of the migration. I then had to drive some 50km south to get to Coimbatore and another 70 km to the road that poked east into the lowland gap which separates the Nilgiri from the Biligiriranga Mountains. Though 120km might not sound like much to most readers, the traffic and condition of roads in India combine to make this a bit of a hazardous journey - the mix of rickshaws, ox-carts, giant trucks in poor condition, and bicycles can be frightening.

This lowland gap (Bhavanisagar) is one of the driest localities in South India – almost African in character with gazelles and *Acacia*-trees. I once went down there to find *Colotis* orange tips behaving just like in Africa (six *Colotis* were originally described from India: one of these is endemic, the rest also found in Africa, where an additional 40 species occur). In the early afternoon I arrived at the spot on the road where I had plotted that the migration ought to reappear. With great precision, and to my great pleasure, it did – and at the very point indicated by my advance plot. I continued for a while, then stopped to do a count. It was identical – species composition, flight pattern, general behaviour – with what I had seen at Glenburn, 60km to the north at 1,300m. In Glenburn they were overflying vigorous forest and wet tea plantations – their behaviour was the same over the driest possible savannah at 500m. I have found no record of a similar “chase”. The ideal would be to have the services of a helicopter that does not need to contend with the ox-carts!

After a few additional counts I went up the long winding road to the top of the Biligiriranga Mountains. My strange activities in the Nilgiri Mountains had exaggerated my scientific importance among the plantation communities, so I was well received in the sprawling coffee and spice plantation on the hills – despite the lack of advance warning. A discreet consultation amongst the senior resident staff resulted in my being given the palatial bedroom used by the managing director from Bombay on his one or two annual visits (I have never had a morning ‘bed-tea’ so dwarfed by its surroundings). The area was north of what was evidently quite a narrow migration, perhaps only 40-50km wide. So during the next two days I was treated to a thorough and most interesting lesson in how cinnamon, cloves, mace, ginger, and other spices were grown. I also looked at my data. From what I personally saw, it was possible to extrapolate a minimum of 4.3 million butterflies in the main flight over a 40km front. The data also indicated a 1:1 sex ratio.

That we do not know more than we do about butterfly migration is quite scandalous. Each time I look at the cases I have been fortunate enough to witness, I also feel a nagging guilt. Could I not have done more? My maps showed me that it would be a detour of more than 250km to find the next potential intersection point with the migration, almost hitting Coimbatore on the way – and then a two or three day drive back to Glenburn. I did not do it. I am sorry I did not ... and I apologize – to my reader as well as to myself.

When I was back at Glenburn, no sign of migration remained.



***Junonia lemonias* – leading the mixed migration.**

368 LARSEN, T.B. 2006. Hazards of butterfly collecting – From the Nilgiri to the Biligiriranga Mountains – South India, 1986. *Entomologists' Record and Journal of Variation*, 118:185-187. (written in Hanoi 20.iv.2005)

BUTTERFLY-INDIA Meet, 2006 at Arunachal Pradesh

- By Sohini Vanjari, Pune

Introduction:

ButterflyIndia group conducted a butterfly meet from 19th to 30th of August, 2006 at Arunachal Pradesh. In this article I am sharing my experience of this meet.

I had interest in butterflies right from my childhood. This hobby took a definitive shape when I joined Butterfly-India yahoo group. This group has expert lepidopterists from India and other countries creating a right platform for amateurs to learn and discuss about the natural history of Indian Butterflies. With the help of this group I was able to get my butterfly photos identified and also got a chance to interact with other butterfly watchers.

The group had its earlier meetings in South India and many of its members were eager to explore the butterfly diversity of North Eastern states. Hence it was unanimously decided that the meet is going to happen at Arunachal Pradesh. I was lucky enough to be part of this eventful meeting, which can be termed as “Golden Days” of my life.

The team from Maharashtra, which I was part of, reached Guwahati on August 18th. From there it was an overnight journey to Jairampur. At Jairampur we freshened up and started towards Namdapha.

