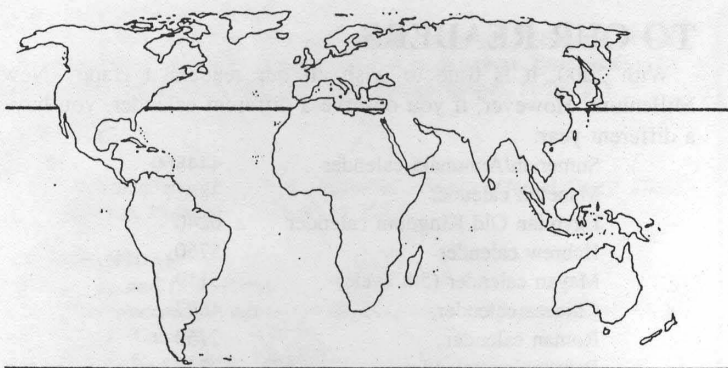




LEPIDOPTERA NEWS

December 1999

No. 4

BUTTERFLIES OF THE WET FOREST AT KAKACHI, SOUTHWESTERN GHATS, INDIA

by M. Soubadra Devy

The Western Ghats comprise a narrow strip of mountain range, extending north-south for over 1600 km along the west coast of India. The various rainfall regimes and orographic features of this region have bestowed the area with a diversity of plant and animal life and high levels of endemism. It has been declared as a biodiversity 'hotspot' of the world (Myers, 1988).

In the Western Ghats, butterflies have received some attention, largely because of the many hill resorts in the region occupied by British tea and coffee planters with a penchant for natural history. Some of these areas, like the Pulneys and the Nilgiris, are well known for their documented butterfly faunas (Evans, 1919; Wynter-Blyth, 1944; Larsen 1987a-c, 1988). As one moves down to the southern part of the Western Ghats, such documentation is almost nonexistent and only some attempts have been made in this direction (Elamon, 1993; Mathews, 1991).

The Agasthyamalai region, located in the southern tip of the Western Ghats in India (77°30'E and 8°N), is a region of high plant endemism. It is the only region in the Western Ghats which is today least fragmented (Ramesh *et al.*, 1997). Agasthyamalai Hills harbour a composite mix of contiguous dry thorn forests with less than 700mm annual rainfall at lower elevations, to the rain-soaked forests above 1100m which receive over 3500mm of rainfall spread over 7-8 months of the year. Such a diverse matrix of habitats resulting from variations in precipitation and elevation can be expected to sustain a variety of butterflies. The earliest butterfly collecting from the area was done more than 100 years ago in 1891 by Mr. H. Ferguson, a planter. No systematic survey has been done since then. Ferguson (1891) lists about 220 species from this region, which mostly pertains to the lower slopes and drier forests. The wet forests have remained unexplored until now.

A survey of butterflies was initiated in the wet evergreen forests at Kakachi in the Agasthyamalai region during 1990-93. Kakachi, located on the crest of the Ghats, receives over 3500mm of rain, from the southwest monsoon during June-July and the northeast monsoon during November-January. Kakachi was made accessible only since 1940 when a tea plantation was established nearby. However, it is now a part of the Kalakad Mundanthurai Tiger Reserve and enjoys total protection except for a small area that has been leased out for the tea estate.

A standard sampling protocol was followed for recording butterflies. An area of 30 Km² was overlaid with transects 500m in length along forest trails, which were then walked at fortnightly intervals. Species encountered during the walks were re-

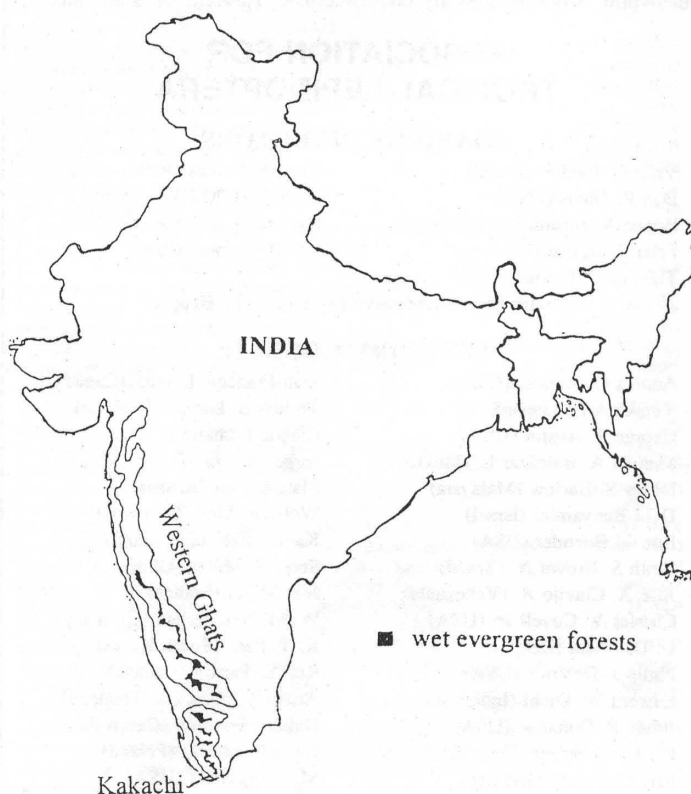


Fig. 1. Map showing the survey site in the southern Western Ghats.

corded and specimens collected. At suitable points inside the forest, tree rafts were erected to record the canopy butterflies, if any. Isolated grasslands and swamps inside the forests were visited regularly and specimens were collected. For some genera, like *Eurema* where many species appear similar, many individuals were collected and released after their identity was confirmed.

This paper presents an annotated list of the species recorded in the wet forest site only: totals for the entire Ghats region are much higher and more diverse (see Elamon, 1993; Evans, 1919; Ferguson, 1891; Larsen, 1987a-c, 1988; Wynter-Blyth, 1944). The nomenclature of the butterfly list has been adopted from Larsen (1987a-c, 1988) and Gunathilaraj *et al.* (1998). A total of 77 species from 5 families were recorded in the wet forest sector, including 4 species endemic to the southwestern Ghats (see list

(cont. on page 9)

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JOURNALS: separates (1990-95 only), \$1 first page, 25¢ each added page (specify author and citation). Past journal issues: \$22.50 each (1990-98) (1994 *HL* double issue: \$45). *Lepid. News*: \$10 per year.

CONTENTS for the journals are issued every two years.

EXPEDITIONS:

ARGENTINA (Tucuman and Iguazu Falls)
Please write (e-mail) for details.

Aug/Sep 2000

TO OUR READERS

With 2000, it is time to wish all our readers a Happy New Millenium! However, if you observe a different calender, you have a different year:

Sumerian/Annunaki calender	444860
Manetho calender	38857
Egyptian Old Kingdom calender	6240
Hebrew calender	5760
Mayan calender (5th cycle)	5119
Chinese calender	4697
Roman calender	2753
Babylonian calender	2749
Buddhist calender	2544
Date from Christ's birth	2003
Coptic calender	1716
Muslim calender	1378
French Revolution calender	208

So, Happy New Year for whatever year. In any case, no Y2K problem at ATL, and the journals will be on schedule shortly and for 2000.

Finally, on behalf of ATL, thanks to all the members who have added donations to their 2000 dues, both for conservation and for general support, and thanks to those taking out ATL debentures. Thanks also to members who have sent reprints of their papers to aid in the compilation of the annual Lepidoptera literature review (1998 review is in this issue).

