

THE BUTTERFLIES OF THE NILGIRI MOUNTAINS OF
SOUTHERN INDIA
(LEPIDOPTERA: RHOPALOCERA)¹

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[Continued from Vol. 84 (3): 584]

241A. *Tagiades litigiosa litigiosa* Möscher

The WATER SNOW FLAT is not rare and sometimes considerably more numerous than the other two members of the genus. It is readily recognised by the clearly defined white patch on the hindwing upperside. It flies in evergreen forest to the top of the subtropical zone and I would not be very surprised to find permanent colonies in some of the plateau *sholas*. It has the normal habits of the genus, often basking in the sun on the underside of a leaf, visiting flowers and occasionally damp patches. It is more frequently seen on bird droppings than the two others. Roosting takes place with the wings held flat on the upperside of leaves. It is found in suitable places in Sri Lanka, peninsular India, and then from Simla east to South China and Hong Kong, and south to Sundaland proper.

242. *Gerosis bhagava bhagava* Moore
(not mentioned in W-B)

The COMMON YELLOWBREASTED FLAT (more widely known under the generic name *Daimio*) is very rare in the Nilgiris and apparently most places in South India. There are only about six in the British Museum (Natural History). Hampson failed to find it, Wynter-Blyth took two at Kallar, where I have also taken two and seen one (16.vi, 29.vi and 13.vii). Both my specimens were captured when coming to water, the third one was seen sitting on a leaf in dense jungle. At the Forest

Research Institute at Peechi there is a specimen bred from *Dahlbergia lanceolaria*. Apart from the Western Ghat complex the species may be found from Nepal east to Burma and Thailand and it is everywhere rare.

243. *Pseudocoladenia dan dan* Fabricius
(*Coladenia dan*)

The FULVOUS PIED FLAT is fairly common in the Nilgiris though usually not numerous and rarely found far from forest. It goes to the upper limit of the subtropical zone but is absent from the plateau proper. It is fond of flowers and bird droppings, but is not much of a visitor to water. The flight is extremely rapid, and sometimes long lasting aerial display flights are made in shady clearings. It is found in South India (surprisingly not in Sri Lanka), and then from Kulu east in China and Sundaland.

244. *Pseudocoladenia indrana indra* Evans
(*Coladenia indrana*)

The TRICOLOUR FLAT is one of the loveliest skippers in the Nilgiris, being much more contrasting in colour than the previous species. The dry season morph is sometimes deep orange with bright yellow marginal spots. The wet season form is more unicoloured but may be of a beautiful ochreous hue, especially in the female. Confusion between the two species of *Pseudocoladenia* is highly unlikely. In habits and habitats the species is close to the previous one, but it is considerably scarcer and more limited to the lowland evergreen forests.

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The distribution covers Sri Lanka, South India, then from East Nepal to Burma and Thailand. It does not appear to be a common species anywhere.

245. **Sarangesa dasahara davidsoni** Swinhoe

The COMMON SMALL FLAT is much smaller than any of the Pyrginae so far discussed. It is a rare Nilgiri butterfly apparently limited to the wetter lowland forests of the western slopes. I have taken one or two on most of visits to the Nadgani area but otherwise I have not seen it. In Sri Lanka the ecological tolerance seems much wider. Possibly *Sarangesa purendra* in India forms some sort of ecological vicariant in the less mesic Indian habitats of the genus. The species is found in Sri Lanka and South India, then again from Kangra east to Indo-China and Yunan.

246. **Sarangesa purendra pandra** Evans

The SPOTTED SMALL FLAT is found in much of peninsular India and has been involved in various taxonomic and nomenclatural confusions with the previous species. There are two Nilgiri specimens with no additional data in the British Museum (Natural History) but I have not come across it myself. At first sight it seems to form an ecological vicariant to *S. dasahara* in more dry habitats, but I have not seen either sufficiently to be quite sure. I have only met this species once when it was common enough in the Gir Lion Reserve in Saurashtra in October 1986. According to Bell both fly in the same place at the same time and in equal numbers in North Kanara. It is endemic to the Indian subcontinent.

247. **Tapena twaitheesi twaitheesi** Moore
(not mentioned in W-B)

The ANGLED FLAT is an unmistakable butterfly with its coal coloured upperside and strongly angled wings. The name *hampsoni* is some-

times applied to the South Indian populations. It is a rare skipper in the lowland evergreen forests, penetrating the subtropical forests, and I have only seen it six or seven times. Nearly all my specimens have been taken singly at water at Nadgani and near Glenburn, but I have seen one at Kallar. According to Bell it is very common in the area around Dharwar, but normally it is not a common species. The range covers Sri Lanka and South India, then from Sikkim east to Malaya, Sumatra and Borneo.

248. **Odontoptilum angulata angulata** Felder & Felder

The BANDED ANGLE is a beautiful skipper that is generally rather rare in the Nilgiris though widely distributed in the lowland forests tracts except for the very driest. I have never come across more than two during any single day. In habits it is not dissimilar to the *Tagiades* though perhaps rather less fond of open sunshine and more willing to visit water and baits. One of my specimens was taken on otter droppings deep inside a cave into which three male *Papilio polymnestor* had also made their way. The species is found in suitable hilly country in much of India, east to southern China and Sundaland.