Namdapha National Park:

Namdapha, due to its undulating hill ranges whose altitudes vary from 895Ft to 2200Ft, harbors large diversity of invertebrates and birds. Banks of ‘Deban’, the river that flows through Namdapha was selected as the ideal place for camping. We took around 4 hours to reach this place. Although the trail was short we took lot of time which explains the kind of diversity supported by Namdapha. In Pune, the city from south India where I live, we literally have to struggle to see more butterfly species. But here in Namdapha we were struggling to keep track of butterfly species!!!

Everything at Namdapha was colorful: from stones to leaves, from birds to butterflies everything!!! If you wonder from an artistic mind about the purpose of the color, you might think that it's to attract us. Well, you might be right in case of fruits, for which human beings are a means to disperse their seeds. This is not

true in all cases. For birds and butterflies the purpose of color is to attract the mates and to ward off the predators. For fruits and flowers, it is to lure the pollinating agents. And for non-living objects it might be just from the chemicals they are composed of and their colors might not have any organic purpose as that of flowers or birds!!!



Popinjay (*Stibochiona nicea*)



Purple Sapphire(*Heliophorus epicles*)



Orange Oakleaf(*Kallima inachus*)



Orchid Tit (*Chilaria othona*)



**White Dragontail
(**



Cruiser (*Vindula erota*)



**Small Green Awlet
(*Bibasis amara*)**

Nature Trail at Namdapha:

Purple Sapphire, a tiny lycaenid with red-yellow combination was the first butterfly to catch our attention. Initially we thought it's a rare butterfly but later found that it's as common as say 'Dark Grass Blues' in Maharashtra. During our 4 hour nature trail, we saw 52 species of Butterflies. Although the trail was hardly 2kms, we took 4 hours!!! You know, this is what differentiates the terms 'trek' and 'trail'. When you trek

you try to cover more distance in short time and you will hardly take notice of surrounding life forms. In contrast to this, in nature trail, you really don't care about the distance covered. Instead, you will be more concerned about learning and watching the plants, butterflies, and birds. After this trail we returned back to Jairampur, the actual destination of the meet.

Meet at Jairampur:

The meet was held at Jairampur from 21st to 25th of August. Introductory session was carried out in the presence of DFO, Changlang district. The attendees got a warm welcome that included a gorgeous shawl. The schedule was finalized and it was decided that Jairampur, Manmau, and Nampang. Everyone was full of enthusiasm and eagerly waiting for the colorful trails.

All the trails were good and full of surprises. Although the total number of butterfly species seen was 154, the ecstasy and joy that we experienced cannot be expressed in numbers. Great Nawab, Five Bar Swordtail, Orange Oakleaf, Fluffy Tit, Dusky Diadem, Purple sapphire, Green Awlet, and White Dragontail were some of the main highlights of this trip.

On the 5th and last day, a small program was arranged for school kids, in order to introduce them to the wonderful world of Butterflies. After the meet, we again visited 'Deban' river in Namdapha where we were greeted by huge mud-puddling congregations involving around 16 species of butterflies.



Colour Sergeant(*Athyma nefte*)



Great Nawab(*Polyura eudamippus*)



Five bar Swordtail
(*Graphium antiphates*)



Leopard Lacewing
(*Ceythosia cyane*)



Courtesan
(*Euripus consimilis*)



Mudpuddling Congregation at Deban River

Although we wanted to spend more time there, we were getting late for our train. Probably it will take at least few births just to see all the butterflies at this place. So you can imagine how much we could have seen in 5 days!!!

On September 1st I reached Pune with tons of memories of Arunachal Pradesh and its butterflies still lingering in my mind. That was the time when I made up my mind to visit the place once again.

Do insects feel pain?

Excerpts from an international discussion group dedicated to Lepidoptera.

Hi,

Can anyone answer this question for me please? I remember being told that insects do not have pain receptors. Is this true? Clearly they are able to 'feel' as they respond to various stimulæ. Here in the UK there are many well-meaning conservation minded people who talk of being cruel to insects, of causing them pain, or of insects being distressed. Any thoughts or solid factual information please?

