INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
ACKNOWLEDGEMENTS

First, I wish to express my appreciation to the dissertation committee members, Dr. M. Lee Goff, the chairperson, Dr. Scott Miller, Dr. D. Elmo Hardy, Dr. Al Samuelson, Dr. Neal Evenhuis and Dr. Gerald Carr. Even though I pressed them at the very last moment, they patiently took their time to improve my work. Especially Dr. Miller, as a Lepidoptera specialist, guided me through this work.

Because I spent so much time on this dissertation, I had to change my committee. Dr. John Beardsley helped me as the initial chairperson. His guidance and encouragement made this work a very pleasant one. I thank Dr. D. Elmo Hardy for his invaluable advice.

My fellow Entomology Graduate Students (most of them have already graduated and/or left Hawaii) helped me in all kinds of ways. I thank John Strazanac, Jong Yoon Kim, Faith Fujimoto, Sue McCombs and Wayne Hunter.

I greatly appreciate the following Japanese Lepidopterists: Mr. Hiroshi Tsukiyama, Dr. Tomoo Fujioka, Dr. Atuhiro Sibatani and Mr. Akito Kawazoe. Through them and with them, I learned the interests of collecting and studying butterflies.

I thank the following institutions and individuals for the permission to examine and/or loan of their materials:
Academia Sinica; Allyn Museum of Entomology (Dr. L. D. Miller and Dr. J. Y. Miller), Australian National Insect Collection, B. P. Bishop Museum, Carnegie Museum of Natural History (Dr. J. Rawlins and Dr. C. Young), Dr. T. Fujioka, Kyushu University (Dr. O. Yata), Kitakyushu Museum of Natural History (Dr. K. Ueda), Los Angeles County Museum (Mr. J. Donaghue), Mr. K. Maruyama, Museum of Comparative Zoology, National Science Museum, Natural History Museum (Mr. R. I. Vane-Wright and Mr. P. R. Ackery), Mr. K. Ohtsuka, Mr. E. Tsukada, Mr. H. Tsukiyama, Mr. J. Uehara and United States National Museum of Natural History (Dr. J. M. Burns).

I thank following persons for various comments: Dr. R. Craw, Lt. Col. J. N. Eliot, Dr. Y. F. Hsu, Dr. S. Igarashi, Dr. M. Michevitch and Mr. M. Parsons.

My trip to the Natural History Museum, London was supported in part by the Ernst Mayr Grant, Museum of Comparative Zoology, Harvard University and Ehrhorn Fund, Department of Entomology, University of Hawaii.

Lastly, I thank my wife who encouraged me all the time, especially when I almost gave up this project.
ABSTRACT

The subfamily Coeliadinae of the family Hesperiidae is reviewed. Genera cladogram is reconstructed from the morphological data. A single most parsimonious cladogram is obtained. The result matches intuitive treatments by previous researchers. Their distribution pattern is examined genus by genus to see if the pattern seen in the genus Choaspes is applicable to other Coeliadine genera. With minor exceptions, the pattern is applicable to other genera.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................. iii
ABSTRACT .................................................................................... v
LIST OF TABLES ........................................................................ viii
LIST OF FIGURES ................................................................. ix
LIST OF PLATES ........................................................................ xii
INTRODUCTION ........................................................................ 1
II. MATERIALS AND METHODS .................................................... 7
III. CLADISTIC ANALYSIS .......................................................... 9
   Introduction ........................................................................ 9
   Methods of Analysis ............................................................ 10
   Characters and Character States ......................................... 10
   Reconstruction of the Cladogram ....................................... 13
   Results and Discussion ....................................................... 13
IV. BIOGEOGRAPHY ................................................................... 17
   Contours of Species Density ............................................... 17
   Cladistic Biogeography ....................................................... 19
   Distribution Pattern of Choaspes ....................................... 20
   Biogeography of Choaspes .................................................. 23
   Biogeography of Burara ...................................................... 25
   Biogeography of Bibasis ...................................................... 27
   Biogeography of Allora ...................................................... 27
   Biogeography of Hasora ...................................................... 28
   Biogeography of Coeliades .................................................. 31

vi
Biogeography of Pyrrhiades ........................................ 32
Biogeography of Badamia ........................................... 33
Summary ................................................................. 33
V. TAXONOMY ........................................................... 34
Genus Burara Swinhoe, 1893 ....................................... 37
Genus Bibasis Moore, 1881 ....................................... 69
Genus Allora Waterhouse & Lyell, 1914 ......................... 78
Genus Hasora Moore, 1881 ....................................... 86
Genus Coeliades Hübner, 1818 .................................. 141
Genus Choaspes Moore, 1881 .................................... 158
Genus Pyrrhochalcia Mabille, 1904 ............................ 176
Genus Pyrrhiades Lindsey & Miller, 1965 ................. 178
Genus Badamia Moore, 1881 .................................... 185
LITERATURE CITED .................................................... 402
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Character states of Coeliadine genera</td>
<td>189</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tibia of the mesothoracic leg of <em>Allora</em></td>
<td>191</td>
</tr>
<tr>
<td>2. Wing venation of <em>Burara</em></td>
<td>193</td>
</tr>
<tr>
<td>3. Wing venation of Coeliadine genera</td>
<td>195</td>
</tr>
<tr>
<td>4. Cladogram of the subfamily Coeliadinae</td>
<td>197</td>
</tr>
<tr>
<td>5. Contours of species density of <em>Choaspes</em></td>
<td>199</td>
</tr>
<tr>
<td>6. Groups of the genus <em>Choaspes</em></td>
<td>201</td>
</tr>
<tr>
<td>7. <em>Choaspes</em> species from North India</td>
<td>203</td>
</tr>
<tr>
<td>8. <em>Choaspes</em> species from the Malay Peninsula</td>
<td>205</td>
</tr>
<tr>
<td>9. <em>Choaspes</em> species from the Philippines</td>
<td>207</td>
</tr>
<tr>
<td>10. Distribution of <em>Choaspes</em></td>
<td>209</td>
</tr>
<tr>
<td>11. Distribution of <em>Burara</em> species (1)</td>
<td>211</td>
</tr>
<tr>
<td>12. Distribution of <em>Burara</em> species (2)</td>
<td>213</td>
</tr>
<tr>
<td>13. Distribution of <em>Burara</em> species (3)</td>
<td>215</td>
</tr>
<tr>
<td>14. Distribution of <em>Bibasis</em> species</td>
<td>217</td>
</tr>
<tr>
<td>15. Distribution of <em>Allora</em> species</td>
<td>219</td>
</tr>
<tr>
<td>16. Distribution of <em>Hasora</em> species (1)</td>
<td>221</td>
</tr>
<tr>
<td>17. Distribution of <em>Hasora</em> species (2)</td>
<td>223</td>
</tr>
<tr>
<td>18. Distribution of <em>Hasora</em> species (3)</td>
<td>225</td>
</tr>
<tr>
<td>19. Distribution of <em>Hasora</em> species (4)</td>
<td>227</td>
</tr>
<tr>
<td>20. Distribution of <em>Hasora</em> species (5)</td>
<td>229</td>
</tr>
<tr>
<td>21. Distribution of <em>Hasora</em> species (6)</td>
<td>231</td>
</tr>
<tr>
<td>22. Distribution of <em>Hasora</em> species (7)</td>
<td>233</td>
</tr>
</tbody>
</table>
23. Distribution of Coeliades species (1) .................... 235
24. Distribution of Coeliades species (2) .................... 237
25. Distribution of Coeliades species (3) .................... 239
26. Distribution of Pyrrhiades species ....................... 241
27. Distribution of Badamia species ......................... 243
28. Androconial scales of Burara ............................ 245
29. Burara species (1) ........................................ 247
30. Burara species (2) ........................................ 249
31. Burara species (3) ........................................ 251
32. Burara species (4) ........................................ 253
33. Burara species (5) ........................................ 255
34. Burara species (6) ........................................ 257
35. Burara species (7) ........................................ 259
36. Burara species (8) ........................................ 261
37. Bibasis species ............................................. 263
38. Allora species ................................................ 265
39. Basora species (1) ......................................... 267
40. Basora species (2) ......................................... 269
41. Basora species (3) ......................................... 271
42. Basora species (4) ......................................... 273
43. Basora species (5) ......................................... 275
44. Basora species (6) ......................................... 277
45. Basora species (7) ......................................... 279
46. Basora species (8) ......................................... 281
47. Hasora species (9) ........................................... 283
48. Hasora species (10) ........................................... 285
49. Hasora species (11) ........................................... 287
50. Coeliades species (1) ........................................... 289
51. Coeliades species (2) ........................................... 291
52. Coeliades species (3) ........................................... 293
53. Coeliades species (4) ........................................... 295
54. Coeliades species (5) ........................................... 297
55. Coeliades species (6) ........................................... 299
56. Choaspes species (1) ........................................... 301
57. Choaspes species (2) ........................................... 303
58. Choaspes species (3) ........................................... 305
59. Choaspes species (4) ........................................... 307
60. Choaspes species (5) ........................................... 309
61. Pyrrhochalcia iphis ........................................... 311
62. Pyrrhiades species (1) ........................................... 313
63. Pyrrhiades species (2) ........................................... 315
64. Badamia species ............................................. 317


**LIST OF PLATES**

<table>
<thead>
<tr>
<th>Plate</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Burara</em> species (1)</td>
<td>319</td>
</tr>
<tr>
<td>2. <em>Burara</em> species (2)</td>
<td>321</td>
</tr>
<tr>
<td>3. <em>Burara</em> species (3)</td>
<td>323</td>
</tr>
<tr>
<td>4. <em>Burara</em> species (4)</td>
<td>325</td>
</tr>
<tr>
<td>5. <em>Burara</em> species (5)</td>
<td>327</td>
</tr>
<tr>
<td>6. <em>Burara</em> species (6)</td>
<td>329</td>
</tr>
<tr>
<td>7. <em>Burara</em> species (7)</td>
<td>331</td>
</tr>
<tr>
<td>8. <em>Burara</em> species (8)</td>
<td>333</td>
</tr>
<tr>
<td>9. <em>Burara</em> species (9)</td>
<td>335</td>
</tr>
<tr>
<td>10. <em>Burara</em> species (10)</td>
<td>337</td>
</tr>
<tr>
<td>11. <em>Bibasis</em> species</td>
<td>339</td>
</tr>
<tr>
<td>12. <em>Allora</em> species (1)</td>
<td>341</td>
</tr>
<tr>
<td>13. <em>Allora</em> species (2)</td>
<td>343</td>
</tr>
<tr>
<td>14. <em>Allora</em> species (3)</td>
<td>345</td>
</tr>
<tr>
<td>15. <em>Hasora</em> species (1)</td>
<td>347</td>
</tr>
<tr>
<td>16. <em>Hasora</em> species (2)</td>
<td>349</td>
</tr>
<tr>
<td>17. <em>Hasora</em> species (3)</td>
<td>351</td>
</tr>
<tr>
<td>18. <em>Hasora</em> species (4)</td>
<td>353</td>
</tr>
<tr>
<td>19. <em>Hasora</em> species (5)</td>
<td>355</td>
</tr>
<tr>
<td>20. <em>Hasora</em> species (6)</td>
<td>357</td>
</tr>
<tr>
<td>21. <em>Hasora</em> species (7)</td>
<td>359</td>
</tr>
<tr>
<td>22. <em>Hasora</em> species (8)</td>
<td>361</td>
</tr>
</tbody>
</table>

xii
23. Hasora species (9) ........................................... 363
24. Hasora species (10) ........................................... 365
25. Hasora species (11) ........................................... 367
26. Hasora species (12) ........................................... 369
27. Hasora species (13) ........................................... 371
28. Coeliades species (1) ........................................... 373
29. Coeliades species (2) ........................................... 375
30. Coeliades species (3) ........................................... 377
31. Coeliades species (4) ........................................... 379
32. Coeliades species (5) ........................................... 381
33. Choaspes species (1) ........................................... 383
34. Choaspes species (2) ........................................... 385
35. Choaspes species (3) ........................................... 387
36. Choaspes species (4) ........................................... 389
37. Choaspes species (5) ........................................... 391
38. Choaspes species (6) ........................................... 393
39. Pyrrhochalcia iphis and Pyrrhiades species (1) ...... 395
40. Pyrrhiades species (2) ........................................... 397
41. Badamia species (1) ........................................... 399
42. Badamia species (2) ........................................... 401
I. INTRODUCTION

This study reviews the subfamily Coeliadinae of the family Hesperiidae. Coeliadines are rather large and colorful skippers distributed only in the Old World. An American subfamily Pyrrhopyginae replaces Coeliadinae and is believed to be the sister taxon. Asian and Australian members of the group are known as owls and owlets because of their shapes of labial palpi, while African members are known as policemen because of their rapid flight and chasing behavior. Over 100 species are known. Early stages and bionomics are known for only a few species and await more study. Larvae feed strictly on dicotyledons.