J. B. HEPPNER
Executive Director

NOTES

- 2000 Annual Meeting:** April 14-16 in Gainesville.
- 2000 Annual Photo Contest:** deadline is March 15, 2000. Note that the Directors have decided henceforth not to have large prizes: as prizes were increased we saw a decline of photo submissions, so there seems to be no correlation between higher prize amounts and photo submissions. Thus, to save funds, only certificates will be issued to prize winners (except for \$100 to the Grand Prize winner).
- Cover Photos:** members can note that color photos for journal covers are always sought. ATL does not pay royalties, but you do have the gratification of having your photo selected for one of the front or back covers. Photos should be exceptionally sharp and in our page proportion.
- ATL Debentures:** a number of ATL members have already taken advantage of our interest rates and invested in ATL debentures. Please let us know what you can do to help! Returns of principal (at end of period) and interest (paid annually) are guaranteed.
- ATL Home Page:** see it at <http://www.troplep.org>. Coming in 2000: color photo files of worldwide butterflies and moths!
- 1999 Journals:** the journals are late this year but are in press (last issues of each coming in January). There is one supplement coming for *Holarctic Lepidoptera* (Gnorimoschemini of California) and one for *Tropical Lepidoptera* (Lepidoptera of Belize).
- Supplement Sale:** the backlog of orders has finally been mailed. Thus, anyone who ordered a supplement set at the special sale price and has not received it, please let us know.
- ATL Photo Archives:** Do not forget to consider ATL as the ultimate depository for your valued color slides of moths and butterflies and larvae. Do not let your investment of time and effort go to relatives who may not appreciate photographs of Lepidoptera; donate them to the ATL Photo Archives. You are also welcome to send listings of your holdings to add to the ATL Photofile database: let others know what species you have recorded on film. You may have unique life history photos never seen before.
- Elections:** please return your ballot to arrive by March 15, 2000.
- Life memberships:** the Directors have voted to increase life member dues (note enclosed information sheet), so beginning June 1 the ATL life membership will cost \$2,000 (or \$400 per year for 5 years).

LETTERS

A CONFESSION ON NAMING NEOTROPICAL LYCAENID BUTTERFLIES

Unwittingly, I became one of the hidden key persons of the very recently published book, *Nabokov's Blues*, written by my American colleague Dr. Kurt Johnson and his journalist friend Steve Coates. Yes, unwittingly, as Pilate in the Cred. As he did not leave any written record to rebel against this, Pilate receives special care from Lucifer. I am afraid that I will have the same treatment, but similarly, there will be no argument from my side of why I am in the center of this book, in spite of the fact that I personally place Dostojevskij much higher than Nabokov on the ladder of literary greats. Dostojevskij was not interested so much in butterflies, but he was interested in deepening the human soul. Probably this is the source. Thus, Dostojevskij is somehow situated closer to St. Peter than Nabokov in my hierarchy, and this is an objective fact mirrored by their art. And, this statement surely brings a heavenly good point for me. Good, less fire in hell hereafter.

But what I have to confess, because I was and still am involved in this: why do I name butterflies after Nabokov's figures? The answer is, I follow the European tradition. If I walk in the Hungarian countryside, I am always in the companionship of goddesses, fauns, hesperides, pierids. Our countryside is full of mythology. But mythology is an ancient fiction that influences so much the mind of the people of their time, as Lolita or the Yedis have at present influence. They are all fictional, but all became realities via taxonomy as my beloved springtime Sephirus and Alciphron, or the heavy summertime companions Alcon and Damon as well as Daphnis, the messenger of the Transfiguration in August in Hungary. Thus, I thought if I am conquering the New World, I will there settle on New World mythological figures. Mea culpa, I am the lepidopterist Pizzarro and conquer all the gods of the Incas. You are again conquered, poor Latin America.

And, I confess that all of these names are not patronyms as suggested by the English common names of the book of my friend Kurt Johnson, like Lolita's Blue, Luzhin's Blue, Pnin's Blue, etc. A patronym is usually given in honor to an existing or passed person, who impressed or influenced (let's hope positively) the author of the name. Almost all my Nabokovian names are based on fictional characters as the Adonis Blue is based on Adonis (*Polyommatus bellargus* = [*Papilio adonis*]), as Eros Blue (*Polyommatus eros*) is based on Eros, or the Xerxes Blue (*Glaucopsyche xerxes*) is based on Xerxes. Thus, I think their correct English name (if someone wants to use them) should be Lolita Blue (*Madeleinea lolita*), Luzhin Blue (*Itylos luzhin*), Pnin Blue (*Itylos pnin*), and so on. And notably, none of the Nabokovian figures left any influence on my life. But hopefully in the future I will name species like *Theritas augustinusi*, *Symbiopsis palestinai*, *Itylos gesualdoi*, *Madeleinea bachi*, *Polyommatus heinrichschuetzi*, *Agriades taizerogeri*, and *Arcas materteresae*. I have already named two taxa after my wife: *Polyommatus annamaria* and *Pseudolucia annamaria*. Interestingly, these are not patronyms suggesting that my beloved and talented wife has a mystical role for me. But the most influential person cannot have a name in my 'lepidoptery' because he has a tetraton — misinterpreted by many people (YHWH) — what is unpronounceable at least in Hungarian, my mother tongue.

And, at the end of my confession pagaent I have to offer a hidden aspect of my naming, as most of the literary people want to find hidden meaning in everything because it brings joy for them (see Freude --> Freud' [= joy]). So I help. Please read Jeremiah 10.11, and put it in the context of the current "biodiversity crises." What a prophecy! And what a shame!

ZSOLT BÁLINT
Hungarian Natural History Museum
Budapest, Hungary



DR. LÁSZLÓ GOZMÁNY HONORED WITH THE EÖTVÖS WREATH OF THE HUNGARIAN ACADEMY OF SCIENCES

The mentor of Hungarian microlepidopterology, Dr László Gozmány, former Curator of the Lepidoptera Collection of the Hungarian Natural History Museum, honorary member of La Sociedad Hispano-Luso-Americana de Lepidopterología and Societas Europaea Lepidopterologica, was honored by the Hungarian Academy of Sciences with the Eötvös Wreath. This medal is awarded to scientists who are over 75 and have a D.Sc. degree. The medal was inaugurated by the President of Hungary in the House of Parliament in November, 1999.

Dr Gozmány is the only lepidopterist who has actually been "resurrected." He was reported to have died in the *News of the Lepidopterists' Society* (1983, No. 3, p. 47), yet he still carried on his earthly work. He has just passed 78 and finished the extensive manuscript of the family Symmocidae (Microlepidoptera Palaearctica), to be published in 2000.

Dear Uncle Laci, we wish you at least another pair of successful decades and an eternal life on the Elysian fields of lepidopterology!

Dr. ZSOLT BÁLINT
Hungarian Natural History Museum
Budapest, Hungary

GUYANA MONTANE EXPEDITIONS

STEVE FRATELLO

41 Oak Neck Rd., West Islip, New York 11795

Earlier this year (Feb-Apr 1999), two expeditions were undertaken to explore Guyana's remote mountains. Sponsored largely by the Smithsonian's Biological Diversity of the Guianas Program, the expeditions proved a great success. A large amount of interesting material was taken, including what I am sure will prove to be a few new species. I plan to publish photos of both specimens and habitats in a future article.