Many thanks

Nick Greatorex-Davies

CEH Monks Wood, Abbots Ripton, Huntingdon UK

This was discussed here a number of years ago. The view was that insects do not feel pain although I do not have any references to it.

Stan

Nick,

Insects are closely related to Crustaceans. They have very complex nervous systems as can be seen by examining any standard text (R. F. Chapman 1998 *The Insects: structure and function* or Resh & Carde 2003 *Encyclopedia of Insects*). Animal nervous systems all share many features including neuron structure, many neurotransmitters, CNS etc.. The main underlying differences between vertebrate nervous systems and protostome nervous systems have to do with the morphology and position of the nerve cord (theirs is a ventral ladder; ours is a dorsal tube), the development of different ganglia into differentiated brain activity areas (insects have mushroom bodies where higher learning seems to occur; vertebrates use parts of the cerebrum if they so choose), and brain size. What we call our 'pain receptors' are heat receptors, pressure receptors etc. Insects have lots of similar receptors.

What is harder to evaluate is the extent to which an insect brain creates a world view (and sense of self) that experiences the kinds of foreboding and suffering that mammals apparently do. This is a very tricky subject to study, so tricky that one could easily doubt that the the majority of humans are conscious! As for insects, I would put the fraction even lower. It has been seen in any number of classroom experiments (Don't yell at me, I am a population biologist, not a physiologist; these are not my experiments) that partially dissected cockroaches will go about their business afterwards in a way that seems very foreign to us mammals. Surely insects _respond_ to damaging stimuli. Whether there is something to be "aware" there is unclear. But the experience, if there is one, is surely qualitatively different than in mammals.

Frustrating as it may be to us higher consciousnesses, we are almost painfully ignorant of what truly goes on in the minds of insects, if they have minds.

Patrick

>What we call our 'pain receptors' are heat receptors, pressure
>receptors etc. Insects have lots of similar receptors.

Actually, vertebrates do have specific receptors for pain, and special neural pathways to transmit these signals, not shared by insects; if insects feel pain using "similar" receptors, it is not pain as WE experience it, and probably not even very "similar," regardless. This is trivially seen if you compare what happens to a vertebrate if it has a limb removed traumatically versus an insect with a limb similarly removed. Both react violently at the moment of trauma, but they act quite differently once the direct stimulus is gone. A vertebrate writhes in agony for a very long time, and is largely incapacitated simply due to pain. An insect goes about its business, and alters its gait to accommodate the missing limb, but shows very little outward sign of distress.

I can personally attest to the necessity of pain receptors (as opposed to pressure or temperature receptors) in generating the classic vertebrate reaction, having had a neurological episode which cut off the pain pathways in one of my legs below the knee - I can still feel physical contact, just as sensitively as ever, but I cannot distinguish, say, pressure applied by a pencil tip versus pressure applied by a needle; *neither* is painful to me. I can also tell when something is at a temperature extreme, but not whether it's too hot or too cold, nor does it feel painful (I'm still waiting for an opportunity to win a bar bet by standing on burning coals, on just my left foot, longer than someone else can do the same). Interestingly, I still do have normal reflex responses, but without experiencing the usual pain. Given this (i.e., that the whole "pain" thing in our own system can so easily be thrown off), I find it impossible to believe that insects could feel pain the way we do unless they had EXACTLY the same nervous system, and they clearly do not. I rather expect that they experience stimuli the way my left foot does - pressure and temperature register, and can provoke responses and reflexes, but do not induce *pain*.

Peace,
--

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phone: (951) 827-4315 (standard disclaimer: opinions are mine, not UCR's)

Lepsters,

I would like to recommend Daniel Dennett's "Kinds of Minds" as a good read on the topic.

John

Hello Doug and all,

Many thanks for all your replies so far. I was discussing this issue with a colleague, himself a zoologist, on the way home this evening and he specifically mentioned the lack of signs of distress in invertebrates

that have been damaged as an indication that they did not feel pain - at least not in the way we understand it.