In this study, relationships of genera as well as species, distribution patterns, and taxonomy are discussed.

Taxonomic History

The taxonomic history of the subfamily Coeliadinae began with Dru Drury (1773), an English jeweler, who described the first taxon, *Papilio Plebeius Urbicola iphis* (now *Pyrrhochalcia iphis*). He was followed by Fabricius (1775) and Cramer (1777).

The number of described taxa increased rapidly from 1850 due to the efforts of Moore (1866, 1881), Mabille (1876a, b), Plötz (1879), and Elwes & Edwards (1897). Moore (1881)
established 4 major Asiatic genera of the subfamily, Bibasis, Badamia, Choaspes and Hasora.

Watson (1893) proposed the first comprehensive classification of the family Hesperiidae. His classification was based on the antenna, the third palpal segment, wing venation, male secondary sexual characters, and the resting position of wings. He incorrectly considered the group (an exclusive dicotyledon feeder) as a section of Pampilinae (now Hesperiinae), which includes almost all skippers that feed on monocotyledons. Watson recognized 5 genera.

Elwes & Edwards (1897) revised the Oriental Hesperiidae. They emphasized the importance of the structure of the male genitalia in diagnosing species. They considered that the group was distinctly separated from Pampilinae by the porrect and filiform third segment of the palpi. They also recognized the same 5 genera as Watson. However, their concepts of Ismene (now Burara) and Bibasis were somewhat different from those of Watson. Mabille (1903 - 1904) relied on the same characters as Watson. He named the subfamily Ismeninae and transferred 2 species of Rhopalocampta to his new Pyrrhochalcia. Fruhstorfer (1911) added 46 taxa. Most of these taxa, however, are considered either junior synonyms or intraspecific variations by current authors.

Brigadier William Harry Evans, in his celebrated work on
world Hesperiidae, revised the African (1937) and Indo-
Australian (1932, 1934, 1949) taxa of the Coeliadinae. The
era when Evans was working on hesperiid taxonomy was the
beginning of the "New Systematics" of Huxley (1940).
Apparently, he was primarily concerned with constructing a
good reference system and determining species limits
morphologically among hundreds of extremely similar, often
undescribed, skippers. In radically lumping series of
geographically allopatric taxa [superspecies of Mayr (1942)]
all together as single species, he relied strongly on male
genitalia. For that reason, Burns (1985), among others,
accused him of reducing good species to subspecific rank. I
feel it was rather fortunate for subsequent skipper workers
that Evans completed his catalogue in that fashion. If he
did not, it would be very difficult to follow his
classification unless each description is compared with the
synoptic collection in the Natural History Museum (BMNH).
Moreover, his treatment of geographically replacing taxa
intrinsically suggests a vicariance model of biogeography.

Evans' work contributed greatly to the advancement of
the classification of Hesperiidae, including the subfamily
Coeliadinae. However, it is still far from the optimal
reference system. First, he did not examine taxa from the
Philippines adequately because of the lack of materials from
the area in the BMNH. Second, his classification is not much more than just alpha taxonomy. The numerical taxonomy and cladistics movements treating relationships of taxa came after his death in 1956. Third, because he treated 3 geographical areas in separate volumes, relationships of taxa distributed across these disjunct areas were not certain.

Only a few studies on the classification of Hesperiidae have been published since Evans and few taxa have been added to the list of Coeliadinae (e.g., Eliot, 1970; de Jong, 1980; 1982; Schroder & Treadaway, 1986; Hsu, 1988). Although there are 2 catalogs (Shepard, 1933; Bridges, 1988), no revision of the subfamily Coeliadinae as a whole has been done since those of Mabille (1903 - 1904) and Evans (1937; 1949).

General Morphology

Head: - Compound eyes bare, except in the genus Choaspes and Hasora mus. In these taxa, eyes are covered with hairs. No other hesperiids possess hairs on compound eyes. Labial palpus: first segment very short; second segment largest, cubic and erect; third segment needle like, naked and porrect. Antenna smooth, gradually expanded from shaft to club and tapered from club to apiculus; club slender and long; apiculus arcuate, sharply pointed. Eyelash absent.

Thorax: - Prothoracic leg with a "tibial epiphysis"; tibia of
mesothoracic leg usually smooth and with terminal pair of spurs (except Allora, which has a row of spines on tibia, Figure 1); metathoracic leg with two pairs of spurs; in most genera, tibia with recumbent hair pencil outside leg, an erectile tuft often entering a pouch projecting from end of thorax, or both.

Wings: - The wings of most species are suited for their rapid flight. Forewing triangular and produced at apex; space between costa and discoidal cell narrow, and radial veins close to each other. Hindwing tornus often lobate and caudate; termen excavate above tornus between veins 1b and 2. For the notation of the wing veins, Numerical (Tillyard) system is used and, if necessary, the Comstock system is supplemented in parenthesis (Figure 2). The forewing has 12 longitudinal veins: 12 (Sc), 11 (R1), 10 (R2), 9 (R3), 8 (R4), 7 (R5), 6 (M1), 5 (M2), 4 (M3), 3 (CuA1), 2 (CuA2), 1b (1A+2A). As in other hesperiids, each vein arises separately from the discoidal cell or base of the wing, none being forked beyond the cell. Vein 5 at its origin tends to be nearer to vein 6 than vein 4. Discocellular vein very thin or faint. The hindwing has 9 longitudinal veins: 8 (Sc+R1), 7 (Rs), 6 (M1), 5 (M2), 4 (M3), 3 (CuA1), 2 (CuA2), 1b (1A+2A), and 1a (3A). Vein 5 is absent in three African genera and Choaspes. Vein 1b often is extended as the
hindwing tornus is caudate. Discocellular vein is faint or absent.

Abdomen: - The abdomen is shorter than the dorsum of the hindwing. In three African genera, males have the intersegmental membrane between 8th tergite and genitalia clothed with a dark hair tuft.
II. MATERIALS AND METHODS

Over 5,000 specimens belonging to the subfamily were examined. Specimens were examined in situ or borrowed from the following institutions and private collections: Academia Sinica, Beijing (AS); Allyn Museum of Entomology, Sarasota (AME); Australian National Insect Collection, CSIRO, Canberra (ANIC); B. P. Bishop Museum, Honolulu (BPBM); Carnegie Museum of Natural History, Pittsburgh (CMNH); Hideyuki Chiba, Honolulu and Fukuoka (HC); Tomoo Fujioka, Tokyo (TF); Kitakyushu Museum of Natural History, Kitakyushu (KMNH); Kyushu University, Fukuoka (KU); Los Angeles County Museum, Los Angeles (LACM); Kiyoshi Maruyama, Kawasaki (KM); Museum of Comparative Zoology, Cambridge (MCZ); National Science Museum, Tokyo (NSM); Natural History Museum, London (BMNH); Kazuhisa Ohtsuka, Tokyo (KO); Etsuzo Tsukada, Tokyo (ET); Hiroshi Tsukiyama, Funabashi (HT); United States National Museum of Natural History, Washington, D. C. (NMNH).

External morphological characters were examined and illustrated, if necessary, using a stereo microscope. For the examination of wing venation, wings were removed from thorax, soaked in 10% KOH, cleared in Chlorox, and rinsed with water. For the examination of male and female genitalia, the entire abdomen was removed, boiled in 10% KOH, rinsed in water, and dissected in lactic acid. Wing venation
and genitalia were examined and illustrated under a stereo microscope. Morphological terminology follows Evans (1949) and Kawazoé & Wakabayashi (1976). Genitalic terminology follows Tuxen (1970).

Methods of cladistic analysis and biogeography are discussed in each section.
III. CLADISTIC ANALYSIS

Introduction

No true phylogenetic hypothesis of the subfamily Coeliadinae has been published. A few authors have postulated that the Asiatic genus *Choaspes* and African genus *Coeliades* (sens. lato) were closely related (Evans, 1937; Eliot, 1978).

The order of arrangement of genera (or species) or the separation key in revisional work often, but not always, implies the author's ideas of phylogenetic relationships of the group. If so, the following arrangements have been postulated (closely related genera are enclosed in parenthesis): (Hasora, (Burara, Bibasis)), (Choaspes, Badamia) (Evans, 1932); ((Bibasis, Allora), Hasora), (Choaspes, Badamia) (Evans, 1949); (Pyrrhochalcia, (Pyrrhiades, Coeliades)) (Lindsey & Miller, 1965); (Bibasis, Hasora), (Choaspes, Badamia) (Eliot, 1978); ((Burara, Bibasis), Hasora), (Choaspes, Badamia) (Maruyama, 1991). These can be summarized to (((Burara, Bibasis), Allora), Hasora), (Choaspes, Badamia) and (Pyrrhochalcia, (Pyrrhiades, Coeliades)). I used these arrangements as a working hypothesis for the relationships of the genera of Coeliadinae.
Methods of Analysis

The cladistic analysis of the Coeliadine genera used the computer program PAUP (Phylogenetic Analysis Using Parsimony) Version 3.0 for Macintosh (Swofford, 1989). I used terms such as cladogram, cladistic analysis, and character change rather than trees, phylogeny, and character evolution to indicate relationship based on the pattern of distribution of synapomorphic characters. It is not assumed that the cladogram necessarily reflects true evolutionary history of the group.

Characters and Character States

Due to the lack of other information, adult morphology only was used for the cladistic analysis. Character states are unordered and Wagner parsimony was assumed. In other words, I assumed that a character state can change to any other character state. Autoapomorphies were removed from the final analysis.

Unknown character state is coded "?".

Character#1

Forewing, origin of vein 3

0 = distad of origin of vein 11

1 = opposite to origin of vein 11
2 = basad of origin of vein 11

Character#2
Forewing, vein 6
0 = straight
1 = sinuate and closer to vein 7

Character#3
Forewing, discoidal cell
0 = longer than dorsum
1 = equal length as dorsum
2 = shorter than dorsum

Character#4
Hindwing, origin of vein 7
0 = within middle 1/3 between origins of veins 2 and 3
1 = closer to vein 3
2 = closer to vein 2

Character#5
Hindwing, vein 5
0 = present
1 = absent

Character#6
Hindwing, origin of vein 3 separated from discoidal cell
0 = not separated
1 = separated

Character#7
hindwing, cell
0 = shorter than 1/2
1 = longer than or equal to 1/2 wing wing

Character#8
Hyaline spot
0 = present
1 = absent

Character#9
Metathoracic leg, tibial hair tuft
0 = absent
1 = present

Character#10
Metathoracic leg, tibial hair pencil
0 = absent
1 = present

Character#11
Male stigma or brand
0 = absent
1 = present

Character#12
Hair tuft on tip of abdomen
0 = absent
1 = present

Character#13
Antenna
0 = longer than 1/2 length of costa
1 = shorter than 1/2 length of costa
2 = equal to 1/2 length of costa

Character #14
Male genitalia, uncus
0 = single or bifurcate at tip
1 = bifurcated at base

For the character states of each genus, see Table 1.