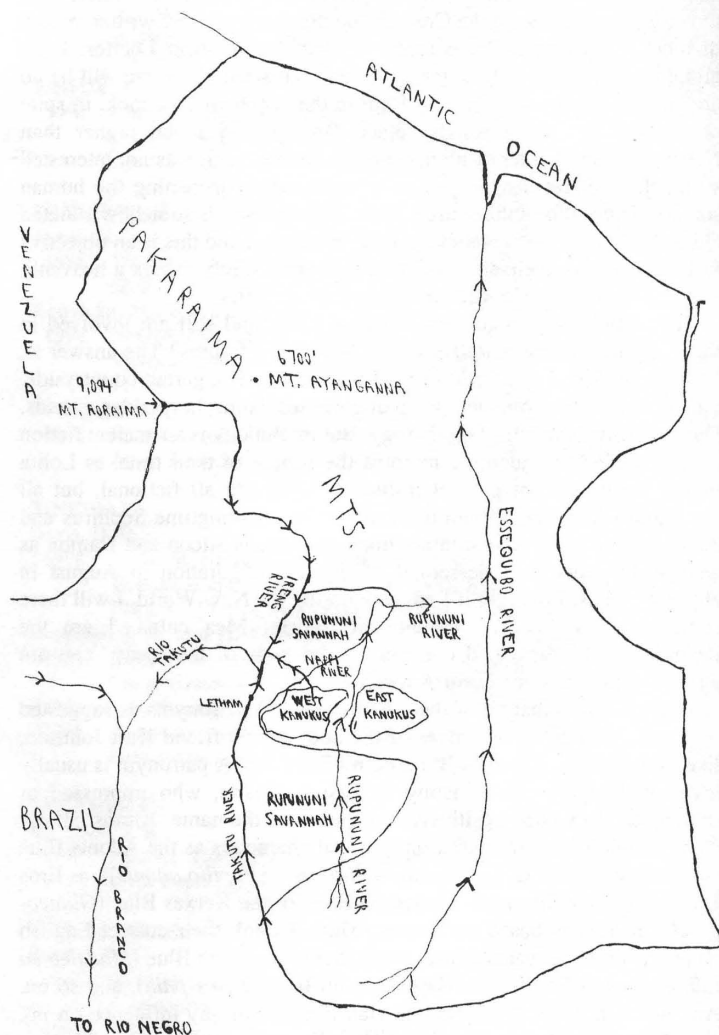
In between our two montane expeditions, my partner Dr. Robert Hanner, of the American Museum of Natural History (AMNH), New York, and I explored the incomparable Kaieteur Falls and gorge for 8 days, for me, my 4th trip there. I will also relate a few highlights from this short trip.

My thanks to Carol Kelloff and Dr. Vickie Funk for providing the main funding through the Smithsonian's Biological Diversity of the Guianas Program. Dr. Robert Robbins provided some additional funding through the Smithsonian's Entomology Department. Drs. Lee and Jackie Miller, Jason Hall, Keith Willmott, Bob Robbins, Don Harvey, and Andrew Neild all helped with some identifications and information on specimens collected, and the tepui fauna in general. My partners Rob, Romeo, Sammy, Wally, our helpers Vibert, Malcolm, Eddie, Marvin, Bradford and others, Father Roland, Gabriel — all accounted for two great expeditions and a highly successful collecting effort. My mother Diana Fratello did a great job typing the article. My thanks to all and of course to God who made it all possible. Helpful comments were given by A. Neild.

KANUKU MTS. BUTTERFLY EXPEDITION (February 20 - March 10)

The results of this, our 'secondary' expedition (Mt. Ayanganna being our primary objective), surpassed my wildest expectations. For some time I have been wanting to explore this isolated range surrounded in part by the vast Rupununi savannahs. I thought these mountains would have many faunal elements distinct from those found in the northern Guyanan forests where I had spent most of my time previously. And again, distinct from the Pakaraima Mts. (one previous expedition) from which they are geologically very different. But I was not really expecting the staggering variety and numbers of butterflies (and also diurnal moths) that we saw and collected. In some groups the single creek drainage (Nappi Creek) we explored surpassed in variety what I saw at the Tambopata Nature Reserve in southeastern Peru, one of the biologically most diverse regions in the Neotropics, and therefore the world.

For 18 days myself and partners — Rob Hanner, and Samuel Hendricks and Romeo Williams of Guyana, along with our friendly Indian guide Vibert James — explored Nappi Creek drainage and mountain (north slope of a predominantly east/west oriented range) from an elevation of 500 ft. to the lesser summit elevation of 3300 ft. Not explored were the flatland alluvial forests at the base of the range. On the day (Feb 21) we walked from Nappi Village to our first camp on Nappi Creek (500 ft.), this floristically different forest was hopping with butterflies. We were not collecting at the time. The next expedition there will hopefully have some time to explore and collect from these forests and, therefore, add to the knowledge of the diversity of this very rich mountain region.



Map 1. Region of Guyana explored for butterflies and other insects.

Before we went to the mountains, I collected briefly in the little-disturbed Rupununi savannah near Letham (elevation ca. 250 ft.). Typical open country butterflies were seen, some taken (*Phoebis*, *Aphrissa*, *Junonia*, *Euptoieta*, *Agraulis*, tiny blues, and some skippers). It was great seeing *Euptoieta* and *Agraulis* in their natural habitat rather than disturbed open areas created by humans. The same can be said of *Anartia jatrophae*, which was found with a number of other species in an Ite palm draw. The Ite palm draws, with their lush and more varied vegetation, are a richer butterfly habitat than the open savannah expanses.

My real prize catch on the savannah was a very tiny hairstreak. The morning we were to depart by jeep for Nappi village and then walk on into the mountains, before breakfast I walked out into the savannah to peruse the savannah flora and expanses, the seemingly far off Kanukus, and hopefully a lot of birds, including the exquisite fork-tailed flycatcher. On the way back for breakfast with my partners, I disturbed what I thought was a little 'blue.' On closer inspection it was a tiny grey hairstreak I did not remember

seeing in any book or museum. Guess what, no net! After looking at the little prize for awhile, I marked the spot where it was perched (on an herb) by what I thought was a distinctive large clump of savannah shrubs. Hurrying back to our lodge a quarter mile or more away to fetch my net, I hoped the little guy would stay put. Actually he had been quite sedentary besides the few times I had disturbed him. Hurrying back I found my distinctive shrub clump, the herb, and there on the herb what I thought might be a very interesting catch on the savannah. Subsequent discussion with Dr. Jason Hall and Dr. Robert Robbins (at the Smithsonian Institution) has revealed that my prize is probably *Strymon sabinus* (or *S. promissa*?), a not so rare catch. Dr. Robbins even related it might be our own very widespread and common *S. melinus*; very variable in its extensive range! The lesson still remains, take your butterfly net even at 6 in the morning in the open savannah where the main flying creatures you expect to see are birds!

As I noted earlier, the variety and numbers of butterflies seen and collected in the Kanuku Mountains was staggering. Of great importance to our collection effort was having two and even three people collecting at the same time, almost always in different places. Rob took a solo *Parides* (papilionid) of a certain species as did I (*Parides aeneas*). I saw *Battus crassus* (papilionid) a few times, but Rob took the only specimen, a glorious fresh male. Rob took the only *Stalachtis* (*S. calliope*), *Emesis*, and *Synargis* specimens (riodinids), a stunningly beautiful *Euselasia* (*E. uzita*), as well as a number of higher altitude (above 3,000 ft.) riodinids including a female *Lemonias*.