I would still be interested in specific references on work that has been done relating to this issue. I don't remember specific references when this was discussed a few years ago. Perhaps I need to search the Leps-L archive! Any further thoughts or insights would also be welcome.

Many thanks once again.
Nick

Nick Greatorex-Davies wrote:

>I would still be interested in specific references on work that has been
>done relating to this issue. I don't remember specific references when
>this was discussed a few years ago. Perhaps I need to search the Leps-L
>archive!
>

I am not sure searching the archives is an alternative. In the past I have done this for other topics, but it appears after a certain length of time back the subject title is still in the Newsgroup listing, but the body is missing. My guess is that it has been deleted as part of List maintenance. Maybe it is just the way my operating system is working or set up.
Stan

Doug,

While I agree that there are nerve fibers (alpha and c fibers) and parts of the cerebrum dedicated to pain perception, I believe the actual receptors are fairly generic neurons. Thus they only respond to extreme stimuli. Which usually involves body damage. It is the brain's interpretation that is the main determining influence on our experience of pain. If transmission are coming down the special fibers, the brain interprets the experience as pain. Similarly if you bump your retina you see stars. There are no "bump" receptors in your retina.

Patrick

>While I agree that there are nerve fibers (alpha and c fibers) and
>parts of the cerebrum dedicated to pain perception, I believe the
>actual receptors are fairly generic neurons.

I hate to drag it out, but then maybe you're not recalling correctly - I can even remember, back in cell biology in college, an image of a cell with a rolled-up end like a jelly roll, with the axon encased in myelin and folded over so that it was very sensitive to pressure, and being told this was a special pain receptor; the term that comes to mind is "nociceptor". It was also my understanding, from my insect physiology lectures, that arthropods did not have nociceptors. Checking on Google just now, there are 26,300 hits on the term

"nociceptor", but not one case where the term appears in conjunction with the term "arthropod" or "insect". One would expect that if insects had 'em, at least ONE of those >26,000 citations would refer to insects.

Peace,

--

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Doug Yanega appears to have answered this question--but it might be worth adding the following quote from Snodgrass (Principles of Insect Morphology, 1935): "Insects are not known to have any specific organs for the perception of temperature, though they are highly responsive to temperature changes, nor are they known to have pain receptors or proprioceptors other than the terminal endings of sensory nerve fibers on the skin, muscles, and other tissues." (p. 512).

As regards insects' ability to 'show very little outward sign of distress' after serious injury, consider the male praying mantis who continues to copulate after the female removes his head. This has nothing to do with pain, of course--since one can't feel pain without one's head--but it does indicate that insects work in very different ways than vertebrates...

Like Doug, I have had a situation in which my ability to feel pain in a localized area was destroyed (for some time). This was the consequence of removing a wisdom tooth--a nerve was scraped resulting in my total inability to feel pain in part of my lower lip. I could feel pressure, but not pain. (I referred to this as 'iatrogenic leprosy'). Fortunately, this condition did not last more than a few months, since I was continually biting my lip by accident. A vague feeling of pressure was not enough to prompt me to instantly stop a bite.

Ken Philip

Ken,

Insects certainly can detect and respond to heat. Not only can some thermoregulate individually (for example Bernd Heinrich's bumblebees, an example that postdates Snodgrass) but some ants and of course honey bees thermoregulate their nest and hives very precisely.