Reconstruction of the Cladogram

The exhaustive search option of PAUP was used to reconstruct cladograms. The most parsimonious (= shortest) cladogram was retained. The cladogram was rooted using the outgroup method (Watrous & Wheeler, 1981). Pyrrhopyginae, which replaces Coeliadinae in the New World, was used as an outgroup, assuming that it is the sister taxon of Coeliadinae (Evans, 1949).

Results and Discussion

A single most parsimonious cladogram of length 31 was obtained (Figure 4). The result matches treatments of genera by previous authors except for the arrangement of African genera. Burara, Bibasis, Hasora, and Allora form a group in
the order ((Burara, Bibasis), Hasora), Allora. The rest of
the genera form a group in the order ((Choaspes, Coeliades),
(Pyrriadiades, Pyrrhochalcia), Badamia.

The data show the close relationship between Asian
Choaspes and African Coeliades as expected. Indeed, they
once were treated together as Rhopalocampta (Mabille, 1903 -
1904). If African genera are ignored, the relationship
(Choaspes, Badamia) is supported.

The relationship (Pyrrhochalcia, (Pyrriadiades,
Coeliades)) was denied on the cladogram. Group (Pyrriadiades,
Coeliades) was based on symplesiomorphic characters. The
sister group relationship is (Coeliades, (Pyrriadiades,
Pyrrhochalcia)). One of the member of Pyrrhiades, P. lucagus,
was once considered congeneric with iphis in the genus
Pyrrhochalcia (Mabille, 1903 - 1904).

The Consistency Index was rather low (CI = 0.581). Of
14 characters, 6 characters (1, 3, 5, 7, 9, 11) are 100%
consistent with the cladogram; 3 characters (6, 10, 12)
required one extra step; 5 characters (2, 4, 8, 13, 14)
require 2 extra steps. Those characters not consistent with
the cladogram are discussed below.

Character#2, vein 6 on the forewing, changes (0 to 1) at
(Badamia, Pyrrhochalcia, Pyrrhiades, Coeliades, Choaspes).
Then reverses (1 to 0) in Choaspes and Pyrrhiades. There is
no logical reason for this kind of change. Variation in Character #2 appears to be random so it is not a reliable character.

Character #4, origin of vein 7 on the hindwing, changes (0 to 1) at (Allora, Hasora, Bibasis, Burara), then changes (1 to 2) at (Burara, Bibasis). It also changes (0 to 1) independently in Choaspes and Pyrrhochalcia. Again there is no reason to explain these changes.

Character #8, the hyaline spot is a unique characteristic of the family Hesperiidae. It differs significantly from other transparent spots on the wing of Lepidoptera in having modified scales (Chiba, 1988a). It was probably lost secondarily in Burara, Allora, Choaspes, Coeliades, Pyrrhiades, and Pyrrhochalcia. There is one species in Burara (B. vasutana) which shows a trace of the hyaline spot.

Character #10 changes (0 to 1) independently at (Burara, Bibasis) and in Choaspes. Choaspes has a tibial hair tuft in addition to the hair pencil. It is probable that the hair pencil in Choaspes has a different origin from those of Burara and Bibasis.

Character #12, abdominal hair tuft can be seen only in African genera. It probably was lost secondarily in Choaspes.

Character #13, length of antenna, changes (0 to 1) at
(Burara, Bibasis, Hasora) and at (Coeliades, Choaspes) it also changes (0 to 2) in Badamia and Pyrrhiades. Determination of character states in Coeliades and Pyrrhiades was critical.

Character#14, bifurcation of uncus, probably changed independently.

In summary, the relationship produced by taxonomists in a somewhat intuitive way based on the overall similarity was significantly similar to the result of the analysis of numerical data. This is not surprising. Choosing morphological characters and character states in cladistics analysis is still reliant on the systematists' intuitive skills. Therefore, when the characters are selected, the systematist already has a cladogram on his or her mind. Even though I tried to avoid such a tautological problem, I probably was affected to some extent.

Other data sets, such as molecular data, should be analyzed and compared to the cladogram obtained from purely morphological data (Vane-Wright et al., 1992). However, it is not an easy task since most of the taxa of the group are known from only a few dried museum specimens.
IV. BIOGEOGRAPHY

Biogeography, study of animal and plant distribution, has been influenced by Alfred Russell Wallace's (1876) zoogeographic regions and Charles Darwin's (1859) concepts of 'center of origin,' 'means of dispersal,' and 'causal migration.' In spite of innumerable criticisms, their ideas are still popular among lepidopterists, most notably among amateurs, and those assumptions are often assumed to be correct without asking any questions. Wallace's primary concern was the distribution pattern of animals, while that of Darwin was the process of how the pattern was formed. The current school of "Evolutionary biogeography" is a compromised version of Wallace's regions coupled with Darwin's theories (Chiba, 1988b).

Contours of Species Density

Assume that 1) a group (genus in particular) originates in a 'center of origin,' 2) speciation occurs in the center, 3) some species 'migrate' out of the center, and 'disperse' beyond geographic variers. Then, the method to find center is 1) plot the number of species in the group in each locality on the map, 2) surround localities which have the same number by lines from the smallest number to the largest. The result is a contour of the species density. As one
follows the lines inward, the diversity of species increases, and the most dense locality is considered as the 'center of origin.'

Figure 5 shows the contour of the species density of *Choaspes* based on the distribution data known to me before 1986. Two separate regions, North India to West China and the Malay Peninsula to Sumatra, have the highest density of 4 and 3 respectively. This result agrees with Holloway (1969). He classified the distribution of the genus *Choaspes* as one of the 'seven genera centered broadly from Sundaland to Assam.' It could be interpreted, as the map indicates, that the genus *Choaspes* evolved in a center, which was probably located in North India, West China, or Sundaland, and then spread widely to the surrounding areas.

The above scenario is a typical explanation which evolutionary biogeographers often use. Chiba (1988b) criticized this method from a practical point of view. First, although it is assumed that localities which have the same species density are gathered in a closed line, in actuality the densities which are encircled are not equivalent. For example, density 2 in Java consists of *C. plateni extensa* and *C. subcaudata*, while density 2 in East China consists of *C. benjaminii japonica* and *C. hemixanthus furcata*. Second, intraspecific diversity is not considered.
Therefore, intra- and interspecific relationships are not clear. Third, the approach of analyzing the genus as a discreet element may obscure the true origin of the genus. Accordingly, *Coeliades* and other African relatives should also be considered in determining the true origin. Chiba (1988b) further discussed the alternative approach which is applied in this study.

**Cladistic Biogeography**

Recent developments in systematics and biogeography have tended to be merely theoretical. It seems that this tendency has been intensified since Hennig's (1966) 'Phylogenetic Systematics' was introduced to the English-speaking world. More than half of the current publications on cladistics and phylogenetic systematics are preoccupied with philosophical issues such as monophyly and mathematical formulae for generating most parsimonious solutions. The controversies seem to continue as workers deny their opponents' previous argument.

In historical biogeography, 'Cladistic biogeography' (Nelson & Platnick, 1981; Humphries & Parenti, 1986) dominates. Proponents assume that 1) vicariance, not dispersal, is the primary cause of the disjunct distribution, 2) area cladograms are generated only after taxonomic
cladograms (in other words, systematics first, biogeography second), 3) the ultimate goal of biogeography is obtaining an area cladogram which can explain distribution of animals and plants of the world (Humphries et al., 1988). I do agree with the first assumption, but not the second and the third. One of my objectives in this study is to show that the distribution pattern itself can influence the systematics.

Distribution Pattern of Choaspes

A well-executed classification (not cladistics) is the prerequisite for the subsequent biogeographical analysis.

Chiba (1988b) arranged the genus Choaspes in 4 groups, and plotted the collecting localities on a map. By doing so, he proposed a general pattern of the distribution of the genus. Here I modify Chiba (1988b) and explain the distribution pattern of the genus Choaspes which does not agree with the contour of species density.

Choaspes can be divided into 2 groups: benjaminsii-group and xanthopogon-group (Figure 6a). The main difference between these two groups is the position of the valvae in relation to the uncus and vinculum (Figure 6b). In the benjaminsii-group, the valva attaches to the vinculum at a right angle; the uncus, therefore, is not covered by the valva; the valva is beak-like at the tip. In the
xanthopogon-group, on the other hand, the valva attaches to the vinculum perpendicular to it; the uncus is covered by valva and the valva has a process at the tip. Color patterns of hitherto known larvae match this grouping (Chiba, 1989; Igarashi, 1992).

These 2 groups can be divided further into 2 subgroups respectively (Figure 6a).

Major localities of Choaspes are discussed below. Four taxa are found in North India: C. stigmatus stigmatus, C. benjaminii japonicus, C. xanthopogon xanthopogon, C. hemixanthus furcatus (Figure 7). Though they look extremely similar in appearance, these 4 taxa belong to 4 different subgroups of the genus. In other words, one and only one representative from each subgroup is found in India. One of these 4 taxa, stigmatus, has male stigma on the wing, and is easily recognized from its closer relative benjaminii. In xanthopogon-group, xanthopogon and hemixanthus have different color tones. As a result, benjaminii and xanthopogon, those which belong to different groups, resemble with each other. Indeed, the 2 taxa were confused and often considered the same until 2 different looking larvae were found.

In the Malay Peninsula, 3 taxa are found: C. stigmatus caudatus, C. benjaminii flavens, and C. subcaudatus crawfurdi (Figure 8). In these taxa, the tornus of the hindwing is
yellow and lobed. Again, these 3 taxa are representative of 3 different subgroups. A representative from xanthopogon-subgroup is missing.

In the Philippines, except Palawan, 2 taxa are found: C. adhara and C. xanthopogon estrella (Figure 9). The latter taxon belongs to the xanthopogon-subgroup.

C. adhara is somewhat problematic. Evans (1949) considered that adhara was a subspecies of plateni from Sulawesi together with stigmatus because they share the same character, male stigma. Male genitalia of adhara and plateni, however, are more similar to that of benjaminii than that of stigmatus. Chiba (1988b) proposed, therefore, that adhara and plateni were rather closer to benjaminii and representative of the benjaminii- and stigmatus-subgroups. In other words, there is one and only one representative, instead of two, of the benjaminii-group in the Philippines and Sulawesi. New Guinean illuensis is another such case. In the Philippines, then, only the hemixanthus element is missing.

In summary, all or part of 4 taxa representing 4 different subgroups are found in each area. Those subgroups are widely distributed in the range of the genus. In each locality, the wing pattern of these taxa resembles each other. On the other hand, related taxa belong to the same
subgroup but found in different localities differ
significantly in appearance. Further, it is very likely that
a taxon, which is hitherto unknown in a locality, belonging
to a subgroup of which the representative is missing there.

In Sumatra, according to Evans (1949), 4 taxa are found: C. stigmatus caudatus, C. pallidus, C. subcaudatus crawfurdi, and C. hemixanthus cora. The first and the second taxa belong to the stigmatus- and benjaminii-subgroups respectively. Both the third and the fourth taxa belong to hemixanthus-subgroup. If this is true, my hypothesis is falsified, because two representatives of the same subgroup are found in one locality. If one of these two taxa belong to xanthopogon-subgroup, which is missing there, then, my hypothesis is not falsified.