Romeo had a great eye for hairstreaks and became our 'great hairstreak hunter.' It is largely through his efforts that we got a significant Kanuku Mts. hairstreak collection. Significant among his catches were 2 male '*Thecla*' *bactriana* (one in very good condition) with their unusual orangeish striped undersides. I estimate we took between 30-40 hairstreak species, nearly as many as I took on my 5 previous trips to Guyana; 4 trips to various northern forest localities and one trip to a tepui in the Pakaraima Mts.

I took 2 female (?) specimens of a *Strymon*? species that Bob Robbins thinks is only known from a few Venezuelan specimens. One was taken in an Ite palm draw on the savannah, the other at approx. 2,000 ft. on secondary vegetation in a large land slip area on the slope of Nappi Mt. This land slip area was alive with butterflies when the sun was out, many being open area or secondary vegetation species not seen in the nearby forest: *P. thoas*, *Phoebis*, *Aphrissa*, *Dryas julia*, two *Eueides* species, *Eurema*, *Diaethria*, *Dynamine*, many skippers, and others.

My friend Sammy some days collected with a single mindedness that put my own efforts to shame. Actually, I like looking at trees, other plants, birds and other animals, the general forest scenery way too much to ever be so focused on collecting. With this effort Sammy a number of times ended the day with a prodigious catch. Especially noteworthy from Sammy's catch are two *Eurytides pausanias* specimens (papilionids), a number of *Memphis* specimens (charaxines), a spectacular mimetic castniid, and a great array of skippers. As for *E. pausanias*, this was my first experience with this spectacular mimetic papilionid.

A highlight for my catch was an exquisite little *Syrmatia* (riodinid). Having swiped at and missed a *Parides* on a forest trail, I could not believe my eyes when I saw this tiny black riodinid with its long fluted tails fluttering down the trail towards me. After a successful catch, looking at that fanciful and exotic design, no other creature could have more imprinted on me, 'You are in the Neotropics!'

As the collecting days mounted, I realized we were recording a staggering variety of euptychiine satyrines. All told, we took approximately 30 species during our 18 days in the mountains. I think this is greater variety than I collected in my 3 months at Tambopata, Peru! Noteworthy are a number of species we took in the summit zone forests which contained at least two species of bambusoid grasses (*Chusquea*?). These bambusoids are no doubt the hostplants for some of these euptychiines and almost definitely for *Splendeuptychia junonia* and *S. furina* (*S. furina* caught at approx. 2,700 ft., a few hundred feet below the summit zone but still containing abundant bambusoids). There is a good chance one or more of these summit zone euptychiines are new taxa, almost definitely so for a small species close to *E. picea*.

This kind of variety was not restricted to the euptychiines. I estimate over 100 skipper (hesperiid) species and upwards of 50 riodinid species; all told, over 300 species collected. Nowhere in my 5 previous trips to Guyana have I seen this kind of variety or numbers of butterflies. Maybe the incomparable Kaieteur Gorge comes close, but only in some groups. We took at least 5 *Parides* species, *P. sesostris* and *P. neophilus* being very common in certain areas. What a joy to see *Parides*, heliconiines, ithomiines and others swarming around some small pink blossomed trees along Nappi Creek's rocky banks. The Kanukus proved also very rich in pierids. I estimate we took and saw between 15-20 species. Genera I had not previously experienced in Guyana included *Melete*, *Perrhybris* and *Enantia*. Along with other *Phoebis* and *Aphrissa*, *P. sennae* coursed the creek byways and a number of *Eurema* species were taken.

Another surprise was seeing the elegant *Marpesia orsilochus* (nymphaline) fairly common. In my other Guyana trips I had seen only a handful of *M. orsilochus* specimens and very few other marpesias. They certainly were not seen along river and creek banks during the dry season as I had experienced in Costa Rica and Peru. And here in the Kanukus, *M. orsilochus* in my experience was to be found in forest light gaps more so than plying the waterways. Besides a good series of *M. orsilochus*, we took only one solitary *M. chiron*.

Why this great variety and abundance in the Kanukus? I throw out a few conjectures as possible explanations. The Kanukus are drained by rivers that feed both the predominantly north flowing Guianan and also the Amazonian river systems, so in part they are in a transition zone between two northern Amazonian subregions. Also, being in a drier region than the northern Guyanan forests, I believe drier rainforest elements in addition to elements of the northern Guyanan flora make for a richer flora and consequently richer fauna. And also being surrounded (in part) by savannah, the rivers act as corridors for open area (including savannah) species to 'invade' this forested mountainous island. This seems the case with the genus *Eurema* (pierids) which were represented by a number of species in these mountains, but hardly ever (if ever) encountered by me in the northern Guyanan forest region. But all of my conjectures still do not answer conclusively why this staggering number of butterflies was on the wing! Whatever the answers, we all enjoyed a superb trip. My partners heard the word 'unbelievable' from my mouth maybe too many times as once again great numbers and 10-20 new species were caught in our last collecting days in these rich mountains.

As well as butterflies, we saw troops of black spider monkeys nearly every day in the environs of our upper camp (ca. 1200 ft.). Howlers were heard and also seen a few times. Romeo saw a tamandua and a tapir, and with his great bush sense and tracking skills followed a tapir track to the summit zone. It's amazing the

places this large animal can go. Rob can attest to this as he and Romeo found tapir dung on top of a precipitous, rocky pinnacle he and Romeo explored one day. If not for Romeo's great bush skill we (including our Amerindian guides!) still might be looking for a way up to the summit zone in these rugged mountains!

Just a few feet off our trail up the mountains was the display area for a large lek of that 'flame of the forest,' the Guiana cock-of-the-rock. Romeo, Vibert and Malcolm (Amerindian helper) counted 16 males at one time on the day they made this track! Following the track up and down the mountain we all enjoyed immensely the 'flames of the forest' on this remote mountainside. Not all creatures were admired aesthetically. Romeo's sure shot brought 2 collared peccaries and 2 curassows to the pot (4 shots, 4 kills). This fresh meat was greatly enjoyed by all, a great addition to already good bush cooking of Romeo and Sammy. Also, not to be forgotten were the incredible orchids we saw. Nappi Peak had such a profusion, Romeo said it was the richest area he had seen yet on all his trips.

My award to my partners and myself for such a great trip — a walk of approximately 25 miles in a little over 24 hours out the mountains and across the silent savannah. Under a sublime savannah sky we trudged back with blistered feet (except Romeo). I'm sure my partners thank me for this experience as I thank God above for yet another once in a lifetime trip and experience. I hope to be back in these rich mountains again.

KAIETEUR FALLS AND GORGE

This 8 day trip in March brought my total time at the falls and in the gorge to about 60 days. March/April is normally the small dry season in Guyana, but Rob and I experienced a great deal of rain during our stay at Kaieteur. During sunny intervals, butterflies were fairly numerous though less so in general and in certain groups than in the main dry season, from my experience in October/November during a previous trip.

Up to 4 species of *Eurytides* flew in fair numbers; 1 or 2 large zebra swordtail species, a few smaller zebra swordtails (*E. agesilaus*), and a few sublime *E. dolicaon*. This time of year seems to be a main flight period at Kaieteur for the seasonal *Eurytides*. I saw a few at this time of year on a previous trip (Apr 1993) but did not encounter any when I was there in the main dry season. This was my first time to Kaieteur that I did not see the not uncommon *Parides triopas*.

Always to be encountered in the gorge are fair numbers of the exquisitely patterned charaxine, *Hypna clytemnestra*. Encountered for the first time on this trip was a female *Siderone marthesia* (Charaxinae), with its rich earth tones on the underside, and *Dynamine* species (Nymphalinae).

