Occasional Paper No. 7

FutureGenerations
Graduate School

Applied Community
Change and Conservation

Butterflies and Natural History of the Siang Valley, Arunachal Pradesh, India

Robert L. Fleming Jr.

July 2006

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Robert L. Fleming, Jr., Future Generations
www.future.org

A Five-barred Swordtail, *Pathysa antiphates*, (rear) and Lesser Jay, *Graphium (Zetides) evemon*, at c. 300m/915 ft, Siang Valley, 17 July

2006

Notes on some Butterflies and Natural History of the Siang Valley, Arunachal Pradesh

In July 2006 we had a splendid visit to the Siang Valley [also known as the Dihang Valley on some maps] in Arunachal Pradesh, northeast India, traveling on the 17th from Pasighat to Yingkiong and then over to Shimong village. On the 18th we attended meetings in Shimong, and then returned to Pasighat on the 19th. When journeying on the true right bank of the Siang, we were on the easternmost slopes of the Himalayas and in a tropical biome, the slopes lush with vegetation. Even where agriculture predominated, the primary color was green; only hamlets and very recent tracts of slash-and-burn agriculture showed brown

Wild gingers, bananas, and bamboos at c 400m/1020ft frame the lower Siang River not far from where it exits into the plains.

As mid July falls towards the center of the summer monsoon we expected to see

rainy season flowers in bloom and we were not disappointed for, among others, handsome wild gingers with pale, creamy yellow flowers on terminal inflorescences grew in some profusion while, a narrow-flowered, yellow *Impatiens* brightened the edges of rivulets. In addition, a small (2.5m-tall) wild banana with its yellow flowers projecting upward from the end of an erect stem grew in other gullies. Bananas, in my previous experience, exhibited hanging flower stalks so this species was a surprise.

A wild banana with a nearly erect flower and fruit stalk, 400m/1300ft., 19 July 2006

While enjoying this floral spectacle, we were on the lookout for butterflies but had expected to spot only a few as many Himalayan species emerge before the monsoon and are less common during the rainy season. However members of the Browns family, Satyridae, including the satyrs, arguses, bushbrowns and walls do appear during the wet weather. In addition, a number of handsome Nymphalids such as the Grand Duchess fly at this time of year. Thus on our July journey up the Siang Valley, a region little mentioned in the butterfly literature, we had expected to see a smattering of satyrids and nymphalids but not much else.

Thus we were amazed on July 17th to see, at about 11:30, a host of butterflies swarming about the road in front of us, many settling on damp soil near the edge of a small stream that crossed the track. Generally, butterflies appear most active on sunny days between 10:30 and 13:30, the activity likely correlated to sun intensity. And fortunately, on the 17th, we happened to be in the right place at the

right time, arriving at a microhabitat that appealed to these insects in the late morning with the sun out. We assumed that something about the combination of water and soil here attracted the insects for, in addition to the many butterflies, a profusion of honey bees, *Apis*, of apparently two species and possibly three, concentrated on damp patches.

The large Rock Bee *Apis dorsata* with an elongated, ringed abdomen was easy to spot. But there were others of two sizes, both smaller than the Rock Bee. The middle-sized bee possessed a comparatively wide abdomen, black-tipped and without rings, and was likely in the *Apis mellifera*, the Common Honey Bee, group. The abdomen of the smallest bee, likely the Indian Honey Bee, *Apis cerana indica,* displayed three or four pale rings. Dead bodies lying about indicated that visiting here had been going on for a while. In addition to the honeybees, an insect buzzed around flashing a stunningly iridescent, light-blue abdomen. Unfortunately, we succeeded neither in photographing the creature nor determining whether this was a bee or a fly. We did not record coordinates for this site but estimate the stream ford was at about 900ft elevation at about 28° 17' N and 56° 55' E.

A Large Yeoman, *Cirrochroa aoris*. A small *Apis* bee with a ringed abdomen sits to the left of the butterfly.

We identified several butterflies. The orange Large Yeoman dominated the scene,

individuals often sitting with wings spread. In addition, big, black Red Helen swallowtails were also conspicuous, often several insects sitting close to each other on the damp soil, their wings continuously vibrating. Just beyond the Red Helens, a host of Chocolate Albatrosses clustered together, the pale yellow and light green of their under wings less noticeable than the flashy white of their upperparts. Individual Paris Peacock swallowtails danced by, a large, aqua-blue spot flashing from the top of each hind wing. In flight, this creature looks black, but if seen at close range the black is covered with sparkling, iridescent green dots. One of the most exciting species, the Five-barred Swordtail, was not eye-catchingly colorful. Instead, its wings exhibited a muted green wash with accents of pale salmon orange, all set amid a black framework. An unusual feature of this throng was that all individuals, except one tattered Yeoman and a slightly damaged Red Lacewing, were remarkably fresh. Even the delicate “tails” on a Fluffy Tit were intact.

Roadside vegetation included numerous Screw Pines, *Pandanus*, seen here on the right and above the road as well as tree ferns and a climbing bamboo.

In total we counted, seven species of Nymphalids, five Swallowtails, two Whites, and a Blue, a Brown, and one Daniid [for list see appendix 1] and had we spent longer at the site we surely would have recorded a number of others. This assemblage indicates that the Siang Valley hosts a remarkable collection of butterflies, with concentrations reminiscent of famous earlier reports from the

Teesta Valley in the Darjeeling-Sikkim foothills [see Evans, p 34] and is in line with Mani's observation that forests in the eastern Himalayas host about five times the number of species than that found in far western forests [see Mani, p 13].