249. **Caprona ransonnetti potiphora** Hewitson

The GOLDEN ANGLE is a common butterfly in the lowland forests from the mixed deciduous to the wettest evergreen. It is a very variable insect, but the variation does not seem to be linked with season in any consistent manner, though I have not studied this systematically. The species is less shy of sunlight than most of the group and males often perch along open paths and along forest edges. Here they are very pugnacious and fights are often seen. When perching, the males invariably retract their forelegs slightly, thus everting a promi-

ment brush which makes them look as if they are bearded. This is done independently of the presence of females and the impression is given that it serves to dispense a territorial pheromone. Both flowers and damp patches are visited. I have seen a relatively small dragonfly eating a specimen of this butterfly; it is amazing that it could manage to subdue so powerful an insect. The range covers Sri Lanka and South India, with extensions to Pachmarhi and Orissa. Other members of the genus are found elsewhere in the Oriental region. Their names are sometimes quoted in older literature on Indian butterflies, and the name *ransonnetti* has been used beyond its actual range.

250. **Caprona alida vespa** Evans
(not included in W-B)

The SPOTTED ANGLE appears to be very rare in southern India but the British Museum (Natural History) contains two definite Nilgiri specimens, apparently those that were responsible for the inclusion of the name *C. agama* in Hampson's Nilgiri list. The spotted upper surfaces are very different from any of the forms of the previous species and I am certain that I have not seen it. According to Woodhouse (1952) the flight is much more subdued than that of *C. ransonnetti*. The range covers Sri Lanka and South India, then from Nepal east to South China and Hong Kong.

251. **Gomalia elma albofasciata** Moore

The AFRICAN MALLOW SKIPPER is a rare little dry zone skipper that is much more common in Arabia and Africa than it is in India. In the Nilgiris the main habitat is the mixed deciduous forest zone where the larval food plant *Abutilon* is common, and the rarity of the species is puzzling. I have also taken it at Chamundi Hill in Mysore (xii.83). The genus is mono-

basic and the single species is found all over Africa, southern Arabia and most of India.

252. **Spialia galba galba** Fabricius
(*Syrictus galba*)

The INDIAN GRIZZLED SKIPPER is a distinctive little butterfly with an unusual degree of ecological tolerance that is common over much of the Nilgiris irrespective of altitude, rainfall and general surroundings. It is missing, only inside dense evergreen forest, but once there is some sort of clearing it will be colonised. The butterfly always flies low in relatively open places and is fond of flowers, occasionally coming to damp patches, but it is very unobtrusive and easily overlooked. It is essentially a butterfly of Sri Lanka and the Indian subcontinent, though a few disjunct populations exist further east. In Africa it is replaced by *Spialia mafa* Trimen with different facies but almost identical genitalia [see de Jong (1978) for an interesting monograph of the species].

HESPERIINAE

253. **Aeromachus pygmaeus** Fabricius

The PYGMY GRASS HOPPER is the smallest of the South Indian skippers and its distribution is limited to the Nilgiris, Coorg and Kanara. It is mainly found in open grassland in the immediate vicinity of forest in the wetter lowland tracts where it is sometimes common. Personally I have only taken about a dozen specimens at Kallar and on Nadgani Ghat. Like many of our smallest butterflies it is very fond of *Tridax* flowers, but I have never seen it at water. It is so small and inconspicuous that it is easily overlooked. The somewhat similar *Aeromachus dubius dubius* Elwes & Edwards might conceivably turn up in the Nilgiris as well.

254. **Ampittia dioscorides dioscorides** Fabricius

The BUSH HOPPER is an unobtrusive little butterfly of the grasslands in wetter forest formations where it may be locally common. I have seen it in Kallar and on the Nadgani Ghat though not very frequently. The golden tone of the ground colour is very appealing and quite different in tone from the other orange skippers. It is a much weaker insect than the *Potanthus* and *Telicota* and usually flies low in grasslands in search of flowers. The range is a wide one covering Sri Lanka, suitable places on the Indian peninsula, West Bengal and then east to China, Hong Kong and Sundaland.

255. **Halpe homolea hindu** Evans

(*Halpe egena*)

The INDIAN ACE is one of the most common lowland skippers in the Nilgiris, inhabiting forests ranging from the mixed deciduous to the wettest evergreen. It is seen mainly when it emerges from bamboo jungles to sip moisture from damp patches, though in the morning males may be found basking in sunshine along paths and forest clearings. Like some of the other *Halpe* it is fond of fresh cowpats and may be caught also on carnivore dung and decaying matter. The distribution covers Sri Lanka and southern India, then from the level of Sikkim east to southern China. The nominate subspecies is supposedly from Singapore, but in view of the fact that the species has not been recorded from Malaysia this seems doubtful.

256. **Halpe porus** Mabille

(*Halpe moorei*)

MOORE'S ACE has had a complex nomenclatorial history. Hampson used the name *beturia*, Wynter-Blyth *moorei*, but the valid name is as above. All Nilgiri records are from the Nadgani Ghat area, though doubtless it is

found elsewhere on the western slopes in lowland evergreen forest. It is fairly common in the Nadgani area, almost as much so as *H. homolea* from which it is easily distinguished by having two cell spots on the forewing, and by its generally darker colour with a white rather than yellow band on the hindwing underside. One day I collected more than a dozen on still steaming buffalo dung on a drizzly morning. The range covers South India, then from Sikkim east to South China; also on the Andamans.

257. **Sovia hyrtacus** de Nicéville

(not included by W-B)

This skipper (the BICOLOUR ACE would be a suitable vernacular name) seems to be very rare in the Nilgiris and elsewhere in southern India where it is endemic. It is readily recognised by the hindwing underside where the basal half is cream and the marginal half brown, a bit like that of the much larger *Hyarotis adrastus*. I have a single specimen from the base of Nadgani Ghat from 23.ix. 1986 and a few more had been noted by earlier authors. I have also seen one on the Gersoppa Ghat in Kanara where the species also seems to be rare.