I have encountered over 100 riordinid species during my trips to Kaieteur. Usually rich in *Mesosemia* variety (10-15 species encountered so far) and flying in good numbers, they were scant this trip. A couple of new *Euselasia*s were added to the list (8 species now): a female in the *E. euboea* group and a female in the *E. gordios* group. I encountered *E. issoria* flying in good numbers for the first time in the gorge. Its close relative, *E. euodias*, was there sympatrically and synchronically. What a joy to see these two magnificent *Euselasia* together!

Unlike the main dry season when they are numerous, hairstreaks seem scarce in the gorge in my March/April experience so far. Along the main trail down into the gorge, *Calycopis* were abundant in certain spots among mossy rocks (Oct-Dec). I did not see one on this trip. The only hairstreaks seen were *Arawacus* and a few *Thecla tarena*.

MT. AYANGANNA EXPEDITION (March 30 - April 27)

The goal of this expedition was to bring back a good representation of the little known Guyana tepui fauna and hopefully some new taxa from the never explored higher parts of the mountain. In both regards the trip was a great success. The number of specimens taken for the 31 day expedition was not great, especially when compared to the bonanza taken in the Kanuku Mts., but this was more than made up for by the good number of 'interesting' taxa taken including at least a few new species. A big surprise was the rich assortment and large number of riordinids taken, many from above 3,000 ft. elevation. The one disappointment besides not collecting on the summit plateau (ca. 6,700 ft.) was not seeing or catching any pronophiline satyrines; my second Guyana tepui expedition (first one being Mt. Wokomung - ca. 5,500 ft.) bearing this result.

Again, the success of the expedition was due to the great effort of our crew — my partner Rob, head camp man Romeo, and Wally Prince. Father Charles Roland, Anglican priest from Imbamadai, was instrumental in helping us get to Chinowieng village for the start of our expedition: from Imbamadai to Chi Chi Falls by boat, from Chi Chi to Chinowieng with the help of Amerindian carriers. All this came about in a smooth and very timely manner due to the help and kindness of Pastor Roland. Once in Chinowieng village, vice-captain Gabriel welcomed us very warmly and helped greatly in getting us the support we needed (guides and carriers). His tranquil spirit and kindness will not be forgotten. Eddie and Marvin were our two main helpers from Chinowieng, young Bradford spent a lot of time with us also, all three instrumental to our successful expedition.

Now for the butterflies; our 'interesting' catches broken down into the major butterfly groups.

Papilionids.— A few *Parides* seen in the lower montane forest, a few swallowtails (*Eurytides*?) seen flying very rapidly above the tepui scrub (ca. 5500 ft.) but unfortunately none captured.

Pierids.— Mt. Ayanganna proved to be a dismorphiine mountain! On my five previous trips to Guyana I had taken 2 species: the fairly common lowland species *Moschoneura pinthaeus* and *Dismorphia crisia* (probably subspecies *roraimae*) in Mt. Wokomung's cloud forest (ca. 4,700 ft.). As well as these two species, Mt Ayanganna yielded three specimens of the rarely collected *Dismorphia laja* flying in the lower montane forests (ca. 3,000 ft.), and flying with *D. crisia* in the cloud forests (ca. 3,500-4,500 ft.) was *D. zathoe* (subspecies *proserpina*?). A number of both males and females of *D. zathoe* and *D. crisia* were taken. A couple of specimens of *Archonias bellona* were taken in the lower montane forest just as it was in Mt. Wokomung's lower montane forest. The species seems representative of this habitat and also seems quite local. The real prize among the pierids was a nice series (10 specimens) of *Catasticta* in the *C. sisamnius* complex. My colleague, Andrew Neild (author of *Butterflies of Venezuela* series), notes the only *Catasticta* taken in the tepui region previously is *C. duida* from Mt. Duida, Venezuela, and a few other tepuis far to the west, but also taken on Mt. Roraima. Almost definitely a Guyana first, we are both excited about finding out which species Ayanganna's *Catasticta* belong to (could be *C. sisamnius* subspecies).

It was very exciting for me to first see them in nature. One of my tepui fauna questions was, "Are there any *Catasticta*?" This was answered on our second to last day in Ayanganna's forests on our long trek back to Chinowieng village. At the end of a grueling hike from our Pong River camp to our Koatse River camp, I happened to look up at a flowering small tree on the Koatse floodplain. There to my amazement were a few *Catasticta*

on the blossoms along with a solitary *Archonias*. Some time later along with a number of ant bites (small army ants were in the area), 7 *Catasticta* and the *Archonias* had been captured while feeding at the white blossoms. I also saw *Catasticta* flying fairly low along the Koatse's river edge vegetation. The next day Bob took 3 more specimens to complete our take of *Catasticta*!

Ithomiines.— Small clear-winged ithomiines definitely dominated Ayanganna's fauna. We took 7-8 species from 2,500 -5,500 ft., including a few specimens of a species that Andrew Neild is describing from the Venezuela tepuis. A few large tiger-striped ithomiines were seen in the lower montane forests, a couple of *Hypothyris* taken there, and a number of *Napeogenes* taken from approx. 2,500-4,000 ft. (4,000 lower cloud forest) by our team, though I did not see or take a one!

Heliconiines.— A small disappointment was not seeing *Heliconius elevatus* in Ayanganna's high elevation forests as I did at Wokomung. I'm sure it occurs in season.

Nymphalines.— On our return from Ayanganna's summit area we encountered many nymphalines in the lower montane forests. On our hike in they had been scarce, as had butterflies in general. In a large tree fall light gap I encountered 10-20 species during a number of hours on that bright sunny day. That same day, Romeo took an *Adelpha* that is a first for Guyana, known from only a few specimens; it is being described by Dr. Keith Willmott. We took one or two other *Adelpha* species that were known mainly (entirely?) from the Andes, one taken by me on the summit ridge at 4,500 ft. I also saw a couple of *Memphis* species on this summit ridge at 4,500 ft. which definitely would have proved interesting if taken. From the light gaps in the lower montane forest we took a good series of *Eresia aveyrona*, a species I had not encountered previously in Guyana.

Morphines.— Definitely a collecting highlight was taking 5 specimens of *Antirrhea ulei*, which about doubles the world's collection. We could have had 7 but I missed on opportunities to catch two fresh males. Getting *A. ulei* was a highlight, even more so a spectacular fresh female. Described from a female taken on Mt. Roraima, that type is now lost; all specimens in collections (one taken by me on Mt. Wokomung) have been males until now. On one of the many rainy mornings during the first half of our trip we were all relaxing in our hammocks when Wally pointed to a tree trunk just outside our tarp and said "look at that butterfly." I looked and he pointed a few times till finally I saw the glorious insect with wings folded resting on the trunk. I slowly approached it and then plucked a recently emerged *A. ulei* female off the trunk with my fingers, a great prize added to our collection!

Satyrines.— We definitely took some 'interesting' satyrines, but as stated earlier, no pronophilines, which normally are such a conspicuous part of the Andean and Central American montane forests. I saw a few *Oressinoma* in the cloud forest understory (ca. 3,500-4,500 ft.); Romeo caught the only specimen of this striking satyrine. I believe this to be the second locality record for Guyana, the first being the small series I took on Mt. Wokomung (ca. 4,700 ft.). Two euptychiine (?) species were taken above 5,000 ft. elevation, one a single specimen, the other a series of 10-15 specimens. Both should prove to be very interesting. In the lower montane forests (ca. 3,000 ft.), I took a small euptychiine in the *E. picea* group that I believe will prove to be a new species. I took the same small satyrine at this elevation in the Kanukus and I believe Drs. Jason Hall and Keith Willmott have captured this same species in the Ecuadorian Andes. When some collecting time is spent (if ever) at different seasons on the summit plateau (ca. 6,700 ft.), I believe at least one pronophiline

will be discovered.