In this study, the above hypothesis was tested for new data since 1988 for the genus Choaspes. It was also examined to see if the pattern is applicable to other Coeliadine genera in South East Asia as well as in Africa.

Biogeography of Choaspes
(Figure 10)

Since Chiba (1988b), 2 new taxa of Choaspes were described. I examined the data to see if these new findings falsify my hypothesis or not. The type specimen of C.
hemixanthus cora also was examined to answer the question as mentioned above.

(1) Discovery of C. xanthopogon from Taiwan

A sole taxon, C. benjamiini formosana, has been known from Taiwan. In 1988, C. xanthopogon was discovered and mentioned briefly in Chiba (1988b). About the same time, it was found independently and described as a new subspecies chrysopterus (Hsu, 1988). C. xanthopogon belongs to the xanthopogon-subgroup of xanthopogon-group. Therefore, this case does not falsify my hypothesis.

(2) Discovery of C. hemixanthus from Sulawesi

C. plateni was the only Choaspes known from Sulawesi. As mentioned earlier, this taxon represents both benjamiini- and stigmatus-subgroups. Two elements, xanthopogon and hemixanthus, were missing. Recently, a new taxon C. hemixanthus wallacei was discovered (Tsukiyama & Chiba, 1991). The male genitalia shows an intermediate character in between hemixanthus and subcaudatus. This case does not falsify my hypothesis.

(3) Correct status of C. hemixanthus cora

Evans (1949) described cora as a subspecies of C. hemixanthus. If his treatment is correct, two taxa of the same subgroup, subcaudatus and cora, are found in Sumatra sympatrically. Then, my hypothesis is falsified. However,
if cora really belongs to the xanthopogon-subgroup, then, my hypothesis survives. I examined the only known specimen of cora. The genitalia showed the typical character of C. xanthopogon. Therefore, cora, in fact, belongs to xanthopogon-subgroup and my hypothesis is not falsified.

These 3 cases of Choaspes did not falsify my hypothesis. More examples are needed to defend the hypothesis.

Biogeography of Burara
(Figure 11, 12, 13)

The distribution pattern of Burara does not falsify the hypothesis. As in the case of Choaspes, a set of taxa belonging to different species or species groups are found in a locality, and each element is replaced by another element belonging to the same group in a different locality.

There are two different series of distribution in this genus. One extends from Sri Lanka through Sundaland to Sulawesi and the Philippines. The distribution is restricted within the west side of the Weber's line. No taxon is found in Lesser Sunda Islands (Figure 11, 12). Another one extends from North India through China to Korea and Japan (Figure 13).

B. oedipodea is found everywhere in the range except in Sri Lanka. It shows significant geographic variations. B.
B. etelka also is found everywhere except in Sri Lanka. Evans (1949) considered B. etelka and B. imperialis different species. Here, they are treated as a single species. Therefore, B. etelka is found from Burma to Sulawesi. The element was missing in the Philippines. B. etelka was found recently in Mindanao and the blank was filled. B. jaina is found from Sri Lanka to the Sunda Islands and Taiwan. Sulawesian B. phul, judging from morphological characters, probably is a sister taxon of B. jaina. B. harisa is found from North India through Sundaland to Sulawesi. No representative is known from the Philippines except Palawan. B. tuckeri is found only in Myanmar, West Malaysia and Borneo. It is expected, from the hypothesis, that tuckeri itself or a related taxon will be found to fill the gap of distribution. Evans (1949) considered purplea as a synonym of anadi. Eliot (1980) described owstoni as a distinct species. Based on the male genitalia, wing markings and secondary sexual characters, I consider purprea and owstoni subspecies of anadi. Their distribution is restricted from India to the Malay Peninsula.

In another series of distribution, striata and aquilina are distributed sympatrically. Though these two species differ significantly in appearance, their male genitalia are almost identical. In North India and Thailand, both of them
are replaced by *amara* and *vasutana*. In Fujian, China, *miracula* is found. It is not certain if *miracula* flies together with *striata*, *aguilina* or both. If three of them are found together, my hypothesis of distribution pattern is falsified.

Biogeography of *Bibasis*

(Figure 14)

Two species groups have sympatric distribution. *B. sena* is found from Sri Lanka through Sundaland to the Philippines, Sulawesi and the Lesser Sunda Islands. Another species group has disjunct distribution. *B. mahintha* is found only from Myanmar and Thailand. There is no representative in Sundaland. *B. nestor* is found in Java as well as Lesser Sunda Islands. *B. illuska* is restricted to Sulawesi and adjacent islands. No representative is known from the Philippines. The hypothesis is not falsified in this case.

Biogeography of *Allora*

(Figure 15)

In cladistic relationship, *Allora* is a sister taxon of *((Burara, Bibasis), Hasora)*. Geographically it replaces *((Burara, Bibasis)*. Further evidence may or may not support this relationship.
Two species, *doleschalii* and *major*, are found together in Buru, Ceram, Amboina, Kei, Aru, New Guinea, New Britain and Northern Australia. Elsewhere in Papuan region, either *doleschalii* or *major* is found. It is expected that both species are sympatric everywhere. The hypothesis is not falsified.

Biogeography of *Hasora*
(Figure 16, 17, 18, 19, 20, 21, 22)

Evans (1949) divided the genus into 6 groups. I divide them into 7 species groups of 3 or 4 species. Distribution pattern of each group is considered below.

(1) The *mus*-group
(Figure 16)

The members of this group are *H. mus*, *H. lizetta*, *H. salanga*, and *H. proxissima*. These four species have sympatric distribution in Sundaland. *H. proxissima* extends the distribution to the Philippines, New Guinea, and Solomon Islands. De Jong (1980) described *H. alta* as a distinct species from Sumatra. Judging by the photograph and the sketch of male genitalia, I consider *alta* a subspecies of *mus*. It fills the blank of distribution in Sumatra. The hypothesis is not falsified.
(2) The myra-group

(Figure 17)

Four species, *H. anura*, *H. myra*, *H. wilcocksi*, and *H. zoma*, are the members. Evans (1949) described *H. danda* from Myanmar. *H. danda*, however, is identical to *H. anura*, and considered a synonym of *anura*. *H. anura* is distributed from North India to Thailand, China and Taiwan. It is replaced by *H. myra* and *H. zoma* in Sundaland. *H. wilcocksi* is known from single female specimen from Tioman Island. It is a representative of this group there.

(3) The discolor-group

(Figure 18)

Members of this group are *H. umbrina*, *H. buina*, *H. discolor* and *H. borneensis*. *H. borneensis* is found in Borneo and the Philippines. It is replaced by *H. umbrina* in Sulawesi. *H. discolor* is the representative from Moluccas to New Ireland and Australia. It is replaced by *H. buina* in Solomon Islands.

(4) The chromus-group

(Figure 19)

The members of this group are *H. chromus*, *H. taminatus*, *H. hurama* and *H. schoenherr*. *H. chromus* is distributed throughout the range of the genus from Sri Lanka to Fiji. *H. taminatus* is found from Sri Lanka to Moluccas and Waigeo.
Subspecies *diapama* known from Waigeo may be mislabeled. *H. schoenherr* is distributed from North India through Sundaland to the Philippines, but not in Sulawesi. The shape of the valva of subspecies *saida* from the Philippines differs significantly from that of *schoenherr* and other subspecies. It may be a distinct species. *H. hurama* is similar to *H. taminatus* in appearance. Male genitalia of *hurama* is more similar to *H. schoenherr* than that of *H. taminatus*. Geographically *H. hurama* replaces *H. schoenherr*. Distribution of *H. hurama* and *H. taminatus* overlap in the Moluccas.

(5) The *celaenus*-group

(Figure 20)

Five species, *H. mixta*, *H. celaenus*, *H. badra*, *H. quadripunctata* and *H. subcaelestis*, are the members of the group. *H. mixta* is distributed from North India to Moluccas. It is replaced by *H. celaenus* from Moluccas to New Guinea. They are overlapping in the Moluccas. *H. badra* is known from Sri Lanka to Sulawesi. *H. quadripunctata* is found from Thailand to Moluccas. They are replaced by *H. subcaelestis* in New Guinea.

(6) The *vitta*-group

(Figure 21)

*H. vitta*, *H. moestissima* and *H. perplexa* are the members
of this group. *H. vitta* is known from North India to Sulawesi. An isolated subspecies *similima* is known from New Guinea. *H. moestissima* is found only from the Philippines and Sulawesi. *H. perplexa* is the sole representative of this group in the Moluccas.

(7) The *thridas*-group

(Figure 22)

Three species, *H. khoda*, *H. leucospila* and *H. thridas*, are the members of this group. *H. khoda* is distributed from North India to Australia and New Caledonia. *H. leucospila* is known from Thailand to the Philippines and Moluccas. *H. thridas* is known from Moluccas and New Guinea. Again, in the Moluccas, *H. leucospila* and *H. thridas* are overlapping.

In the 3 cases, the distributions of closely related species overlap in Moluccas. Further investigation is necessary if they actually fly together, or the overlap is just an artifact. Otherwise, the pattern of distribution hypothesized in the genus *Choaspes* is applicable in the genus *Hasora* as well.

Biogeography of *Coeliades*

(Figure 23, 24, 25)

*C. bixana* and *C. chalybe* are distributed sympatrically
in West Africa. *C. chalybe* extends its distribution to East Africa. They are replaced by *C. fervida* in Madagascar.

*C. forestan* is known in both the African continent and Madagascar. *C. rama*, which belongs to this group, is also found in Madagascar. *C. ramnatek* probably replaces *C. libeon* in Madagascar.

*C. pisistratus* is replaced by *C. fidia* in Madagascar.

*C. hanno*, *C. sejuncta*, *C. menelik* and *C. keithloa* belong to the same group. *C. menelik* and *C. keithloa* have allopatric distribution. *C. hanno* is mainly found in West Africa but also in East Africa where it meets *C. menelik*.

*C. sejuncta* is also found in East Africa.

In the genus *Coeliades* in Africa, the pattern of distribution is not as clear as in Southeast Asia, probably because of the region is continuous. The hypothesis may not be applicable in this case.

**Biogeography of Pyrrhiades**

(Figure 26)

*Pyrrhiades* consists of a series of completely allopatric taxa, except that both *P. lucagus* and *P. aeschylus* have been collected from Sierra Leone. Sierra Leone is the northern limit of the distribution of *P. lucagus* as well as the southern limit of that of *P. aeschylus*. It is not certain if
they actually fly together or they are still allopatric within Sierra Leone. Besides that minor point, the hypothesis is not falsified.

**Biogeography of Badamia**

(Figure 27)

One of two species, *B. exclamationis*, is distributed widely from Sri Lanka through Southeast Asian Islands to Fiji, Samoa and New Hebrides. It is replaced by *B. atrox* in the South Pacific islands. Two taxa are found together in Fiji and New Hebrides. It is not certain if this sympatry occurred secondarily or not. Except this minor overlap, the same pattern of distribution is seen also in this genus.

**Summary**

The hypothesis of distribution pattern is not falsified in the subfamily Coeliadinae except in *Coeliades* in Africa. There are some minor overlaps of distribution near the border where two taxa meet. It will be interesting to learn if the two very closely related species compete, avoid or ignore with each other. The applicability of the hypothesis to other organisms or other geographic areas should be tested.
V. TAXONOMY

In this section, keys to the genera and species, synonymic lists, type informations, brief description and diagnostic characters of each species and subspecies, geographic distribution, early stages and bionomics, if known, are given.