258. **Thoressa honorei** de Nicéville

(*Halpe honorei*)

The MADRAS ACE is endemic to southern India but is closely related to the Sri Lankan *T. decorata* Moore and to other species in NE India and Burma. It is not a common butterfly but in suitable places it will be met with in small numbers during most visits. I have taken it mainly on the Nadgani Ghat and in smaller numbers at Kallar. Mostly they have been taken in the early mornings when perching on a leaf at the forest edge or along paths but it will also visit flowers. It is a most attractive little butterfly which is quite diffe-

rent in pattern to all the other orange skippers of the area. The flight is very fast and damp patches are only rarely visited.

259. **Thoressa astigmata** Swinhoe
(not included in W-B)

The UNBRANDED ACE is large for this group of genera and the upperside is reminiscent of the *Hyarotis* and *Quedara*. It is a great rarity in the Nilgiris. Wynter-Blyth caught a specimen in the Nadgani area, and I collected a single male on otter dung at the foot of the Nadgani Ghat (20.vii). It looks a species capable of extremely swift flight and Bell of Kanara emphasised how rarely the species was seen in nature. It is endemic to southern India and is almost certainly strictly limited to wet evergreen forest with bamboo.

260. **Thoressa sitala** de Nicéville
(not included in W-B)

The SITALA ACE is endemic to South India from where there are records from the Nilgiris and from Coorg. Apparently the species is very rare and there are less than a score of published records of specimens, a few of these being recorded by Hampson. I know nothing about the species, but it is almost certainly limited to the wetter evergreen forests at low levels.

261. **Thoressa evershedii** Evans
(not included in W-B)

EVERSHED'S ACE has been recorded from the Palnis, Nilgiris and Annamalais and is endemic to South India. I know nothing about it though doubtless it is limited to wet lowland evergreen forest like the others of its genus.

262. **Iambrix salsala luteipennis** Plötz

The CHESTNUT BOB is often a common butterfly in the denser forest types at lower and middle levels and deep inside the forest it is sometimes the only skipper present. It

usually frequents shady places but will often sun itself in shafts of sunlight when not searching out the minute flowers in small clearings. The flight is rarely more than a few centimetres above the ground. The species is one of the few skippers consistently to use only four of its legs for perching or walking, though I have seen this also in *Suniana sunias* Waterhouse in Papua New Guinea. For what purpose the front legs are being kept in reserve I have been unable to discover. The species is found in Sri Lanka and in South India, then from Nepal east to Hong Kong and southern China and south to Sundaland.

263. **Psolos fuligo subfasciatus** Moore

The COON is a very unusual skipper found in the wetter lowland forests of the western slopes. It is not normally very common, but towards the end of the monsoon numbers increase. The flight is very slow for a skipper and the wings large in relation to body size. The wings are an almost unmarked dark brown. When sitting on a green leaf the peculiar downcurved shape of the forewings may be noticed. It is so pronounced that the tips of the front wings are several millimetres apart in the normal resting posture. The Western Ghats population is strongly disjunct; the species recurs from northeastern India to the Philippines, Sulawesi and Sundaland.

264. **Notocrypta paralysos alysia** Evans

The COMMON BANDED DEMON is one of two very similar species which are almost jet black with a white forewing band. The present species lacks white apical spots on the forewings which are prominent in the following species. In the Nilgiris it seems to be limited to the lowland evergreen forests of the western slopes and I have only collected it in the Nadgani Ghat area in moderate numbers. Elsewhere in Asia it may be very common. Usually it skulks

about in dark undergrowth but often ventures out to feed on flowers, not infrequently on overcast days. The flight is almost as fast as that of the *Celaenorrhinus* which, because of the white forewing bands, it greatly resembles on the wing. The range covers Sri Lanka and the Western Ghats, then from Mussoorie east to the Philippines, Sulawesi and the Lesser Sunda Islands.

265. **Notocrypta curvifascia curvifascia** Felder & Felder

The RESTRICTED DEMON seems to be a butterfly mainly of the moist deciduous forests of the Wynaad where I have taken my only Nilgiri specimen, though Gordon Thompson collected one at Kallar in September 1986, the only one ever recorded for the southern slopes of either of the two *Notocrypta*. My belief that it is a species of the moist-deciduous forest is bolstered by the fact that I found it quite common under such conditions in the Biligiriranga Mountains together with *Celaenorrhinus ruficornis*. It, too, is found in both Sri Lanka and southern India, then from Mussoorie to South China and Sundaland.

266. **Udaspes folus** Cramer

The GRASS DEMON is a very distinctive butterfly that is taxonomically close to the *Notocrypta*. The big white patch on the disc of the hindwing upperside is enough to tell it from any other South Indian skipper. While it may turn up anywhere in the Nilgiris, it seems to be mostly rather scarce and unpredictable. From late August through October 1986 I regularly had specimens pass through my Kotagiri garden at high speed in what looked like a dispersal movement of some sort, but which was not correlated with the migrations that were taking place at the time. It coincided with the first captures of the butterfly at Kallar. I have also taken it at the very top of the

Biligirirangas near Honametti Estate. It is a rare butterfly in Sri Lanka from where it is found throughout the Oriental and Australian regions without displaying geographical variation. It is generally rather uncommon everywhere and during several visits to many Asian countries I have only secured one specimen in Malaysia apart from my Indian ones.

267. **Arnetta mercara** Evans
(*Asictopterus jama*)

The COORG FOREST HOPPER is rather similar to *Psolos fuligo* but may be immediately distinguished through the presence of three small white apical spots on the forewings that are always missing in the latter. I have never come across it in the Nilgiris but it seems that it may sometimes be found in some numbers on the Nadgani Ghat which does not surprise me. Generally it is not a common species and it is endemic to the Western Ghats.