Riodinids.— Both a blessing and boon was the number and variety of riodinids taken on this expedition. Foremost for me was a spectacular variegated orange and black *Stalachtis* seen and taken between 4,500 and 5,500 ft., and I'm sure new to science. With its sustained flight, usually about 5 meters up, I had no idea what this butterfly was. Was it some strange orangeish satyrine, an ithomiine, pierid or day flying moth? With a shock and great joy the first capture revealed this glorious high altitude *Stalachtis*, probably the foremost highlight for me from our two mountain expeditions. Riodinid experts Drs. Jason Hall and Don Harvey, being the systematists they are, are more conservative about declaring it a new species in the highly variable genus *Stalachtis* until a genitalia study is done. Far from an expert, I am 99.9% sure it is a spectacular new species! I have field experience with *S. calliope*, *S. phaedusa*, and *S. euterpe* in Guyana, and this tepui *Stalachtis* is not alike to these species at all in facies, habitat, or habit. Actually, in facies not like any *Stalachtis* I have seen in museum or book. In their upper cloud forest (canopy 10 -15 in) and tepui scrub habitat, the fair number I saw were usually flying above net reach and the only one I saw land was on the inside of my net after capture! Kind of strange habit for *Stalachtis* and riodinids in general.

Not as thrilling aesthetically but maybe even more so scientifically was a smallish black and cream riodinid taken by Rob at 5,200 ft. About this insect Jason Hall said, "this is a phenotype I haven't seen before!" Also taken at this elevation were *Hyphilaria*, a surprise to me seeing them at this elevation. And Romeo took a female *Euselasia* in the *opalina* group; a great catch. We took a great collection of *Mesosemias* from the mountain, I estimate about 10 species. Due to Romeo's eye we have two males of the gorgeous *M. phace* and two jewels (ca. 1,600 - 2,600 ft) that I think will prove to be a sister species of *M. nina*. As for *M. phace*, we took a large female *Mesosemia* I think will prove to be the unknown female of the species. I have taken a few of these females in Kaieteur Gorge along with a few male *M. phace*. In two localities now, two single sex facies that look too much alike (on the underside) to be a mere coincidence. What is strange is that if *M. methion* is really known from males as well as females (as in D'Abrera's riodinid volume; BMNH collection), then those two specimens look suspiciously like my purported *M. phace* female: are they misidentified as *M. methion*? If not, these females I am purporting to be the unknown female of *M. phace* look too similar to *M. methion* for that to be mere coincidence. I think there must be a close relationship. Hopefully, one of our riodinid experts will unravel this and the many other *Mesosemia* mysteries! Another mystery being a female *Mesosemia* we took (ca. 3,000 ft.) and that I also took on Mt. Wokomung (ca. 3,000 - 4,700 ft.). It looks somewhat similar to my purported *M. phace* female and probably is an unidentified species. We also took a great series of the clearwing ithomiine mimic, *Ithomiola floralis* from the mountain (3,000-4,000 ft.).

Lycaenids.— Not a great deal of hairstreaks were taken but we did manage one great catch. On his banner day, Rob took a female *Gibbonota numen* at approximately 3,000 ft. This is a first for the Smithsonian collection and one of a handful of specimens known to science. Romeo took a female of *Contrafacia ahola* (?) at approximately 5,200 ft. Dr. Robert Robbins related that this species is mostly to be found in dry areas. Well, Mt. Ayanganna certainly isn't dry but the tepui scrub and sandstone substrate perhaps explain its occurrence here. I took a ragged *Evenus*; several others including fresh specimens were seen. On a ridge at approximately 4,500 ft. I saw a few hairstreaks that I'm sure

would prove 'interesting'. The only problem was that they were perching at 6-10 meters, well out of reach of my net. The next expedition to the tepuis should definitely take some pole extensions!

Some limited but successful collecting was undertaken on the upland savannah (ca. 2,500-3,000 ft.) on our return from Ayanganna. Probably two species and a total of 3 morphs of *Junonia* were taken. Interestingly, 2 of the morphs I have not seen on the Kaieteur savannah (ca. 1,500 ft.) where *Junonia* can be abundant (at least 3 morphs occur here also). Two euptychiine species were taken including a few specimens of '*E. pharella*' (?). I also took a few specimens of this tiny satyrine on the upland savannah near Mt. Wokomung. About 5 to 10 skipper species were taken; no doubt some being 'interesting.'

The purpose of this trip was to collect montane butterflies but there certainly were other natural history highlights. The upland savannahs were ablaze with beautiful blossoms on our way to and from the great mountain. I imagine these tropical savannahs have flowers the whole year round. Approximately 10 flowering terrestrial orchid species, a few very spectacular, greeted us on the way in. A month later on the way out, the orchids had subsided, but a glorious Amaryllidaceae (Smithsonian botanist Vicky Funk's guess when we described the plant to her) graced the savannah's wetlands. Above a tight rosette of pointed leaves, a stalk up to 6 ft. tall was topped with a whorl of large yellow tubular flowers. Only found on the savannah's gravelly ridges was a strange plant with spindly branches that terminated in a cluster of strap-like leaves. Romeo was fairly certain it was a bromeliad. I am not certain but I believe I saw some podocarps (tropical conifers) at 5,000 to 5,500 ft. high on the mountain.

Mammal sightings were scant. We saw capuchin monkeys a few times, heard howlers a few times and Wally saw them once. Our Indian friends saw peccary a couple of times, but unfortunately none ended up in our pots.

Birds and bird sightings were numerous if only we could get a good look at them. On the summit zone a number of the species were very tame so we got great looks at these rarely seen inhabitants of Guyana's high mountains. Every day up there we would be sure to see brown-capped redstarts, rufous-breasted sabrewings, tepui brush-finches and sierran elaenias. Down below along a mossy creek (approx. 3,000 ft.), I got a great look at a rarely seen furnarid. Just as it should be, a sharp-tailed stream-creeper was hopping about the mossy rocks and low creek-side vegetation. And finally after hearing so many in the Kanukus as well as here at Ayanganna, through a window in the canopy I watched a white bellbird performing his incredible call for about 15 minutes from a dead snag illuminated by the mid-afternoon sun. Wally took notes on the bird life throughout the trip. He did the same for reptiles and amphibians. What was amazing was the abundance and variety of frog calls, especially in the higher forests.