Key to the genera of Coeliadinae

1. Forewing, discoidal cell shorter than dorsum ............2
1'. Forewing, discoidal cell equal to or longer than dorsum
...........................................................................5

2. Tibia of mesothoracic leg spined. Wings are black or
dark brown with metallic blue or green bases. No male
secondary characters
...........................................................................Allora
2'. Tibia of mesothoracic leg not spined. Male often with
secondary sexual characters .................................3

3. Forewing, origin of vein 3 distad of the origin of vein
11. Hindwing, origin of vein 7 closer to vein 2 than vein 3;
cilia usually red or orange at tornus. Metathoracic leg,
tibial hair pencil present ....................................4
3'. Forewing, origin of vein 3 basad of the origin of vein
11; vein 1b acutely bisinuate near base. Hindwing, origin of
vein 7 within middle 1/5 of veins 2 and 3; cilia usually brown. Metathoracic leg, tibial hair pencil absent

................................................................. Hasora

4. Ventral side of the hindwing with a discal band or a trace of band ........................................... Bibasis

4'. Ventral side of the hindwing without a discal band

................................................................. Burara

5. Forewing, discoidal cell as long as dorsum ............. 6

5'. Forewing, discoidal cell longer than dorsum .......... 7

6. Compound eyes hairy. Metathoracic leg with tibial hair pencil. No hair tuft on the tip of abdomen. Usually, wings are green or greenish blue with tornal orange or yellow area on the hindwing. Asian .................................... Choaspes

6'. Compound eyes naked. Metathoracic leg without tibial hair pencil. Abdomen with hair tuft on the tip. Wings are various. African ................................................ Coeliades

7. Hindwing, vein 5 present; discoidal cell shorter than 1/2 wing length. Hyaline spots present on the forewing

................................................................. Badamia

7'. Hindwing, vein 5 absent; discoidal cell equal to or longer than 1/2 wing length. Hyaline spot absent ........... 8

8. Hindwing, origin of vein 7 within middle 1/5 between veins 2 and 3; origin of vein 3 not separated from discoidal cell .................................................. Pyrrhiades
8'. Hindwing, origin of vein 7 closer to vein 2; origin of vein 3 separated from discoidal cell

.......................... **Pyrrhochalcia**
Genus Burara Swinhoe, 1893

Burara Swinhoe, 1893: 329. Type species: Ismene vasutana Moore, 1866 fixed by Swinhoe, 1912.


Pola Swinhoe, 1912: 226. Type species: Ismene ataphus Watson, 1893 by original designation.

Zehala Swinhoe, 1912: 229. Type species: Ismene striata Hewitson, 1867 by original designation.


Generic characters: Antenna shorter than 1/2 length of costa. Wing Venation (Figure 2): Forewing: origin of vein 3 more distad than that of vein 11; vein 6 gently curved near apex; discoidal cell shorter than dorsum. Hindwing: origin of vein 3 very close to that of vein 4; vein 5 present; origin of vein 7 closer to that of vein 2 than vein 3; cell shorter than 1/2 width of wing; discal vein faint. Metathoracic leg, tibial hair pencil present. Males of many species with secondary sexual characters; androconial scales spoon-shaped (Figure 29). Hindwing, cilia usually orange or yellow. Male genitalia: Aedeagus long. Larval foodplant includes
Malpighaceae, Combretaceae, Araliaceae and some other families.

Key to the species of Burara

1. Ventral side of the hindwing with black dot at base
   .........................................................2

1'. Ventral side of the hindwing without a black dot at base.
Wings ochreous. Male plain with no brand. Female with pale
discal spot in space 2 to 7 and in the discoidal cell
   .........................................................B. aquilina

2. Forewing, origin of vein 3 nearer to the origin of vein 4
   than to that of vein 2 .................................3

2'. Forewing, origin of vein 3 nearer to the origin of vein 2
   than that of vein 4 ........................................8

3. Head with black dots .....................................4

3'. Head without black dots ...................................6

4. Ventral side of the hindwing green with dark veins and
   streaks .....................................................5

4'. Ventral side of the hindwing, veins paler; discoidal cell
   widely paler. Male white or white-brown. Female blue
   ..............................................................B. gomata

5. Male, dorsal side of the forewing uniform, often with a
   hyaline spot in space 3. Female, brown, pale metallic green
   at base, with hyaline spots in space 2 and 3 on the forewing.

38
Cilia orange or yellow .................................. B. vasutana
5'. Male, dorsal side of the forewing clothed with yellow
hairs ...................................................... B. miracula
6. Male, dorsal side of the forewing with brands
......................................................... B. striata
6'. Male, dorsal side of the forewing without brand ........ 7
7. Larger, forewing over 30 mm. Forewing, origin of vein 3
opposite that of vein 11 ............................ B. etelka
7'. Smaller, forewing less than 30 mm. Forewing, origin of
vein 3 opposite that of vein 10 .................... B. harisa
8. Hindwing, cilia white. Ventral side pale green with dark
blue stripes ............................................ B. amara
8'. Hindwing, cilia orange or yellow .................... 9
9. Dorsal side of the hindwing, dorsum broadly orange
.......................................................... B. phul
9'. Dorsal side of the hindwing, dorsum not broadly orange
.......................................................... 10
10. Dorsal side of the hindwing, costa paler .............. 11
10'. Dorsal side of the hindwing, costa not paler. Dorsal
side of the forewing, brand discal .................. B. jaina
11. Antenna dorsally white. Ventral side of the hindwing
with purple sheen ...................................... B. anadi
11'. Antenna dorsally dark ............................... 12
12. Male, dorsal side of the hindwing often with a costal
pouch. Dorsal side of the forewing, brand excavate. Ventral side of the hindwing, inter-nervular streaks orange

...................................................

B. oedipodea

12'. Male, dorsal side of the hindwing without costal pouch. dorsal side of the forewing, brand circular. Ventral side of the hindwing, inter-nervular streaks purple-white

...................................................

B. tuckeri

Burara oedipodea (Swainson, 1820)

a. B. oedipodea ataphus (Watson, 1893)

(Plate 1a)

Ismene ataphus Watson, 1893: 126; Mabille, 1904: 89; Fruhstorfer, 1911: 60.

Pola ataphus: Swinhoe, 1912: 226, pl. 746 figs. 1, la, b, c, d, e, f.


Bibasis oedipodea ataphus: Evans, 1949: 45; Woodhouse, 1950: 190, pl. XXXVI, figs. 13, 14, LIII 9, 9a.

Bibasis oedipodea: Banks & Banks, 1985: pl. 6, figs. 10.

Holotype: "Ceylon, Pundeloya 91.150, Green Coll," BMNH H2377 (examined).

Description and diagnosis: Forewing length 23 mm. Male brand oval, 4 mm. Dorsal hindwing, costa paler but not white, not
bent over apex; vein 8 bent along costa; vein 6 bowed.

Similar to B. jaina fergusonii, but smaller and male brand larger.

Distribution: SRI LANKA: Kandy, W. Haputale, Madugoda, Potuvil.

Early stages: Swinhoe (1912) illustrates larva.

Food plant: Malpighiaceae: Hiptage madablota (Swinhoe, 1912).

b. B. oedipodea belesis (Mabille, 1876)

Ismene belesis Mabille, 1876: X, 260.

Bibasis aegina Plötz, 1884.

Ismene ataphus: Elwes & Edwards, 1897: 292.

Ismene tuckeri athena Fruhstorfer, 1911: 61.


Bibasis oedipodea belesis: Evans, 1949: 45; Pinratana, 1985: 13, pl. 1, fig. 1a.


Description and diagnosis: Forewing length 22 mm. Male brand
oval, 4mm. Dorsal hindwing, veins normal. Similar to B. anadi anadi, but male brand larger.

Distribution: INDIA: Khasi Hills; THAILAND: Chaing Mai; VIET NAM; HONG KONG.

Food plant: Malpighiaceae: Hiptage madablota (de Rhé-Philipe, 1898), H. benghalensis (Johnston & Johnston, 1980).

Bionomics: The adults are flying in September and October in Nepal (Smith, 1981).

c. B. oedipodea oedipodea (Swainson, 1820)

Ismene oedipodea Swainson, 1820: pl. 16; Elwes & Edwards, 1897: 292; Mabille, 1904: 89; Piepers & Snellen, 1910: 19, pl. VI, figs. 24a, b, c, d; Fruhstorfer, 1911: 59; Swinhoe, 1912: 229; Seitz, 1927: 1053, pl. 167.


Bibasis oedipodea oedipodea: Evans, 1949: 46, pl. 12: Eliot, 1978: 350, Fig. 129, 336; Pinratana, 1985: 14, Pl. 1, fig. 1b; de Jong & Treadaway, 1993: 10.

Holotype: could not be located.

Description and diagnosis: Forewing length 23 mm. Male brand kidney-shaped, 4 mm. Thorax and base of dorsal hindwing metallic blue. Dorsal hindwing in male, costa white, apex fold over; brown with metallic blue base in female.
Distribution: MALAYSIA: Cameron Highlands, Sabah; INDONESIA: Sumatra, Java, Bali, Lombok; PHILIPPINES: Palawan, Balabac. 

Early stages: Larvae are described and illustrated in Piepers & Snellen (1910) and Young (1993). Final instar larva: Head black with six red spots; mouth parts also red. Thorax and abdomen black with a dorsal pair of longitudinal lines and yellow or white transverse stripes. The larva illustrated by Piepers & Snellen (1910) shows dorsal oblong orange spots.

Food plant: Combretaceae: Combretum latifolium (Piepers & Snellen, 1910; Eliot, 1978); Malpighiaceae: Hiptage bengalensis (Young, 1993).

d. B. oedipodea paltra (Evans, 1949)

(Plate 1c)


Description and diagnosis: Similar to oedipodea, but larger. Forewing length 25 mm. Brand kidney-shaped, 5 mm. Ventral hindwing, reddish orange markings wider. Female brown with orange costa and metallic blue bases.

Distribution: PHILIPPINES: Luzon, Mindro, Marinduque, Cebu, Leyte, Sibuyan, Negros, Mindanao.
e. *B. oedipodea excellens* (Höpffer, 1874)

(Plate 1d)

*Ismene excellens* Höpffer, 1874: 39; Mabille, 1904: 89;
Fruhstorfer, 1911: 60; Swinhoe, 1912: 229.

*Ismene oedipus* Elwes & Edwards, 1897: 292; Mabille, 1904: 89;
Swinhoe, 1912: 229.


*Bibasis oedipodea excellens*: Evans, 1949: 46.

Holotypes: could not be located.

Description and diagnosis: Larger. Forewing length 28 mm.
Male brand kidney-shaped, 6 mm. Dorsal wings, bases more or less metallic green in female.

Distribution: INDONESIA: Sulawesi (Doluduo, Macassar, Maros & Tjamba, Makian, Palu, Bantain, Tana, "C. Sulawesi," "S. Celebes"); Babi, Peleng, Sula, Mangola.

*Burara tuckeri* (Elwes & Edwards, 1897)

(Plate 2a, Figure 29b)

*Ismene tuckeri* Elwes & Edwards, 1897: 293, pl. 20, fig. 4;
Fruhstorfer, 1911: 61; Evans, 1932: 318.

Pola *tuckeri*: Swinhoe, 1912: 228, pl. 746, figs. 2, 2a.


Description and diagnosis: Forewing length 26 mm. Brand oval, 6 mm. Dorsal forewing, costa pale, but not white. Ventral wings with purple sheen. Ventral forewing with no cell spot. Ventral hindwing with greyish purple stripes between veins; orange markings absent. Female brown with strong purple sheen; bases metallic cobalt blue. Similar to B. oedipodea, but dorsal forewing costa with no fold. Differs from B. jaina in lacking cell spot on ventral forewing.