268. **Arnetta vindhiana nilgiriana** Moore

The VINDHYAN BOB is endemic to southern and central India where it appears to frequent wet grasslands at lower levels in most type of terrain. Ssp. *nilgiriana* represents a southern group of the species merging with the nominate subspecies in the Nilgiri Wynaad. It seems to be found under a variety of climatic conditions and presumably the exact conditions of the wet grassland is of more importance than the macroclimate. Certainly it is a most unusual distribution pattern. Hampson considered it common and Wynter-Blyth collected it on the Nadgani Ghat in October. I have never come across it in the Nilgiris but have a few from Sholayar in the Annamalais.

269. **Suastus gremius gremius** Fabricius

The INDIAN PALM BOB is surprisingly rare in the Nilgiris not least when it is considered how many palms there are in Mettupalayam/

Kallar and along the rice growing areas of the western slopes. I have only small numbers from Kallar and from the Nadgani Ghat agricultural areas, and I doubt if it ascends the ghats to any great extent. According to Wynter-Blyth it comes to both water and bird droppings, but I only know it as avid visitor to Lantana flowers. When the female lays eggs she lands on a palm frond, walks backwards for a distance equal to two to four times her own length, and then either flies off or deposits a single, large brick-red egg. This colour is unusual but I have little doubt it is meant to mimic the dark, damaged spots often found on palm leaves. The range covers Sri Lanka, India, Bangladesh, Burma, Thailand, Indo-China, Taiwan and parts of southern China.

270. **Suastus minuta bipunctus** Swinhoe
(not included by W-B)

The SMALL PALM BOB is very similar to the preceding species but on average a little smaller and with the black hindwing underside spots somewhat differently disposed. There are a few old records from the Nadgani Ghat area but I know nothing of it at all. It is found in Sri Lanka and South India, then from Sikkim east to the Philippines and Java, apparently bypassing Sundaland proper, being absent from Malaysia and Sumatra. The distribution indicates that it inhabits rather more mesic habitats than its more widespread congener.

271. **Cupitha purreea** Moore

The WAX DART is so named because the male has a prominent brand on the hindwing upper-side which contains a waxy substance. The species can be recognised at a glance, in South India at least, by its wholly immaculate yellow underside. It is quite a pretty little butterfly but it is also a scarce one. I have taken five specimens only, at Kallar, always sitting

on green leaves in the morning before 10.00. I have never observed it flying or doing anything else, but every now and then, suddenly one will be sitting in exactly the same posture as the last one. The species is of particular interest inasmuch as the larval food plants are *Terminalia* and *Combretum*; it is the only member of the Hesperinae to have returned secondarily to dicotyledonous food plants. The range is wide, covering practically the entire Oriental region, though not Sri Lanka and peninsular India. It is everywhere rare. The genus is monobasic.

272. **Baracus vittatus** Felder & Felder

The HEDGE HOPPER is a very plastic species in a monobasic genus. The nominate subspecies from Sri Lanka is very light greenish white above, three Indian subspecies are very different. Ssp. *subditus* Moore (Palnis, Travancore and Nilgiris) intergrades with ssp. *hampsoni* Elwes & Edwards in our area, extending north to Kanara. Ssp. *gotha* Evans occurs in the Annamalais. The main differences lie in the patterns of the underside. A separate subspecies is found from Sikkim to Yunan in China. I have not come across the species though it has been recorded as not rare in the Nilgiris by earlier authors.

273. **Hyarotis adrastus praba** Moore

The TREE FLITTER is a readily identified medium-sized skipper that is relatively scarce in evergreen forest at low and medium levels. I have only seen it three times; once at Glenburn (12.vi), and twice at Kallar (19.viii & 30.ix), one of which was taken by Gordon Thompson. Hampson found it rare on the northern slopes, but says that it is common on the southern slopes. He must have run into some sort of mass emergence, especially since Wynter-Blyth did not see any. I am quite convinced that it is scarce and Bell, writing of

Kanara, commented that it was hardly ever seen though he was able to find the caterpillar quite often. The distribution covers Sri Lanka and South India, then from Himachal to Hong Kong and Sundaland. It seems likely that the rare *Hyarotis microstictum coorga* Evans will also turn up in the Nilgiris.

274. **Quedara basiflava** de Nicéville
(not mentioned by Wynter-Blyth)

The YELLOW BASE TREE FLITTER is a rare endemic South Indian butterfly which has been recorded by Hampson for the Nadgani Ghat area. It is a most distinctive species with the bases of the hindwing underside liberally marked with egg-yolk yellow. Apart from the fact that it is rare and that it is almost certainly limited to the wettest evergreen forests, I know nothing of this insect. Another rare skipper that could occur under similar conditions is *Plastingia sala* Hewitson.

275. **Gangara thyrasis thyrasis** Fabricius

The GIANT REDEYE is the largest skipper in the Nilgiris and it seems to be quite rare. This was Hampson's opinion and Wynter-Blyth caught one only at Kallar. On my first collecting trip in the Nilgiris (14.iv) I collected a fresh male with my fingers off the nose of Gordon Thompson. A week later I found several larvae and pupae on a palm in the compound of Mr Dharman near Glenburn, several of which hatched in Kotagiri. Since then I never saw it again. Given the profusion of palms in the Kallar and Mettupalayam areas its rarity is curious, not least since it is sometimes quite common and attracted to light at night. The absence of its banana eating relative *Erionota thrax* Hübner is also puzzling. The species is found practically throughout the Oriental region.

276. **Matapa aria** Moore

The COMMON REDEYE is not rare in thick

lowland forest with bamboo, out of which it seldom ventures. It is best caught early in the morning (sometimes even before 07.00) when it suns itself on green leaves along forest paths, very occasionally visiting flowers. I have never seen it on damp patches. Later in the day it disappears completely and is impossible to procure. The red eyes will, even at a distance, tell it apart from the somewhat similar members of the *Baoris* and *Caltoris*. It belongs to a genus that is centred on Sundaland and is the only one to be found in our area. The genus was recently monographed by de Jong (1983). The range covers Sri Lanka and India to South China and the Philippines, Sundaland to Java and Borneo, but not Sulawesi, where similar species occur. It is the most widely distributed of all the *Matapa*.