As we have all agreed from the start of this discussion, there is plenty of evidence that insects behave differently than mammals when damaged. My contention is that this behavioral difference is probably due to the experience created by the integration of the incoming information in the Central Nervous System rather than due to fundamental differences in the receptor cells. I agree that the presence in vertebrates of specialized nerve fibers for transmitting serious body damage stimuli may make a

difference that changes the experience of 'pain' qualitatively. But it is not absolutely convincing difference, since it is well known that insects, crustaceans and even mollusks will behave sometimes in a way that appears 'frantic' and 'panic-stricken'. And it is also true that vertebrates (including myself upon breaking a leg) often go into some state of 'shock' in which pain is experienced very differently than is normal for a vertebrate. This state of shock is partly mediated by endorphins. Insects also have opioid endorphins, that play possibly similar roles (Nunez et al 1998. Alarm pheromone induces stress analgesia via an opioid system in the Honeybee. *Physiology and Behavior* 63: 75-80). It is, of course, hard to know whether an opiated bee feels 'calmer' and less 'panic-stricken'. We see the creatures as little robots, while we convince ourselves that we are 'aware'. I am not trying to belabor the philosophy of all this, but the original question was ultimately aimed at tricky epistemological problems. Or maybe it was just about whether insect neurobiologists have adopted the term 'nociceptor'. If so, my bad.

Patrick

Brain facts:

Insect brains go up to about 1 million neurons with boy bees near or at the top.

Humans are estimated to have about 100,000 times that many.

This is probably why we humans are wondering whether insects experience pain, while the bees are busy hunting for pollen ... and mates.

Patrick

Sorry to add this so late-- been tied up-- but, about insects often showing "little outward sign of distress" after serious injury:

A few years back, someone in the lab where I did undergraduate research was measuring the pumping rate of the cibariopharyngeal (nectar) pump in the moth *M. sexta*. To do this, he had to remove the heads of quite a few moths that were chilled before surgery. Since he needed only the heads, he set the rest aside. The headless moths, once they returned to room temperature, behaved as though they did not miss their heads much; they walked, shivered their wings to warm up, flew-- and, in one case, mated, though possibly only because they were in a small container.

Yikes.

Woody

Hi:

this seems odd (naturally) but, what else is the evolutionary aversion mechanism for survival? (besides God's Plan, of course) no pain - no gain.

Bill

Many thanks for all the replies on this one - much appreciated as I

continue to develop a rational and informed approach to insect collecting and one I can communicate to others (or at least try to).

Best wishes to all
Nick G-D

Karanji Lake Butterfly Park, Mysore - By Tanuja, Education Officer, Mysore Zoo

Introduction:

The Butterfly Park, novel in conception and unique in execution is an important part of the Karanji Nature Park, which has become one of the main attractive destinations of every nature lover who visits Mysore. An opportunity to watch various species of butterflies in their natural habitat is unique and leaves us with a life-time experience.

Butterfly Park:

Karanji Tank, which has a total area of about 90 acres, was taken over by the Mysore Zoo during 1976, and has been developed and restored completely with the financial assistance of Asian Development Bank during 2004.

The Butterfly Park was established in the year 1999 and efforts were undertaken to create natural conditions for these beautiful insects. Since then, this island has become a favored natural habitat for the winged beauties. As a part of restoration activities of Karanji Lake, this area was developed as a butterfly habitat by planting both caterpillar host plants and nectar yielding ones. The ambient temperature and humidity here are very conducive for these creatures.

Butterflies:

Butterflies, the winged jewels of the insect world, are the most colorful and attractive creatures of all insects. They have fascinated laymen, poets, and scientists alike by their delicate ephemeral beauty. They play an important ecological role mainly as pollinators of many wild plants and as excellent indicators of environmental changes - especially pollution and habitat destruction. They also constitute one of the important components in the food chain of birds, reptiles, spiders and predatory insects.

The butterflies along with moths constitute the second largest group of insects and belong to the Phylum Arthropoda, Class Insecta and order Lepidoptera. As the name of the order indicates (Lepis = scale, Pteron = wing) their wings are covered with delicate, loosely arranged scales, which come off as powder if one handles a butterfly.

There are more than 13,200 butterflies in the world grouped into 5 families Papilionidae (Swallowtails) Pieridae (Whites and Yellows), Nymphalidae (Brush-footed butterflies), Lycaenidae (Blues) and Hesperidae (Skippers). In India there are 1501 species and Mysore has about 160 species. Representatives of all the families can be found here.