Burara anadi (de Nicéville, 1884)

a. B. anadi anadi (de Nicéville, 1884)

(Plate 2b, Figure 30)

Choaspes anadi de Nicéville, 1884: 83, pl. x., fig. 6.

Burara anadi: Swinhoe, 1912: 235, pl. 748, figs. 2, 2a, b.


Holotype: could not be located.

Description and diagnosis: Forewing length 25 mm. Antenna dorsally white. Male androconial scales present, but not form brand. Similar to B. harisa, but hindwing more or less lobed.


b. B. anadi purpurea (Riley & Godfrey, 1925) new combination

(Plate 2c)

Ismene harisa purpurea Riley & Godfrey, 1925: 143, pl III, fig. 7.

Holotype: Male, [THAILAND], "E. Siam, Pak Jong (E. J. Godfrey) Muok Lek, 1000 ft, January (Fruhstorfer)," BMNH Rh. 264 (examined).

Description and diagnosis: Forewing length 26 mm. Male brand 1 mm. Dorsal hindwing, costa white. Ventral wings with purple sheen.

Distribution: THAILAND: Chantaburi.
c. *B. anadi owstoni* (Eliot, 1980) new combination

(Plate 2d)


Description and diagnosis: Forewing length 23 mm. Male brand larger, 3 mm. Ventral wings with strong purple sheen.

Distribution: MALAYSIA: Fraser's Hill.

*Burara jaina* (Moore, 1866)

a. *B. jaina fergusonii* (de Nicéville, 1893)

(Plate 3a)

*Ismene fergusonii* de Nicéville, 1893: 345, pl. J, fig. 6;

Bell, 1924: 135.

*Gecana fergussonii*: Swinhoe, 1912: 230, pl. 747, figs. 1, la, b, c, d.


*Bibasis jaina fergussoni*: Evans, 1949: 47.

Holotype: could not be located.

Description and diagnosis: Forewing length 30 mm. Male brand compose of two black spots on veins 2 and 3. Ventral forewing with no cell spot.
Distribution: INDIA: Nilgiris, Kawar, Coorg, Kanara, Nagpore, Bombay, Mekara.

Early stages: Bell (1924) described the complete life cycle. Head of the final instar larva "brick red with 6 black bands radiating from the center of face."

Food plant: Combretaceae: *Combretum extensum* (Bell, 1924).

b. *B. jaina astigmata* (Evans, 1932)

(Plate 3b)

*Ismene jaina astigmata* Evans, 1932: 318.

*Bibasis jaina astigmata*: Evans, 1949: 47.


Description and diagnosis: Forewing length 27 mm. Similar to *fergusonii*, but smaller and ochreous markings on ventral forewing conspicuous.

Distribution: INDIA: Andaman.

c. *B. jaina jaina* (Moore, 1866)

(Plate 3c, Figure 31a)

*Ismene jaina* Moore, 1866: 782; Seitz, 1927: 1054, pl. 167.

*Ismene jaina vasundhara* Fruhstorfer, 1911: 59; Evans, 1926: 62, pl. xxx; 1932: 318, pl. xxx; Seitz, 1927: 1054.

*Gecana jaina*: Swinhoe, 1912: 231, pl. 747, figs. 2, 2a, b.

Holotypes: jaina - [INDIA], "Darjiling, Schlagintioeit, Ind, Mus. 79.64.," BMNH (examined); vasundhara - [INDIA], "Assam, Khasi Hills, ex. coll. H. Fruhstorfer, Fruhst B.M. 1938-131," BMNH H2385 (examined).

Description and diagnosis: Forewing length 27 mm. Male brand circular, 3 mm. Ventral forewing with spots in spaces 3 to 8 and discoidal cell.

Distribution: INDIA: Darjiling, Dun, Bhutain, Assam, Khasi, Manipur, East Pegu; THAILAND: Chaing Dao; CHINA: (Hainan Is., Mt. Wuchi).

d. B. jaina margana (Fruhstorfer, 1911)

Ismene jaina margana Fruhstorfer, 1911: 60; Evans, 1926: 62; Seitz, 1927: 1054; Evans, 1932: 318.
Bibasis jaina margana: Evans, 1949: 47.

Holotype: "Siam, Hinlap, Januar, H. Fruhstorfer, jaina margara Fruhst.," BMNH H2386 (examined).

Description and diagnosis: Forewing length 25 mm. Similar to jaina, but male brand larger, 7 mm. Differs from B. velva in lacking hairs covering brand.
Distribution: MYANMAR: Dawnas; THAILAND: Chaing Mai, N.
Soidao, Mewong, Chantaburi.

e. B. jaina formosana Fruhstorfer

Ismene jaina formosana Fruhstorfer, 1911: 59; Seitz, 1927: 1054.


Bibasis jaina formosana: Evans, 1949: 47; Shirōzu, 1960: 367, pl. 72, figs 872, 873, 874, 875.

Holotype: "Formosa, Kosempo, 24-30. VI. 08, jaina formosana Frhust." BMNH H2388 (examined).

Description and diagnosis: Forewing length 25 mm. Male brand 2 mm. Ventral forewing, cell spot larger; markings not clear. Female dorsally uniform brown.

Distribution: TAIWAN.

Early stages: Head black with dorsal orange marking and two pairs of pale lateral dots. Thorax and abdomen velvet-black with dorsal white and yellow longitudinal lines (Maeda & Muroya, 1967).

Food plant: Malpighiaceae: Hiptage benghalensis (Maeda & Muroya, 1967); Leguminosae: Cassia fistula (Uchida, 1984).
f. B. jaina velva (Evans, 1932)

(Plate 3d)

Ismene velva Evans, 1932: 318.


Holotype: [MALAYSIA], "Kinabalu, Borneo, W.H. Evans, B.M. 1932-274," BMNH H2382 (examined).

Description and diagnosis: Forewing length 26 mm. Male brand 10 mm, covered with black hairs. Forewing apex pointed. Ventral hindwing with purple sheen; orange scales scarce.

Distribution: THAILAND: Kao Pota; MALAYSIA: Fraser's Hill, Kinabalu.

Burara phul (Mabille, 1876) new combination

(Plate 5a, Figure 31b)

Ismene phul Mabille, 1876: 219; Fruhstorfer, 1911: 60; Swinhoe, 1912: 229; Evans, 1926: 62; Seitz, 1927: 1054; Evans, 1932: 317.

Ismene tolo Plötz, 1886: 115.

Ismene lusca Swinhoe, 1907: 434; Fruhstorfer, 1911: 60; Swinhoe, 1912: 229; Seitz, 1927: 1054, pl. 167.

Bibasis phul: Evans, 1949: 46, pl. 12.

H2380 (examined); tolo - could not be located; lusca - [INDONESIA], "Celebes, Crowley Bequest 1901-78, Ismene lusca [female] Swinhoe Type," BMNH (examined).

Description and diagnosis: Forewing length 23 mm. Male brand 7 mm. Hindwing apex concaved. Dorsal hindwing, costa white; dorsum widely orange. Ventral wings with blue sheen. Ventral hindwing, dorsum orange.

Distribution: INDONESIA: Sulawesi (Bantimurung, Dongala, Tombuga, Bontain, Palu, Tawaya), Buton; "India Boreal."

Burara etelka (Hewitson, 1867)

a. B. etelka etelka (Hewitson, 1867)

(Plate 4a, b, Figure 32a)

Ismene etelka Hewitson, 1867: [Ismene], figs, 14, 15;
Fruhstorfer, 1911: 60; Evans, 1926: 62; Seitz, 1927: 1054, pl. 167; Evans, 1932: 318.

Burara etelka: Swinhoe, 1912: 239, pl. 749, figs. 2, 2a, b.


Holotype: [MALAYSIA], "Sarawak, Hewitson Coll. 79-69, Ismene etelka 2," BMNH H2383 (examined).

Description and diagnosis: Forewing length 32 mm. Male brand absent. Dorsal hindwing, costa greyish yellow. Ventral hindwing covered with orange scales.

Distribution: MYANMAR: Karen Hill, Pegu, Mergui; MALAYSIA:
Malacca, Penang, Cameron Highlands, Keningau, "Borneo"; SINGAPORE; INDONESIA: Sumatra (Lebong Tandai, "W. Sumatra"), Nias; PHILIPPINES: Palawan, Mindanao.

b. *B. etelka imperialis* (Plötz, 1886) new combination  
(Plate 4c, d, Figure 32b)

*Ismene imperialis* Plötz, 1886: 115; Seitz, 1927: 1055; Evans, 1932: 318.  
*Bibasis imperialis*: Evans, 1949: 48, pl. 12.  
*Bibasis imperialis* veteratrix Detani, 1983: 27, 58, pl. 4, fig. 5, 6. new synonym.

Holotypes: *imperialis* - could not be located; *castinoides* - could not be located; *veteratrix* - Female, [INDONESIA], Peleng Is., Benta, Nov. 1, 1982. In Detani Collection, Osaka, Japan.  

Description and diagnosis: Larger. Forewing length 36 mm.  
Male: Dorsal wings pale greyish brown with darker veins. Dorsal hindwing, costa cream yellow. Ventral wings dark blue with blue-black stripes. Ventral forewing, widely white from costa to dorsum.  
Female: Dorsal wings dark blue. Ventral wings darker than male. Cilia white.  

Distribution: INDONESIA: Sulawesi (Bantimulung, Palopo, Macassar, Maros & Tjamba), Bangkei, Peleng.
Remarks: The female from Peleng is smaller and greenish. It was described as a subspecies *veteratrix*. However, the marking still is within the range of *imperialis*.

**Burara harisa** (Moore, 1865)

a. **B. harisa harisa** (Moore, 1865)

(Figure 33b)

**Ismene harisa** Moore, 1865: 782; Elwes & Edwards, 1897: 293; Fruhstorfer, 1911: 61; Seitz, 1927: 1053, pl. 167.

**Choaspes harisa**: de Nicéville, 1883: 84, pl. x, fig. 8.

**Ismene harisa asambha** Fruhstorfer, 1911: 61; Seitz, 1927: 1053.

**Burara harisa**: Swinhoe, 1912: 238, pl. 749, figs. 1, 1a, b.

**Burara asambha**: Swinhoe, 1912: 240.

**Bibasis harisa harisa**: Evans, 1949: 48, pl. 12.

Holotypes: **harisa** - could not be located; **asambha** - [VIETNAM], "Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer, Fruhstorfer Coll. BM 1933-131, harisa asambha Fruhst.," BMNH H2398 (examined).

Description and diagnosis: Male genitalia: valva tapered.

Distribution: **INDIA**: Sikkim, Naga Hills, Khasia Hills, Assam, Shillong; **MYANMAR**: Shan States, Rangoon, Tenasserim, Maymyo, Tilin Yaw; **CHINA**: Hainan; **THAILAND**: Chaing Dao, Chaing Mai, Chantaburi, Fang, "W. Siam."

54
Bionomics: The adults flies in November at 2300 ft in Nepal (Smith, 1981).

b. B. harisa andamana Chiba new subspecis

(Plate 6c, d, Figure 33c)
Description: Forewing length 29 mm. Wings paler than harisa. Dorsal hindwing, costal cream yellow area extends beyond vein 7. Ventral hindwing with orange streaks between veins; pale discal markings conspicuous.

c. B. harisa consobrina (Plötz, 1884)

(Plate 5c, d, Figure 33a, d, e)
Ismene consobrina Plötz, 1884: 116, pl. xvi.
Ismene harisa: Piepers & Snellen, 1910: 20, pl. VII, figs. 25a, b, c.
Ismene harisa moncada Fruhstorfer, 1911: 61; Seitz, 1927: 1053.
Ismene harisa crinatha Fruhstorfer, 1911: 61.
Burara moncada: Swinhoe, 1912: 240.
Burara crinatha: Swinhoe, 1912: 240.