277. **Taractrocera maevis sagara** Moore

The COMMON GRASS DART in my experience is scarce in the Nilgiris and I have but one specimen from plantations near Mettupalayam. Hampson collected only four, while Wynter-Blyth considered it to be not rare at Kallar where I never saw it. The species is reputed to be very local and probably I never found just the right spots. The habitat seems to be grassy places under a variety of macroclimatic conditions from the plains up to at least 1600 m, though in South India it appears to be more of a plains species. The genus seems to be very fond of flowers. The species is common in Sri Lanka and is endemic to Sri Lanka, India, Burma and Thailand.

278. **Taractrocera ceramas ceramas** Hewitson

The TAMIL GRASS DART is a conspicuous insect of open grasslands at all levels and in most types of habitat, though chiefly the montane grasslands, in open spaces of moist-deciduous forest, and along grassy verges of forest roads in the wettest parts of the low-

land forests. Each and every population of this butterfly seems to be special in one way or another. Typical *ceramas* is from the high level grasslands and is small and pale. Lowland specimens, often referred to as ssp. *lynx* Möschler, are usually larger and more luxuriant. According to Evans (1949) the taxon *lynx* is not subspecifically valid, while ssp. *media* from Kanara, ssp. *oberthueri* from the Annamalai, and ssp. *nicevillei* from the Bombay Presidency are. I have personally only found small and weakly coloured nominate *ceramas* in the Nilgiris, at high altitudes near Mukurti and Avalanche, and some larger and more luxuriant forms at Nadgani and the Nilgiri Wynaad approaching *media*. In the Biligiriranga Mountains I collected a large series of large specimens from 1300 to 1900 m which match none of my Nilgiri ones. I doubt that the very real variation from population to population of this butterfly in South India can be described in conventional subspecific terms. In addition to South India the species also occurs from Manipur to southern China.

279. **Oriens concinna** Elwes & Edwards

The TAMIL DARTLET is a great rarity in the Nilgiris, being confined to the upper subtropical and montane forests, where it is very difficult to find. Wynter-Blyth caught two below Coonoor. I have three from the Longwood Shola near Kotagiri (20.iv, 23.viii, and 11.x) one collected by Gordon Thompson. This is the fruit of more than twenty visits to this lovely forest. The species is endemic to the mountains of South India, south of the main Western Ghats which do not appear to be high enough.

280. **Oriens goloides** Moore
(*Oriens gola*)

The INDIAN DARTLET resembles the members of the next genus, but may readily be recognised by the layout of the upperside orange

markings of the forewings where the discal band touches those of the cell. According to Wynter-Blyth it is sometimes common on the Nadgani Ghat, but I have only found it occasionally at Kallar and Nadgani. It is found in evergreen forest of the tropical and subtropical types, occasionally being found up to 1600 m or so, above which it is replaced by the preceding species. In habits it is similar to the *Potanthus*, spending most of its time sitting on green leaves, occasionally coming to flowers and only very rarely to water. It is found in Sri Lanka and South India, then from Kumaon east to Malaysia, other species representing the genus further into the Oriental region.

The genus **Potanthus**

The genus *Potanthus* contains five species that occur in South India according to Evans (1949). They are very difficult to deal with. No data from before Evans' book are correct and in most cases impossible subsequently to verify. Furthermore I should not be at all surprised if the classification of the taxa recognised by Evans in South India will eventually be found to be in need of revision. Unfortunately none of the species is particularly common, and I do not have a very large material on which to base personal study of the South Indian taxa. I shall list the taxa recognised as South Indian by Evans as valid for the Nilgiris even in the cases where I have not seen Nilgiri material. They are all certain to occur. Firm identifications need genitalia dissection, not least since there is also seasonal variation. The 'majority of characters' indications below might serve to place individual specimens in the correct species, but it really is impossible to be certain except when a typical specimen is compared with a correctly identified comparative series, and the genitalia examined if there is the least doubt. Females are even more difficult than the males.

281. **Potanthus pallida** Evans
(*Padraona* sp.)

The PALLID DART is rare in South India since Evans lists only six specimens from the Nilgiris. The bands are straw yellow like in *P. pseudo-maesa* but the wings are not so strongly produced as in the other species. Given the amount of material available to Evans it is necessary to assume that it is genuinely absent from the Western Ghats proper, which would indicate that it is something of montane species. The range covers Sri Lanka and South India, then from Simla to Indo-China and Yunan.

282. **Potanthus pseudomaesa pseudomaesa**
Moore
(*Padraona* sp.)

The PSEUDOMAESA DART is similar to the preceding species with straw yellow markings, but the wings are shaped like the others of the genus. The species seems to be considerably more common. I have specimens from Glenburn, Nadgani and the Biligiriranga Mountains. In most cases small series were taken in sunny forest glades and along paths. The range covers Sri Lanka, South to central India, Mt. Abu and then from Kashmir to Hong Kong.

283. **Potanthus confucius diana** Evans
(*Padraona* sp.)

The CONFUCIAN DART is the smallest of the South Indian species, the markings of the upperside are a much darker orange than in the two preceding species, and the band broader than in the larger *P. palnia*. Judging from the limited series available in London it is not a common South Indian butterfly. My own single specimen is from the Nadgani Ghat; it is much smaller than any other of the genus in my collection. The distribution covers Sri Lanka, South India, Madhya Pra-

desh, Nepal to Japan, the Philippines and Sundaland.