Our expedition basically followed the plan laid out by the prior Terry Henkel/Bruce Hoffman Smithsonian botany expedition. We flew into Imbamadai from which we proceeded up the upper Mazaruni by boat to Chi Chi Falls. Up the scarp and across the upland savannah to Chinowieng village. From Chinowieng, another long savannah walk till about the last mile where we entered forest before our Koatse River camp. Close to Chinowieng we had to cross by boat the fairly large Haieka River in its forested valley. From Koatse, two more lower montane forest camps (approx. 3,000 ft.): at the Pong River and upper branch of the Kuiewa River. Next camp we climbed to approximately 3,500

ft. near the upper branches of the Kangu River. Next up and along some steep ridges to our final camp at approx. 5,200 ft. in the low forest and tepui scrub zone. Part of this short but steep trek was along a knife-edge ridge that separated the upper Potaro plateau to the south from the northern forested plateau we had just climbed from. On the previous Ayanganna summit zone expedition, Terry and Bruce had a further camp about 2 miles farther on the great subsummit plateau (approx. 5,500 ft.) that leads to the final ascent on to Ayanganna's summit plateau. Not having stoves and also because of the very wet conditions of the ground at this furthest camp, we were restricted from using it. We even had to bring up firewood to our last camp. All subsequent expeditions should definitely bring stoves! To spend anytime at all on the summit plateau one must use that furthest camp. All told we walked approximately 100 miles to and from Mt. Ayanganna from our starting point at Chi Chi Falls, with an elevation gain of 4,000 ft. In between, the only human habitation is the small Amerindian village of Chinowieng with a population of 100-200. Yes, we were remote! Hopefully we will go again and attain and spend some time on the summit plateau. Like this trip, it will be a great challenge.

To all that made this trip possible we give thanks, especially to our Creator who makes it all possible.



Fig. 2-3. Kakachi Forest: 2) view of forest. 3) Ladder leading to a canopy raft.

KAKACHI BUTTERFLIES (cont. from p. 1)

of species). More than half of the species belong to the family Nymphalidae, while exceptionally low numbers of species were recorded for Lycaenidae and Hesperidae. Ferguson (1891) lists many species from the latter two families but most of them are from the lower elevation dry forest. Almost all the species were encountered in the first year of the survey, while a few species were added during the following years that were also commonly encountered in dry habitats of lower elevations.

Appias lalage Doubleday, a Pieridae recorded in this survey, has not been reported from other parts of the Western Ghats (Larsen, 1987a-c, 1988; Wynter-Blyth, 1944): this species seems to have a rather disjunct distribution, occurring in the wet forests of the northeastern Himalayas and reappearing in the southern tip of the Western Ghats (Dev, 1999). Ferguson (1891) also reports the presence of this species on the western slopes under a different genus, *Hypocritia lalage*. *Appias lalage* is encountered commonly in all the seasons, particularly on wet rock faces and boulders above 1100m elevation (Dev, 1999).

There was no fauna exclusive to the canopy and all species could be encountered in flight at ground level. However, some large butterflies such as the Tree nymph, *Idea malabarica* (Moore), and the birdwing, *Troides minos* (Cramer), foraged on flowers of canopy vines and twiners. They were rarely seen on the understory trees and shrubs. In contrast, Red helens (*Papilio helenus* Moore) and Blue mormons (*Papilio polymnestor* Cramer), two large butterflies, foraged in the understory and along the streams.

Tropical wet forests are considered rich for butterfly species; however, Kakachi with only 77 species appears to be relatively depauperate. Unlike lowland wet forests, mid-elevation wet forests at Kakachi experience cold and wet conditions for over 5 months of the year and there is no continuous warm period all through the year. These climatic and altitudinal conditions probably cause species not adapted thereto to be infrequent or excluded, resulting in poorer diversity than would normally be expected of such plant-rich tropical forests.

SYSTEMATIC LIST OF THE BUTTERFLIES COLLECTED AT KAKACHI

(* evergreen habitat specialist; E = Endemics)

PAPILIONIDAE

Graphium agamemnon Felder & Felder
Graphium sarpedon Felder & Felder
Pachliopta pandiyana Moore
Papilio demoleus Linnaeus
Papilio helenus Moore*
Papilio polymnestor Cramer
Papilio polytes Linnaeus
Troides minos (Cramer)

PIERIDAE

Appias indra Swinhoe*
Appias lalage Doubleday*
Catopsilia pomona (Fabricius)
Calopsilia pyranthe (Linnaeus)
Delias eucharis (Drury)
Eurema hecabe Moore

NYMPHALIDAE

Acraea violae (Fabricius)
Argyreus hyperbius Evans
Ariadne merione (Cramer)
Athyma nefte Doubleday
Cethosia nietneri (Felder)
Charaxes bernardus Butler
Cirrochroa thais (Fabricius)*
Cupha erymanthis Fruhstorfer
Cyrestis thyodamas Evans
Danaus chrysippus (Linnaeus)
Danaus genutia (Cramer)
Discophora lepida Moore*

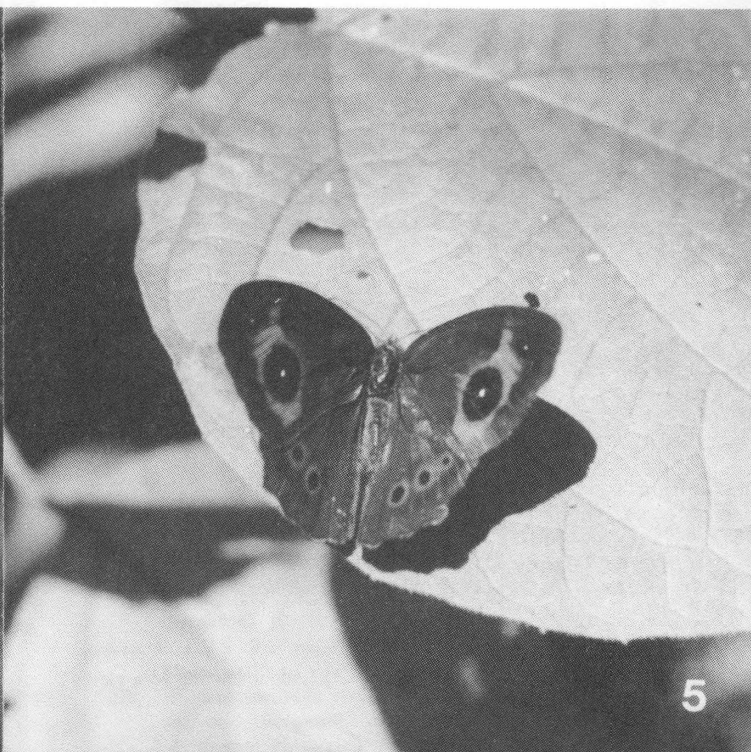


Fig. 4-6. Kakachi Forest and its butterflies: 4) *Parentica nilgiriensis*, a wet forest endemic of the southern Western Ghats. 5) *Mycalesis oculus*, a restricted wet forest endemic of the southern Western Ghats. 6) *Appias lalage*, a common species at Kakachi.

Dophla evelina (Stoll)
Elymnias hypermnestra (Linnaeus)
Euploea core (Cramer)
Hypolimnas bolina (Linnaeus)
Idea malabarica (Moore)*E
Kallima horsfieldi Kollar
Kaniska canace Evans
Lethe drypetis Moore*
Lethe europa (Fruhstorfer)*
Libythea myrrha Fruhstorfer
Melanitis leda (Drury)
Melanitis phedima Moore
Melanitis zitenius Moore*
Mycalesis anaxias Hewitson*
Mycalesis oculus (Marshall)*E
Mycalesis perseus Fruhstorfer
Mycalesis subdita (Moore)
Mycalesis visala (Moore)
Neptis hylas (Moore)
Neptis soma Eliot
Parantica aglea (Cramer)
Parantica nilgiriensis Moore*E
Parthenos sylvia (Cramer)
Precis atlites (Linnaeus)
Precis hierta (Fabricius)
Precis iphita (Cramer)
Precis lemonias (Linnaeus)
Tanaecia lepidea Fruhstorfer
Vanessa cardui (Linnaeus)
Vanessa indica Fruhstorfer
Vindula erota Swinhoe*
Ypthima avanta Hampson
Ypthima baldus Hewitson
Ypthima ceylonica (Hewitson)
Ypthima ypthimoides Moore*E
Zipoetis saitii (Hewitson)*