India has both the largest butterfly of the subcontinent – Southern Bird Wing with a wingspan of 190 mm and the smallest – Grass Jewel with a span of 15 mm. While the latter is more common in the Butterfly Park, the former is a rare visitor.

Life Cycle:

Butterflies exhibit the phenomenon of complete metamorphosis in their life cycle starting from tiny eggs to adults, through the stages of voracious plant eating caterpillars and quiescent pupae after called chrysalis stage.

Generally the butterflies have a short life span, the egg stage accounting for 2 to 4 days, the caterpillar stage taking 15 to 40 days, pupal stage ranging from 6 to 15 days and adult stage of a few days to a couple of months.

Butterflies are very specific in their choice of host plants, both to lay eggs and to feed on nectar as adults. Some of the main host plants in the park are Aristolochia, Asclepias, Callistermon, Cassia species. (both cultivated and wild), Coleus, Crotalaria, Cuphea, Ixora, Jatropha, Murraya, Nerium, Passiflora, Plumbago, Sida etc. Due to presence of suitable host and nectar plants, this area has become a treasured niche for nearly 60 species of butterflies. However, it must be remembered that butterflies are highly seasonal and one may not find all the documented species. The best season to see more butterflies is post monsoon.

The most notable butterfly species to be found here include, Blue Tiger, Blue Mormon, Common Crow, Common Cerulean, Common Jezebel, Common Wanderer, Emigrant, Grass Yellow, Lime Butterfly, and Plain Tiger.

Butterfly Migration:

Some butterflies exhibit the peculiar habit of mass migration, a phenomenon which is still not clearly studied in India. The most prominent migrants in Mysore are Common Indian Crow, Double Branded Crow and Dark Blue Tiger. Large-scale migration of butterflies can be observed twice in a year – once, during the first week of April, being the peak migration time, and second during the first week of November – provided the conditions are suitable. One may also observe large congregations of these species on selected plants such as Callistemon, Heliotropium, Crotalaria etc., during this period.

Butterfly Identification – Ceruleans

Text and Photographs

Kishen Das

Mysore

Word: “Cerulean”

Noun:

- 1) A light shade of Blue

Adjective:

- 1) Of a deep somewhat purplish blue color similar to that of a clear October sky

Species: There are three species of ceruleans, namely

- Common Cerulean(*Jamides celeno*)
- Dark Cerulean(*Jamides bochus*)
- Metallic Cerulean (*Jamides alecto*)



Common Cerulean(*Jamides celeno*)

Dark Cerulean(*Jamides bochus*)

Metallic Cerulean (*Jamides alecto*)

Identification: As the name suggests, ceruleans are characterized by vivid shades of blue. The color blue is apparent on the upper side of their wings. The fore wings are marked with straight lines and their pattern changes with seasons. Typically the wet seasonal form will have well defined grey-whitish lines. In case of dry seasonal form, the lines become broader and close to ash colored.

Common Cerulean (*Jamides celeno*) is a tiny butterfly with slow flight and it can be commonly found in Plains, Scrub jungle, Dry deciduous, Semi-evergreen, and Evergreen habitats. Male visits damp patches and droppings. Females spend more time searching for the host plants and laying eggs.

Dark Cerulean (*Jamides bochus*) is a fast flying butterfly with a dazzling blue color on the upper side. This blazing blue color on the upper side is very useful in identifying this butterfly in the woody areas, plains, and scrub, where they are normally found. They usually settle down on the tip of the leaves. And in case of disturbance they launch themselves into the air and again come back and sit on the same leaf.

Metallic cerulean is relatively uncommon and can be found in evergreen and semi-evergreen forests. It looks very similar to Common Cerulean except for the bright metallic blue coloration on the upper side and the broken third line from the base on the forewing.