284. **Potanthus pava pava** Fruhstofer
(*Padraona* sp.)

The PAVA DART has relatively broad bands of a golden orange that contrasts strongly with the pale straw of the Pallid and Pseudo-maesa Darts. The veins are less marked where they cross the bands than is normal in the genus. The forewing markings of 4 and 5 are well joined with the main discal band and is always in contact with the three apical spots. The species does not appear to be at all common in southern India. I have a single specimen from Mukkali as well as a fair series from the Biligiriranga Mountains where they were caught in moist-deciduous forest. The species is found in South India, then from Himachal east to most of the Oriental region.

285. **Potanthus palnia** Evans
(*Padraona* sp.)

The PALNI DART was described from the Palnis and appears to be the most common of the South Indian *Potanthus*. The bands are narrow and of a deep orange-hue. I have specimens from Glenburn, Kallar, Wenlock Bridge, and Mukkali as well as from the Biligiriranga Mountains. The range covers southern India, then from Sikkim to Burma and Thailand. It is said to recur on Sumatra though absent from Malaysia; the Sumatran form is almost certainly a good species.

286. **Telicota colon colon** Fabricius
(*Astychas augias* & *pythias*)

The two *Telicota* are like scaled up members of the previous genus, but are more powerful insects of more open country. The PALE PALM DART can usually, but not invariably, be told from the next by the fact that the forewing veins are yellow right out to the edge of the

wing, but there is individual and seasonal variation in both of the species. Both are common in open country near forest and do not differ much in habits, though perhaps the present species will be found in slightly more open country than the next. The range covers practically the entire Oriental region deep into the Pacific and the Australian region.

287. **Telicota ancilla bambusae** Moore
(*Astychas augias* & *pythias*)

Apart from living in closer proximity to forest and perhaps being found under slightly more mesic minimum conditions, there is no difference between the DARK PALM DART and the previous species in range and behaviour, except that it is missing in some parts of the drier NW India where the other occurs. Both species are fond of flowers, come to bird droppings, but rarely or never to water.

288. **Parnara naso bada** Moore
(not included in W-B)

The AFRICAN STRAIGHT SWIFT is readily recognisable from the other small skippers of the group in South India by the lack of cell spots in both sexes and by the lack of a spot in space 1b of the male. Wynter-Blyth expresses surprise that he did catch the very similar *P. guttatus mangala* Moore, but that species does not occur in South India at all. I have found the species not too uncommon mainly at lower levels and in the subtropical zone, but it will probably turn up in most habitats from time to time. It is one of the few skippers to be Palaetropical, being widely distributed in Africa and recurring from Sri Lanka and India to the Philippines, Borneo, Sulawesi, Sumatra and Java, and then Queensland, apparently bypassing New Guinea.

289. **Borbo cinnara** Wallengren
(*Baoris zelleri*)

The RICE SWIFT is a relatively common

butterfly in the Nilgiris, being found in most types of terrain, but rarely on the plateau proper. I never found it as abundant as Wynter-Blyth seems to imply in his Nilgiri paper. It is most usually caught at low flowers, sometimes on Lantana. The name *zelleri* Lederer has often been used in conjunction with this butterfly but this is quite mistaken since this name applies to a form of the Afrotropical *B. borbonica* which has no link to the Oriental region. The species ranges throughout the Oriental region in almost all ecological zones, extending to New Guinea, Australia and the New Hebrides.

290. **Borbo bevani** Moore
(*Baoris bevani*)

BEVAN'S SWIFT has the wings, especially the hindwings, so broad that it cannot be mistaken for *B. cinnara*. The usual spotting is sometimes nearly obsolete. Only Hampson has recorded it from the Nilgiris where it seems to be scarce, and I have never found it common anywhere. From South India I have a few specimens from the Biligiriranga Mountains. The range is from most of India (but not Sri Lanka) to much of the rest of the Oriental region, but not Malaysia, Borneo and New Guinea, then again in NE Australia.

291. **Pelopidas agna agna** Moore
(not included in W-B)

The DARK BRANDED SWIFT is very similar to *Pelopidas mathias*, a common species generally found in more open country than the present one. It is a small species with less developed hyaline markings, and normally the spots on the underside hindwings are less prominent than in *mathias*. On close examination the brand will be found to be placed slightly differently. I have not found it particularly common but most visits to the tropical and subtropical evergreen forests will turn up a specimen or

two. It is fond of Lantana flowers. The range covers virtually all of the Oriental region.

292. **Pelopidas subochracea subochracea**

Moore

(*Baoris sinensis*)

The LARGE BRANDED SWIFT is an altogether more impressive insect than the other South Indian members of the genus *Pelopidas*. The white forewing brand in the male is prominent and the deep ochre hindwing underside has prominent white spots in interspaces 2, 3 and 6, and prominently in the cell. It seems to be rare in the Nilgiris, Wynter-Blyth having taken one only at Kallar. I never saw it in the Nilgiris, but I have one from Sholayar in the Annamalais. The range covers Sri Lanka and South India, then from Sikkim east to Thailand, Yunan and Hainan.

293. **Pelopidas mathias mathias** Fabricius

(*Baoris mathias*)

The SMALL BRANDED SWIFT is a dry zone species that has been the subject of much confusion with *P. agna*. I never saw it till October 1986 after having spent six months in the area. Then a small skipper participated in the migrations and on a visit to Masinagudi I found large numbers of this species at flowers and at water. It would appear that a few migrants had been responsible for the production of a large brood which proceeded to move towards the south on hatching. I had prospected this locality on numerous occasions during the preceding months without seeing the species. The distribution is vast, covering all of Africa, much of Arabia and the whole of the Oriental region, with extensions to the temperate zone in Asia as well as to New Guinea.