LYCAENIDAE

Abisara echerius Moore
Castalius rosimon (Fabricius)
Celatoxia albidisca Moore*
Cheritra freja Fabricius*
Discolampa ethion Fruhstorfer
Jamides celeno Fabricius
Neopithecops zalmora Moore*
Talicauda nyseus (Guérin-Méneville)
Zizula hylax Fabricius

HESPERIIDAE

Ampittia dioscorides (Fabricius)
Celaenorrhinus leucocera (Kollar)
Oriens goloides Moore
Tagiades gana Moore
Tagiades japaetus (Stoll)
Taractrocera ceramas Hewitson

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NEW LITERATURE - 1998

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BOOK NEWS

THE GYPSY MOTH OUTBREAKS IN SERBIA

by Z. Adamovic, L. Mihajlovic, R. Spasic, and V. Nenadovic (eds.). [1999] 1998. 200pp (17 x 24cm). Ent. Soc. Serbia (*Acta Ent. Serbia*, Spec. Issue), Belgrad. Price? (paper).

This booklet includes 7 papers on gypsy moth outbreaks in Serbia in recent years. Papers include aspects of parasitoids of gypsy moths, physiological matters pertaining to overpopulation of the pest, outbreak notes for the period 1995-98, diet, and a couple of papers on gypsy moth larval physiology. Most papers are in English.

LEPIDOPTERA OF CHINA. 4. *Nymphalidae*

by H. Y. Wang and L. Zhao. 1999. 311pp (full color) (21 x 29cm). Taiwan Museum, Taipei. Price? (cloth).

This new work in the series on Lepidoptera of China includes 81 genera of the family Nymphalidae found in mainland China. All illustrations are in color, usually several for each species treated. Text is in Chinese; scientific names are in Latin.

BUTTERFLIES OF TAIWAN. Vol. 1

by Y.-F. Hsu. 1999. 344pp (full color) (21 x 29cm), plus slipcase. Phoenix Bird Park, Taiwan. ca. \$55 cloth.

This new work on Taiwan butterflies has extensive color photographs of the life histories of the species treated. A selection from all butterfly families is given from the 400 species known for Taiwan: 33 Hesperidae, 10 Papilionidae, 15 Pieridae, 63 Lycaenidae (including Riodinidae), and 58 Nymphalidae (including Libytheidae). Text is entirely in Chinese; scientific names are in Latin. The book is printed on fine heavy paper; with dust jacket and case.

BUTTERFLIES OF TAIWAN

by J.-Y. Lee, and H.-Y. Wang. 1999. 266pp (full color) (12 x 21cm). Ilan County Museum of Natural History, Ilan, Taiwan. Price ? (cloth).

This field guide illustrates almost all 400 Taiwan butterfly species in color, showing males and females and both sides of the wings for each species. The book is in Chinese but no text accompanies the species figures, only the names: there is a checklist of scientific names indexed back to the page numbers. An appendix has a description of one new subspecies from Taiwan, plus notes on two species recorded in Taiwan for the first time (in Chinese except for English names for the type-locality of the new subspecies).

THE MOTHS OF BORNEO: Part 5. *Lymantriidae*

Part 8. *Casniidae*, *Callidulidae*, *Drepanidae*, *Uraniidae*

by J. D. Holloway. 1998 (Pt. 5, 188pp, 12 pl.) and 1999 (Pt. 8, 155pp, 10 pl.). Malayan Nature Soc., Kuala Lumpur, Malaysia. ca. \$30 each.

These new parts for Holloway's *Moths of Borneo* series treat several families, as noted in the titles. Included also but as subfamilies are Epiplemae, Cyclidiidae, and Thyatiridae. The color plates illustrate all species in sharp color; there also are over 300 monochrome figures in each part showing genitalic characters.

A TAXONOMIC REVIEW OF THE GENUS *Grapholita* AND ALLIED GENERA (LEPIDOPTERA: TORTRICIDAE) IN THE PALAEARCTIC REGION

by F. Komai. 1999. 226pp (16 x 24cm).

Suppl. 55 in *Entomologica Scandinavica*. Scandinavian Soc. of Ent., Sandby, Sweden. \$70 (paper).

This comprehensive revision of the important tortricid genus *Grapholita* treats all species from Europe to Japan, including such economic species as the Oriental fruit moth (*Grapholita molesta*). Other genera treated include *Cryptophlebia*, *Matsumuraeses*, *Selania*, *Pammena*, *Dierlia*, *Pseudopammena*, *Parapammena*, *Strophedra*, and *Andrioplecta*, plus the resurrected *Thaumatotibia* for some species formerly in *Cryptophlebia*. There are numerous illustrations of adults, genitalia and immature stages.

THE BUTTERFLIES AND MOTHS (Lepidoptera) OF KENTUCKY: An Annotated Checklist

by C. V. Covell, Jr. 1999. 220pp (21 x 28cm). Kentucky St. Nature Preserves Comm., Frankfort, KY. \$15.

This modestly priced catalog lists 2,388 species occurring in Kentucky. Since Kentucky is along the Ohio River and is rather centrally located in eastern North America, the faunal listing will be useful for neighboring areas as well. The catalog follows a simple format of records and dates of occurrence, and has the main distribution notes correlated with counties and the 68 Kentucky state parks. Only a few species have host records noted.

For 2000

LEPIDOPTERA OF TAIWAN. Volume 1. Part 1: Introduction. 1

by J. B. Heppner and H. Inoue (eds.). 2000. ca. 200pp (60 col. pl.) (22 x 28cm). Assoc. Trop. Lepid., Gainesville. \$125 (ATL discount price, \$81.50).

The main part of the color introduction is finally about ready for winter 2000. The Taiwan Lepidoptera fauna is summarized, with 60 color plates showing museum specimens of about one-third of the 2,900 species known. Included are a history of Lepidoptera studies in Taiwan, a summary of the survey project since 1980, a gazetteer for Taiwan (Japanese and Chinese names for Taiwan localities), keys to families color plates, and an updated bibliography of recent papers, plus new names and corrections recorded since 1992. Part 1 has been divided into a first section as noted for 2000, and a second section with added color photographs of species from nature, plus the hostplant index, probably in 2001. Part 2 was the 1992 catalog. Text is in English; the key to families is in English and Chinese (translated by H. Y. Wang).

Persons who already pre-ordered this title will receive the second section of Part 1 at no added charge; others will pay \$65 extra. New pre-publication orders will still be taken at the ATL discount price, for both sections of Part 1 until March 30, 2000 (normal \$2 shipping applies per copy). Future parts in the series will detail all species individually by family.

PASSINGS

† Kazuo Saitoh, 25 November 1998, in Hirosaki City, Japan

MEETINGS

- 2000 Association for Tropical Lepidoptera: April 14-16, Gainesville, Florida, USA
Societas Europaea Lepidopterologica, May 28 - June 1, Bialowieza Forest, eastern Poland
Lepidopterists' Society, Pacific Slope Section, June 23-25, Grants Pass, Oregon, USA
Lepidopterists' Society, July 26-30, Winston-Salem, North Carolina, USA
XXI International Congress of Entomology, August 20-26, Iguazu Falls, Brazil
- 2001 Association for Tropical Lepidoptera: April 20-22, Gainesville, Florida, USA
Lepidopterists' Society, July 26-29, Corvallis, Oregon, USA

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