Ismene harisa consobrina: Seitz, 1927: 1053.

Ismene distanti: Evans, 1932: 319.


Types: consobrina - could not be located; moncada - Holotype: [MALAYSIA], "Malaka, H. Fruhstorfer, Fruhstorfer Coll. BM 1933-131, harisa moncada Fruhst.," BMNH H2399 (examined); crinatha - Holotype: [INDONESIA], "Java Occident. Mons Gede 4000', Aug. 1892, H. Fruhstorfer, Fruhstorfer Coll. 1933-131, harisa crinatha Fruhst.," BMNH H2401 (examined); distanti - Holotype: "Singapore, 96-10, Burara distanti Swinhoe [male] Type" BMNH H2400 (examined); Paratype: Female, "Singapore, H. N. Ridney 99-126," BMNH (examined).

Description and diagnosis: Forewing length 24 mm. Dorsal hindwing, costal cream yellow not extend beyond vein 7. Male genitalia: tip of valva wider; widest in palawan specimens.

Distribution: MALAYSIA: Cameron Highlands, Thei Ping, "Malacca," "Borneo"; SINGAPORE; INDONESIA: Sumatra (Battak), Banka, Java (Arjou, "Occi," "Merid"), Bali; PHILIPPINES: Palawan.

Early stages: Piepers & Snellen (1910) describe and illustrate the larva.

The final instar larva is "dull bone-white, with dark
dorsal stripes and spots. The head [is] red with black dots" (Eliot, 1978).


Bionomics: The adults are "found in clearings with low-growing vegetation near the forest edge" (Eliot, 1978).

Remarks: Fruhstorfer intended to describe two subspecies from Sumatra and Borneo respectively. However, he neglected to do so. There are "types" of these in BMNH: a male named harisa sumara Fruhst. from Sumatra and unnamed male from N. Borneo.

De Jong & Treadaway (1993) listed ssp. pala from Palawan and ssp. grandis from Samar which will be described in a different publication. Male genitalia of Palawan specimen is slightly different from that of Malayan specimen. I could not examine the specimen from Samar.

d. B. harisa niasana Swinhoe, 1912

(Plate 6a, b, Figure 33c)

Burara niasana Swinhoe, 1912: 240.

Bibasis harisa niasana: Evans, 1949: 49.

Types: Lectotype: [INDONESIA], "H.T., Sitoli, Nias, Swinhoe Coll. 1916, J. J. Joicey Coll. B.M. 1925-451, 579, Burara niasana [male] Swinhoe Type" BMNH H2397 (examined);
Paralectotypes: 2 males, 2 females, same as the lectotype, BMNH (examined).

Description and diagnosis: Forewing length 26 mm. Dorsal wings paler. Ventral wings, marking broad, reaching to termen. Male genitalia: tip of valva somewhat wider than harisa.

Distribution: INDONESIA: Nias, Simalure.

Remarks: Swinhoe (1912) described this taxon from 8 male and 3 female syntypes. In recent search in BMNH, 3 males and 2 females were found in the collection. One of the males had a red label with "H.T." on it. Therefore, I designated the male as a lectotype and the rest as paralectotypes.

e. B. harisa aphrodite (Fruhstorfer, 1905)

(Plate 5b, Figure 33f)

Ismene aphrodite Fruhstorfer, 1905: 141.

Ismene mangolina Evans, 1932: 319.

Bibasis harisa aphrodite: Evans, 1949:

Holotypes: aphrodite - Female, [INDONESIA], "Nord-Celebes, Toli-Toli, Nov. - Dez. 1895, H. Fruhstorfer, Fruhstorfer Coll. BM 1933-131, aphrodite Fruhst.," BMNH H2402 (examined);


Description and diagnosis: Forewing length 26 mm. Dorsal
wings pale greyish brown. Forewing costa not orange.
Distribution: INDONESIA: Sulawesi (Bonthain, Palopo, Camba), Peleng, Buton, Sula Mangoli.

Burara gomata (Moore, 1866)
a. B. gomata lara (Leech, 1894)
(Plate 7a)

Ismene gomata var. lara Leech, 1894: 634, pl. xxxix, fig. 12.
Bibasis gomata lara: Evans, 1949: 50.

Holotype: Male, [CHINA], "Moupin, Kricheldorf coll. July 1890, Leech Coll. 1901-173, Ismene gomata var lara c.," BMNH H2404 (examined).
Description and diagnosis: Forewing length 27 mm. Darker. Dorsal hindwing, discoidal cell greenish white; costa not paler.
Distribution: CHINA.
Early stages: There is a specimen of the pupa in BMNH.

b. B. gomata kanara (Evans, 1926)

Ismene karana Evans, 1926: 63.
Ismene gomata: Bell, 1924: 138.

Bibasis gomata kanara: Evans, 1949: 50.

Holotype: "S. India, N. Kanara, T.R. Bell 1921-36, Samnklao
18-11-19," BMNH H2405 (examined).

Description and diagnosis: Forewing length 23 mm. Ventral
hindwing, dark streak at end of vein 5 short and not reaching
to cell end.

Distribution: INDIA: Bombay, Kanara.

Early stages: Bell (1924) described the life cycle.

c. B. gomata gomata (Moore, 1866)

Ismene gomata Moore, 1866: 783; Elwes & Edwards, 1897: 295
Fruhstorfer, 1911: 61.

Choaspes gomata: de Nicéville, 1883: 83, pl. x, fig. 7.

Bibasis gomata gomata: Evans, 1949: 50.

Holotype: Male, [INDIA], "Darjiling 79.57," BMNH H2406
(examined).

Description and diagnosis: Forewing length 25 mm. Ventral
wings greenish. Ventral hindwing, dark streak at vein 5
reaching to cell end.

Distribution: INDIA: Darjiling, Sikkim, Assam.

d. B. gomata lalita (Fruhstorfer, 1911)

(Plate 7b, 8a)
Ismene gomata lalita Fruhstorfer, 1911: 61.
Ismene gomata vajra Fruhstorfer, 1911: 61.
Bibasis gomata lalita: Evans, 1949: 50.

Holotype: lalita - [INDONESIA], "W. Sumatra, H. Fruhstorfer, Fruhstorfer Coll. B.M. 1933-131, gomata lalita Fruhst.," BMNH H2407 (examined); vajra - [INDONESIA], "Java occident, Sukabumi, 2000, 1893, H. Fruhstorfer, gomata vajra Fruhst.," BMNH H2408 (examined).

Description and diagnosis: Forewing length 24 mm. Ventral wings darker, brownish than greenish. Female, dull metallic blue with trace of spots in spaces 2 and 3. Dorsal hindwing costa paler.

Distribution: MYANMAR; HONG KONG; CHINA: Hainan; MALAYSIA: Cameron Highlands, Sabah (Keningau); INDONESIA: Sumatra ("N. E. Sumatra"), Java; PHILIPPINES: Palawan.

Early stages: Piepers & Snellen (1910) and Johnston & Johnston (1980) illustrate larva. Final instar larva: Head orange with ten black spots. Thorax and abdomen greenish yellow with longitudinal white lines and black dots.

Foodplant: Araliaceae: Schefflera lurida, Trevesia sundaica; Myrsinaceae: Embelia garciniaefolia; Myristicaceae: Horsfieldia (Johnston & Johnston, 1980), H. aculeata (Piepers & Snellen, 1910).
e. B. gomata lorguini (Mabille, 1876)

(Plate 7c, 8b, Figure 34a)

Ismene lorguini Mabille, 1876a: 10; 1876b: 266.
Choaspes lorguini: Semper, 1886.
Ismene gomata mindorana Fruhstorfer, 1911: 62.


Description and diagnosis: Dorsal wings paler. Female: dorsal forewing metallic blue with conspicuous white spots in spaces 2 and 3.

Distribution: PHILIPPINES: Luzon, Mindoro, Marinduque.

f. B. gomata minda Chiba new subspecies

(Plate 8d)

Diagnosis: Forewing length 27 mm. Similar to lorguini, but, in female, dorsal side of head darker, ventral hindwing bluish and white spots on forewing reduced (in some specimens from Mindanao, spots are almost absent).

g. B. gomata radiosa (Plötz, 1885)

(Plate 7d, 8c)

Ismene radiosa Plötz, 1885: 232.

Burara radiosa: Swinhoe, 1908: 33, pl. iii, fig. 5, 6.

Bibasis gomata radiosa: Evans, 1949: 51.

Holotype: radiosa - The "type" in coll. Erhardt" (Swinhoe, 1908).

Description and diagnosis: Forewing length 24 mm. Similar to lorguini, but paler. Female, dorsal forewing, spots absent.

Distribution: INDONESIA: Sulawesi (Macassar, Maros & Tjamba, Makian, Palu, Palolo, Bantimurung), Bangkai.

Burara vasutana (Moore, 1866)

(Plate 9a, Figure 34b)

Ismene vasutana Moore, 1866: 782; Elwes & Edwards, 1897: 294

Fruhstorfer, 1911: 62.

Choaspes vasutana Watson, 1891: 8.

Ismene vasutana rahita Fruhstorfer, 1911: 62.

Burara vasutana burma Evans, 1934: 33.

Bibasis vasutana Evans, 1949: 49, pl. 12.

Bibasis unipuncta Lee, 1962: 141, 146, pl. iii, fig. 23, 26.

new synonym

Holotypes: vasutana - [INDIA], "Darjiling 79.64 Ind. Mus., vasutana Moore Type!," BMNH H2392 (examined); rahita -

Description and diagnosis: Forewing length 27 mm. Male, dorsal wing brown with orange hairs at base. Hindwing cilia orange or yellow. Ventral hindwing metallic green with metallic blue stripes. Female, dorsal wings brown with blue sheen; bases widely metallic green; with hyaline spots in spaces 2 and 3.


**Burara amara** (Moore, 1866)

(Plate 9b, Figure 35a)

*Ismene amara* Moore, 1866: 783; Elwes & Edwards, 1897: 295;
Fruhstorfer, 1911: 62.

**Choaspes amara**: Watson, 1891: 8.

*Ismene amara pindapatra* Fruhstorfer, 1911: 62.

**Bibasis amara**: Evans, 1949: 50, pl. 12.

Holotypes: amara - [INDIA], "Bengal, Moore Coll. 1908-208, Ismene amara [male] More (Type)," BMNH H2395 (examined);
pindapatra - [INDIA], "Assam, H. Fruhstorfer, Fruhstorfer
Coll. B.M. 1933-131, amara pindapatra Fruhst.," BMNH H2396 (examined).

Description and diagnosis: Forewing length 23 mm. Dorsal wings brown; male brand on both sides of veins 1, 2 and 3. Ventral wings pale bluish green with blue stripes.

Distribution: INDIA: Sikkim, Darjiling, Pedong, Bengal, Assam, Khasi, Andaman (Port Villa); MYANMAR: Shan States, Maymyo; THAILAND: Chang Rai, Chang Dao, Mewong, Fang, Chantaburi; CHINA: Hainan.

**Burara miracula** Evans, 1949

(Plate 9c, Figure 35b)

**Bibasis miracula** Evans, 1949: 49, pl. 12.

Holotype: [CHINA], "Kuatun (2500m) 27, 40n Br, 117, 406L, Klapperich, 18.6.1938 (Fukien), Brit. Mus. 1939-517, BMNH (examined).