294. **Pelopidas conjuncta narooa** Moore

(*Baoris conjuncta*)

The CONJOINED SWIFT is a large species with

male stigma on the forewings. The markings are a pale yellow and not the milky white of the other species of the genus. The hindwing underside usually carries a complete complement of white spots and those of at least spaces 2 and 3 are usually present on the upperside as well. Though Wynter-Blyth records it from Ketti, Kallar, Gudalur and Nadgani I have failed to find it. The distribution covers Sri Lanka and South India, from there to Sikkim, Assam, east to southern China, the Philippines, Borneo and Java.

295. **Polytremis lubricans lubricans** Herrich-Schäffer

(*Baoris contigua*)

The CONTIGUOUS SWIFT is so called because the two cell spots are almost always merged. The hyaline spotting is yellowish and the ground colour has a distinctly chestnut tinge. All told the species has a different 'feel' from the related species. It seems to be very scarce in the Nilgiris. Wynter-Blyth took one on the Nadgani Ghat and I have a single specimen from the bottom of the Ghat which was not visited by him because of war-time petrol rationing. My specimen is from 20.vii.1986. The species is found on the Western Ghats, then from Kumaon east to southern China and through Sundaland to Timor and the Sula Islands.

296. **Baoris farri farri** Moore

The PAINTBRUSH SWIFTS constitute a complex of three species whose males have a dense brush of androconial scales on the upper hindwings. This species is the South Indian representative and the male is unlike any other species in the area because of the brush. The female is rather like that sex of *Caltores canaraica*, but she never has light spots on the hindwing underside like the latter. It is relatively rare and seems to be limited to the wettest

lowland evergreen forests. I know of records only from the Nadgani Ghat where I have especially found it in the early mornings sitting on green leaves along jungle paths, but on drizzly days it may be found feeding from Lantana as well. By 10.30 they disappeared completely. On one or two occasions I have caught males on fresh buffalo dung. The species is found in India and then east to Hong Kong, Malaysia and Sumatra. The closely related *B. penicillata* Moore is found on Sri Lanka, recurring from Sikkim east without being found in South India. Two other species of the genus are found from NE India to Sundaland.

297. *Caltoris kumara kumara* Moore
(*Baoris kumara*)

The BLANK SWIFT is a large, compact insect without hyaline spots in the forewing cell. Wynter-Blyth recorded it from a number of localities including Ketti (common), Kallar, Gudalur and Nadgani which is surprising to me since I have found just a few in the wettest Nadgani habitats. This might be because his records were mainly from October to January, a period of the year that I did not cover. The species is found in Sri Lanka and South India, then from Sikkim to Thailand, Indo-China and Java, but not Malaysia and Sumatra.

298. *Calteris canaraica* Moore
(*Baoris canaraica*)

The KANARA SWIFT is a rather rare South Indian endemic. It is very like *Caltoris kumara*, though a bit smaller, but both sexes have two clear hyaline spots in the forewing cell. I have found it quite numerous on a single occasion on the Nadgani Ghat (mid July), in small numbers on a previous occasion, and once near Mukkali at the foot of the Silent Valley system. These seem to be the only Nilgiri records. It is probably limited to the wetter

lowland evergreen forest and in my experience it is best caught very early in the morning, as early as 07.00.

299. *Caltoris philippina philippina* Herrich-Schäffer
(*Baoris philippina*)

The PHILIPPINE SWIFT definitely occurs in the Nilgiris, but I have not collected it and can say nothing about it except that it is probably mainly found in evergreen forests, including the subtropical level. It is widely distributed from Sri Lanka and South India, via Sikkim and Assam to the Oriental region, New Guinea and some of the Pacific islands.

SOUTH INDIAN BUTTERFLIES NOT YET
RECORDED FROM THE NILGIRIS

Azanus uranus Butler — widely distributed in India and almost certain to occur in the dry zone lowland habitats somewhere in the Nilgiris area.

Arhopala bazaloides Hewitson — recorded from Kanara and almost certainly to be found somewhere in lowland evergreen forest.

Apharitis lilacinus Moore — possibly found in the dry zone habitat since known from Karnataka.

Parantirrhoea marshalli Wood-Mason — an endemic species in a monobasic genus and one of South India's most interesting endemics, known from Coorg and Travancore. There are two in the British Museum (Natural History) marked 'Coonor, Manders, 11.1910' in the same handwriting. The species is a lowland one. They cannot be from Coonor, but I would not be surprised to find it on the western slopes.

Mycalesis mamerta davidsoni Moore — recorded from Trichy and possible in the Nilgiris area.

Mycalesis oculus Marshall — limited to the hills south of the Palghat Gap. Will not be found in the Nilgiris.

Ypthima ypthimoides Moore — as above.

Pantoporia sandaka davidsoni Eliot — known from the Coorg area and probable in the Nilgiris.

Phalanta alcippe Cramer — known from Coorg, very locally. May just possibly occur in the Nilgiris.

Bibasis gomata kanara Evans — known from Kanara.

Hasora vitta indica Evans — known from Kanara. No Nilgiri records or specimens in BM(NH).

Caprona agama agama Moore — mentioned by Evans (1949) from the Palnis and Madurai.

Aeromachus dubius dubius Elwes & Edwards — should occur in the Nilgiris as known from both north and south thereof.

Plastingia sala Hewitson — known from Kanara, might occur in the Nilgiris.

Hyarotis microstictum coorga Evans — known from Kanara and probable in the Nilgiris from where it has been recorded, but possibly in error.