Difference in the Blue shades on the Upperwings in Ceruleans



Common Cerulean(*Jamides celeno*)



Dark Cerulean(*Jamides bochus*)



Metallic Cerulean (*Jamides alecto*)

Host Plants: *Tridax*, *Xanthophyllum flavescens*, *Sida rhombifolia*, *Chromolaena*, *Alternanthera*

Behavior: Common Cerulean is a very common butterfly often seen feeding on the flowering plants. It can also be seen mud-puddling on damp patches along the streams and rivers. They don't form a huge puddling congregation and usually can be seen in numbers of 1 to 4. Common Ceruleans breed throughout the year.

All the ceruleans have this typical behavior of rubbing their hind wings against each other and thus exposing the blue coloration on the forewings. Often this blue coloration is sufficient to identify the cerulean, provided you are a seasoned butterflyer. Till now I haven't seen them basking in the sun.



Common Cerulean(*Jamides celeno*) - Dry Season Form



Wet Season Form



Line Blues - That look similar to Ceruleans.

What you can do? It would be interesting to study the puddling and nectar preferences of Ceruleans and to see whether it differs between the 3 species.

Gata Asopalav

Poem By Usha Desai , Mumbai

Just for your elegant leaves!
 Man being man
 Soon
 A cultivar came up
 Polyalthia longifolia var pendula!
 This was even more graceful
 Tall, tall, tall, tall
 Like a lamp post
 No, even higher than that
 Your branches were short
 Drooping..Hugging..

Hidden in these branches
 Among the leaves
 I searched for your flowers
 They were tiny stars
 After few weeks I noticed
 Floor was full of
 Dark purple fruits & seeds
 Bats had visited !
 I picked up the fruits
 Washed them, ate them
 Yes they were tasty
 But the pulp is so little
 No wonder humans
 Eat it only in scarcity

Asopalav
 After your arrival
 Our city
 Has inherited
 So many beautiful butterflies
 Tailed Jay
 Common Jay
 Blue Bottle
 Spot Swordtail
 Because
 U are their food plant

Thank U
Asopalav.....a forest tree
For bringing
Forest butterflies
In my garden
Now
My garden is visited
By bats,birds,squirrels..

Asopalav
The Sacred Tree
U shall always
Be dear to me.

ButterflyIndia Meet, 2007
An Invitation by Vijay Barve, Bangalore

Invitation : ButterflyIndia Meet 2007 : Eastern Ghats

I am happy to invite you all to "**ButterflyIndia Meet 2007 : Eastern Ghats**". This year the meet is planned at Rampachodavaram Near Rajamundry (60 Kms). in Andhra Pradesh (More details on how reach will be posted soon). The meet is scheduled between **16-19th August 2007**. The meet will be organized by ButterflyIndia and Butterfly Conservation Society, Andhra Pradesh. Primary objective of this email is to get a number, which will help in better planning. More details on formal registration will be made available in the due course.

The agenda of the meet is going to be full of field sessions and interactive sessions on topics related to butterflies like identification, conservation etc.

Anyone interested in serious butterflying is welcome for this meet. We expect them to be members of [ButterflyIndia Yahoogroup](#).

To express your interest in this meeting please click [Here](#) and enter the detail in the Yahoogroups database (You need to log in using yahoo id), or send an email to [me](#) .

Invitation : ButterflyIndia Meet - 2007 : Western Ghats

I am happy to invite you all to "**ButterflyIndia Meet 2007 : Western Gahts**". This year the meet is planned at Shendurny WLS Near Trivandrum in Kerala (More details on how reach will be posted soon).

The meet is scheduled between **1-4th June 2007**. This meet will be organised by ButterflyIndia and Warblers and Waders, Trivandrum.

Primary objective of this email is to get a number, which will help in better planning. More details on formal registration will be made available in the due course.

The agenda of the meet is going to be full of field sessions and interactive sessions on topics related to

butterflies like identification, conservation etc.

Anyone interested in serious butterflying is welcome for this meet. We expect them to be members of [ButterflyIndia Yahoogroup](#).

To express your interest in this meeting please click on the link (<http://pets.groups.yahoo.com/group/ButterflyIndia/database?method=addRecord&tbl=10>) and enter the detail in the Yahoogroups database (You need to log in using yahoo id), or send an email to [me](#) .