To us, the most remarkable butterfly noticed on the trip was seen on the 19th. I first mistook the insect to be a black dragonfly as it settled on a bush near the road. Only when its small triangular wings flipped up as we drove by did I realize that this was a butterfly, later identified as a Green Dragontail, a species with long black tails and a transparent "window" in the stubby forewings. On first contact this

A Common Map, *Cyrestis thyodamas*, near a Fluffy Tit, *Zeltus etolus*.

The conspicuous Red Lacewing, *Cethosia bibles*, did not appear to be common.

The aqua blue spot on the hind wing of a Paris Peacock, *Papilio [Achillide] paris,* flashes vividly in flight but is mostly hidden when the insect alights.

individual was not overly shy but as it was small and flew in quick, darting motions, we soon lost track of it. Another individual, seen at about 13:30 and some 30 km south of the first sighting, worked over a climber but soon disappeared without giving us a good view.

Butterflies can be indicators of environmental conditions. To have so many species concentrated in this area spoke of the excellent state of the forest adjoining the road. Alter the forest in any way, especially by removing suitable food plants**,** and immediately the composition of the butterfly population will change. To be useful indictors, species need to be easily seen, accurately identified, and be countable. Many butterflies fit this bill.

Besides the butterflies, one of the impressive sights of this journey was to find, in mid-monsoon, side streams with beautifully clear water cascading toward the muddy Siang. Not one of these streams was silt-laden, an impressive indication of superb plant coverage in the upstream watersheds!

The lowest elevation tracts along the Siang Valley, those closest to the plains, do not show much visible human activity but once one moves north of the Siang

"mouth" [the steep terrain immediately north of Pasighat], the majority of the slopes at tropical and lower subtropical levels show vegetation modified from the original state. Indeed, while the entire landscape may be green, much of this cover is many generations removed from the original forest.

A side stream overhung, on both the top right and left, by a fig, *Ficus*, a common genus in this biome.

“Jhooming” or slash-and-burn agriculture has been common in the Siang for many, many years and in some places extends from the river level up to about 1525m/5000ft or even 1830m/6000ft. In 2000, we were escorted by the villagers of Shimong on a camping trip into their higher forests and between 1525m and 1830m elevation were shown a forest with moderate-sized trees. Here the plants had not been re-cut for some thirty years and as the usual cutting cycle is less than this, we asked why. “Jhooming is labor intensive and we have a shortage of manpower,” was the answer. A combination of different aged “jhoomed” forests provides a variety of habitats and we noted different bird species in these edge forests than in higher, unaltered tracts.

Shimong village. The community hall where we attended meetings is the long building on the middle right.

Above 1830m, on the slopes above Shimong, we saw no slash-and-burn. These forests supply the village with many resources including browsing land for domestic mithun, *Bos fontalis*. These animals, a hybrid between the wild Gaur, *Bos gaurus*, and domestic cattle, are let loose in the forest where they feed on their own, unattended for long periods. These tracts also supply selected woods and medicinal herbs, and provide areas for hunting.

Many of the Adi men living in the Siang Valley are master hunters and little forest fauna of edible size escapes their efforts. Thus it was a complete surprise for us to learn that in 2003, village fathers of Shimong, led by Onyok Sitek, one of the village's most accomplished hunters, established a "steering committee" to suggest that the village forest surrounding Ekodumbing, their c. 3960m/13000ft sacred peak, should become an extensive no-hunting zone, the first locally initiated "community nature preserve" in Arunachal. This sanctuary would cover territory that is home to a number of unusual snakes, birds, and mammals, including the Brown Takin, *Budorcas taxicolor*, a large bovid most closely related to the Musk Ox.

Much of the subtropical forest biome of Arunachal is remarkably intact as settlements and slash-and-burn agriculture are often limited at these elevations. This is in stark contrast to most of the Himalayan system where, except in Bhutan, almost no extensive subtropical forest remains. The Arunachal forests are not pristine wilderness as they are used and in some places much of large, edible fauna has virtually disappeared. However, in general, subtropical habitat remains good and most species that utilize this biome likely still survive in remote pockets. Thus we would expect that when sustainable hunting programs are implemented, populations of edible fauna will recover and these forests will continue to be an important part of Arunachal's rich natural heritage.

My thanks to Future Generations International for the opportunity to travel in India and Future Generations Arunachal and to Omak Apang for making travel arrangements and for hosting us during our visit. Also thanks to traveling companions Daniel Taylor, Bill McKibben and Luke Taylor-Ide.

Evans, W.H. 1932. *The Identification of Indian Butterflies*. Bombay Natural History Society, Bombay, x+454pp+9 line drawings and 32 plates.

Mani, M.S. 1986. *Butterflies of the Himalaya*. Oxford, Delhi. X+181pp.

Appendix 1: Butterfly List

Danaidae
Glassy Tiger *Parantica aglea*
Satyridae
Jungle Bushbrown *Orsotrioaena medus*
Nymphalidae
Large Yeoman *Cirrochroa aoris*
Crusier *Vindula erota*
Yellow Rajah *Charaxes marmax*
Orange Oakleaf *Kallima inachus*

Common Map *Cyrestis thyodamas*
Red Lacewing *Cethosia biblis*
Vagrant *Vagrans egista*
Lycaenidae
Fluffy Tit *Zeltus etolus*
Papilionidae
Paris Peacock *Papilio [Achillides] paris*
Red Helen *Papilio [Menelaides] helenus*
Lesser Jay *Graphium [Zetides] evemon*
White Dragontail *Lamproptera curius*
Five-spot Swordtail *Pathysa antiphates*
Pieridae
Chocolate Albatross *Appias lycida*
Common Grass Yellow *Eurema hecabe*

Two *Apis* bees: a small species with a ringed abdomen on the bottom left and *Apis dorsata* the bee with the long abdomen on the ground on the right near the Large Yeoman, *Cirrochroa aoris*.