TENTATIVE CONCLUSIONS

It is my intention to analyse the data presented in this paper in a more detailed fashion in order to study the ecological and zoogeographical composition of the Nilgiri butterfly fauna, the degree of endemism and other factors. This has not yet been done, but it seems appropriate to end the paper with some tentative conclusions that are unlikely to change in the face of a more detailed analytical treatment.

The first conclusion that can be drawn is that the Nilgiri fauna, with just 300 species, is rich, varied and very interesting. There is probably no other area of similar size in India

that has that many species, partly because those areas which have true rainforest will not simultaneously house the montane and temperate element that is found in the high Nilgiris. Sri Lanka, further south, has only about 240 species.

The second conclusion that can be drawn is that the Nilgiri mountains contain practically all the species ever recorded from anywhere in southern India. Only a dozen or so potential species remain unrecorded. Possibly a few of these will turn out to be limited to the wettest parts of the Kanara Ghats, but most will eventually be found also in the Nilgiris.

A third conclusion is therefore that the faunal composition of the wetter South Indian mountains probably does not differ much from one to another. So far only two species are known to be limited to the mountains south of the Palghat Gap.

By far the richest habitat in terms of numbers of species is the lowland rainforest, closely followed by the wet evergreen forests. The butterflies of these zones are mainly Oriental and it is notable that those limited to the rainforests tend to have affinities to the Sundaland fauna rather than to the Indo-Chinese/Thai. Most of the specialities of these two zones have strongly disjunct distributions, being absent from peninsular India.

The lowland mixed deciduous forest is also quite rich and is especially interesting for being the headquarters of a number of species that are endemic to the Indian peninsula (and sometimes Sri Lanka). The drier formations contain mainly widespread Oriental and Palaeotropical species, but there is a decided admixture of Afrotropical and Eremic elements (details about these will be found in Larsen, 1984).

The subtropical evergreen forests contain a small number of species that seem to be cen-

tered on this zone. They will usually be the type of species that are also found in the subtropical zone of the Himalaya east to southern China, but not infrequently without Sundaland connections.

The plateau has a limited number of species of varied composition. The most noticeable are the disjunct Palaearctic elements, and the Oriental montane species. They are not many, but very prominent in the natural highland habitats. A number of widespread genera show secondary specialisation to the South Indian mountains and have developed local endemics. Finally there are many of the widespread and hardy Oriental and Palaeotropical species.

Zoogeographically South India is very much a part of the Oriental Region and virtually the entire fauna is Oriental of origin. Most of the endemic species belong to genera that have their centres of diversity elsewhere in the Oriental Region. The score or so Palaeotropical species are represented virtually in full. The eremic, desert-adapted species are again few, mainly limited to the driest tracts and not much in evidence elsewhere. The few Afrotropical species are limited to the same habitats. The Palaearctic butterflies are few in number, though rather prominent in the depauperate butterfly fauna of the plateau proper.

The level of endemism is both low and at low taxonomic levels, even when the whole of peninsular India, including Burma, is taken into account. Strict endemics at generic level are *Parantirrhoea*, which has not yet been found in the Nilgiris, and *Sovia* which is closely related to the *Halpe*. Wider endemics are *Talicada*, *Rathinda* and *Zezius*, and perhaps one or two others. The number of more or less endemic species is also modest in relation to the total fauna, not least when it is taken into account that so many of the species are strongly disjunct, being isolated in the South Indian wet zones. The bulk of the

endemics are isolated species in genera that have their centres of diversity elsewhere in the Oriental region.

There is much similarity between the fauna of South India and Sri Lanka, but there are also surprising differences. A considerable number of South Indian butterflies that one would have expected on Sri Lanka do not occur, while Sri Lanka has a number of endemics and a number of disjunct species not occurring in South India. At first sight the differences appear larger than one would have expected *a priori*. I hope to analyse this matter in a subsequent paper.

The initial impression that is gained is consistent with the conclusions of Holloway (1974), namely that if India had its own butterfly fauna when it merged with the rest of Asia after rafting from Gondwanaland, then all traces of this fauna has been lost. Otherwise, one would have to postulate both that India had been overwhelmingly responsible for populating the remainder of the Oriental region, and that in most cases the genera and species diverged far from the Gondwanan ancestors. Again I plan to look further into this issue, but at present it appears that South India has a fauna that is derived from a series of relatively recent contacts with neighbouring faunal regions, with some modest degree of subsequent speciation in isolation.

Finally it is a pleasure to say that during seven months in the Nilgiris it was possible to collect the bulk of all the species that have ever been recorded from there. A comparison with earlier lists shows that there has been no significant depletion of genetic resources in butterflies, and I believe them to be a good indicator for general ecological conditions. However, habitats have been much shrunk. They are today just adequate and will, on the whole, not accept further large scale encroachment. That largest of all indicators of environ-

mental health, the Indian Elephant, in some parts of the Nilgiris has lost its normal migration routes to human interference. Future conservation efforts must not only be concerned with establishing well-managed reserves in all habitat types. They must also conserve the necessary corridors to permit genetic flow between the various parts of the Western Ghats system as a whole. In practical terms this means that the whole area of Tamil Nadu and Kerala now forested should not be allowed to shrink any further. Nature conservation in the more narrow sense apart, there is increasing evidence that further deforestation of the Western Ghats system will lead to problems on a macro-ecological level in terms of water supply, ero-

sion, and possibly even long term climatic effects.

As long ago as 1911 the crusty old hunter, F. W. F. Fletcher wrote of the Nilgiris: 'But over the portals of modern Ootacamund, with its railway and its motor cars and all the other things that proclaim the march of progress, let there be written: *Sic transit gloria (Ootaca) mundi*'.

Seventy years on the picture is still not quite that bad. I, for one, hope, and trust, that India is one of the countries that can mobilise the political will and the administrative skill to safeguard what is left of a priceless natural environment.

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