Description and diagnosis: Forewing length 33 mm. Dorsal wings brown; bases clothed with dark yellow hairs. Ventral wings green with stripes. Similar to striata, but larger. Male genitalia, valva not elongate and pointed as in striata and aquilina.

Distribution: CHINA: Fukien (Kuatung).

Remarks: Female unknown.
Burara striata (Hewitson, 1867)
(Plate 9d, Figure 36a)

Ismene striata Hewitson, 1867: [102], pl. [54], fig. 6, 7;
Evans, 1926: 62; 1932: 319; Shepard, 1933: 30.

Ismene septentrionis Felder & Felder 1867: 523, pl. lxxiii,
fig. 3; Elwes & Edwards, 1897: 294 Fruhstorfer, 1911: 62.


Holotypes: striata - "China, Hewitson Coll 79-69, Ismene
striata 1," BMNH H2390 (examined); septentrionis - [CHINA],
"52 Ismene n s, Shanghai, coll Felder, septentrionis n.,
Rothschild Bequest B.M. 1939-1," BMNH H2391 (examined).

Description and diagnosis: Forewing length 28 mm. Dorsal
wings yellowish brown with brands above vein 1 and on either
side of veins 2 and 3. Ventral wings green. Similar to
miracula, but smaller. Male genitalia of striata and
aguilina almost identical.

Distribution: CHINA: Kwanshien, Moupin, Omei Shan, Ta-tsienn-
lou, Tien Tsien, Siao-Lou, Tse Kou; S. KOREA: Kwangnung.

Burara aguilina (Speyer, 1879)
a. B. aguilina chrysaeglia (Butler, 1881)
(Plate 10a, b, Figure 36b)

Proteides chrysaeglia Butler, 1881: 856.

Bibasis aquilina chrysaeglia: Evans, 1949: 51; Kawazoe &
Wakabayashi, 1976: 306, pl. 67, fig. 6a, b, c.

Holotype: [JAPAN], "Yesso, 80.25," BMNH H2416 (examined).

Description and diagnosis: Forewing length 22 mm. Wings uniformly yellowish brown. Male brand absent. Female with yellow spots in spaces 2 to 7 and discoidal cell on dorsal forewing.

Distribution: JAPAN: Hokkaido, Honshu, Shikoku, Kyushu.

Early stages: Final instar larva: Head reddish orange with a pair of ventro-lateral black dots. Thorax and abdomen greenish brown with white longitudinal lines.


b. *B. aquilina aquilina* (Speyer, 1879)

(Plate 10c)


*Ismene jankowskii* Oberthür, 1880: 23, pl. i, fig. 2.

*Bibasis aquilina aquilina*: Evans, 1949: 51, pl. 12.

Description and diagnosis: Forewing length 24 mm. Darker than *chrysaeglia*. Ventral forewing: spots in spaces 2 and 3 equal. Similar to *striata* and *miracula*, but ventral wings uniform brown.

Holotypes: *aquilina* - could not be located; *jankowskii* -

Distribution: RUSSIA: Amur, Ile Askold; KOREA.

c. B. aquilina siola (Evans, 1934)  
(Plate 10d, Figure 36c)

Bibasis aquilina siola Evans, 1934: 34; 1949: 51.


Description and diagnosis: Forewing length 24mm. Darker and greyish. Ventral forewing: marking triangle. Male genitalia: harpe shorter than that of chrysaeglia; costa not beyond dorsal edge.


Remarks: Female unknown.
Genus *Bibasis* Moore, 1881

*Bibasis* Moore, 1881: 160. Type species: *Goniloba sena* Moore, 1866 by original designation.

*Sartora* Swinhoe, 1912: 229. Type species: *Ismene ionis* de Nicéville, 1895 by original designation.

*Tothrix* Swinhoe, 1912: 233. Type species: *Ismene mahintha* Moore, 1874 by original designation.

Generic characters: Male hind tibia with hair pencil covered by shiny scales. Forewing: discoidal cell as long as dorsum; vein 1b gently bisinuate; origin of vein 11 basad of origin of vein 3. Hindwing: origin of vein 7 closer to origin of vein 2 than vein 3; vein 5 present. Male brand, if conspicuous, composed of fine black hairs. Male genitalia: uncus + termen very short relative to vinculum; uncus bifurcated; juxta simple, V-shaped. Larval foodplant: Combretaceae.

Most authors, including Evans (1949), have treated this genus as congeneric with *Burara*. The result of the cladistic analysis shows that the group (*Bibasis*, *Burara*) is monophyletic and can be treated as one genus. However, I treat *Bibasis* as a separate genus because the male genitalic characters are distinctly different from those of *Burara*. Adults of *Bibasis* are diurnal, while *Burara* are crepuscular.
Key to the species of Bibasis

1. Forewing, brand in male black and conspicuous. Wings rounded ....................................................2
1'. Forewing, brand not conspicuous. Wings produced as in Hasora. Ventral side of the hindwing with discal sharp white band .................................................................B. sena

2. Forewing, brand regular ........................................3
2'. Forewing, brand irregular, divided into three lines and a small dot .............................................B. mahintha

3. Ventral side of the hindwing with a narrow discal band. Forewing, brand narrow (1 mm) .....................B. nestor
3'. Ventral side of the hindwing with a trace of pale band. Forewing, brand wide (3 mm) ......................B. iluska

Bibasis sena (Moore, 1866)
a. B. sena sena (Moore, 1866)

(Plate 11a)

Goniloba sena Moore, 1866: 778.
Hesperia sena: Butler, 1870: 58.
Ismene sena: Druce, 1873: 359.
Bibasis sena: Watson, 1893: 128; Mabille, 1904: 87; Swinhoe, 1912: 244, pl. 750, figs. 2, 2a, b, c, d.
Bibasis sena sena: Seitz, 1927: 1052; Evans, 1932: 320; 1949: 52, pl. 12; Pinratana, 1985: 17, pl. 4, 10a.
Holotype: Male, [INDIA], "Deyra Doon [Dehra Dun], Moore Coll. 1908-208," BMNH H2423 (examined).

Description and diagnosis: Ventral wing with purple sheen; white band outwardly diffuse.


Early stages: Davidson et al. (1897) described the larval and pupal stages. Larva: Head bright red, checkered with black dots. Thorax and abdomen with lateral yellow line perpendicular to midline. Pupa with transparent-looking dirty patch in the middle of thorax.

Foodplant: Combretaceae: *Combretum extensum* (Davidson et al., 1897).

Bionomics: Adults fly in the morning (8:00 - 11:00) and often found on hilltops.

Remarks: *G. sena* was first published by Moore in 1857, but it was nomen nudum. Moore's publication in 1866, then, has a valid original description of this taxon (Hemming, 1967).

Swinhoe (1912) mentioned that "the type male is marked Bengal," and so did Evans (1949). The holotype I examined, however, was marked "Deyra Doon [Dehra Dun]" which is more than 1,500 km northwest of Bengal.
b. *B. sena uniformis* Elwes & Edwards, 1897

*(Plate 11b)*

*Bibasis uniformis* Elwes & Edwards, 1897: 305, pl. 27;


Description and diagnosis: Ventral hindwing, purple sheen stronger than *sena*; band narrower, 1.5 mm, sharply edged on both sides, narrow toward lc and at costa, extended upwards along lc.


Bionomics: Adults can be found in large numbers in secondary forests and around villages.

72
c. *B. sena palawana* (Staudinger, 1889)

(Figure 37a)

*Ismene sena* var. *palawana* Staudinger, 1889: 139.

*Bibasis sena palawana*: Seitz, 1927: 1052, pl. 166; Evans, 1949: 53.

Holotype: could not be located.

Description and diagnosis: Between *uniformis* and *vaicravana* with wider band (2.5 mm). Ventral side purple sheen not so strong.

Distribution: PHILIPPINES: Palawan.

d. *B. sena vaicravana* Fruhstorfer, 1911

(Plate 11c)

*Bibasis sena* var. *palawana*: Semper, 1892: 292.

*Bibasis sena vaicravana* Fruhstorfer, 1911: 78; Seitz, 1927: 1052, pl. 166.

*Bibasis vicravana* [sic!]: Swinhoe, 1912: 245.

*Bibasis sena palawana*: Evans, 1949: 53.

Holotype: could not be located.

Description and diagnosis: Wings paler, with no purple sheen. Ventral hindwing: band 2.5 mm, sharply edged; trace of white band reaches to dorsum.

Distribution: PHILIPPINES.
e. *B. sena senata* Evans, 1934

*Bibasis sena senata* Evans, 1934: 34; 1949: 53.


Description and diagnosis: Similar to *uniformis*, but larger (forewing length 22 mm).

Distribution: INDONESIA: Sulawesi (Ujung Pandang [Macassar], Maros & Tjamba, Bonthain, Palu [Paloe], "S. Celebes"), "Boongai", "Makian."

f. *B. sena alor* Chiba new subspecies

(Plate 11d)

Description and diagnosis: Larger, forewing length 24mm. Dorsal wing dull brown. Ventral wings without purple sheen. Ventral forewing, white area reaching to mid discoidal cell. Band white, 3mm. Cilia yellowish brown.

Bibasis mahintha (Moore, 1875)
(Plate 11e, Figure 37b)

Ismene mahintha Moore, 1875: 575, pl. 67; Elwes & Edwards, 1897: 295; Mabille, 1904: 90; Seitz, 1927: 1055; Evans, 1932: 317, pl. 30.

Tothrix mahintha: Swinhoe, 1912: 233, pl. 747, figs. 3, 3a, b.


Description and diagnosis: Male brand on dorsal forewing irregular. Dorsal wings, brown with broad orange area. Dorsal forewing with small hyaline spots in space 2 and 3 which may be absent in male. Ventral hindwing unmarked.

Bibasis nestor (Möschler, 1878)
(Plate 11f, g, Figure 37c)

Ismene nestor Möschler, 1878: 208; Seitz, 1927: 1053 pl. 166;
Evans, 1932: 317.

Ismene firdusi Plötz, 1884.

Ismene atrinota Mabille, 1891: 78; 1904: 90.

Ismene antiquae Röber, 1891: 320.

Ismene ionis de Nicéville, 1895: 403; Mabille, 1904: 87.

Bibasis sambavana Elwes & Edwards, 1897: 305, pl. 27;
Mabille, 1904: 87.

Bibasis firdusi: Swinhoe, 1908: 32.

Ismene nestor zonaras Fruhstorf, 1911: 63.


Holotypes: nestor - could not be located; firdusi - Plötz MS
plate No. 1153, BMNH; atrinota - could not be located;
antiquae - could not be located; ionis - could not be
located; sambavana - Male, [INDONESIA], "sambavana Elwes &
Edwards, Type 765, J. J. Joicey coll BM 1925-451," BMNH H2420
(examined); zonaras - Male, [INDONESIA], "Wetter,
Fruhstorf, Fruhstorf coll. BM 1933-31, nestor zonaras
Fruhst.," BMNH H2421 (examined).

Description and diagnosis: Male brand regular and narrow.
Dorsal forewing uniformly pale brown. Ventral hindwing with
narrow white band.
Distribution: INDONESIA: Java ("W. Java," "Soekaboemi,"
Gedeh, "Java Merid"), Lombok, Sumbawa, Sumba, Flores, Alor,
Wetter, Pura, Bima.

**Bibasis iluska** (Hewitson, 1867)
(Figure 37d)

*Ismene iluska* Hewitson, 1867; Mabille, 1904: 89; Seitz, 1927:
1053, pl. 168; Evans, 1932: 317.

*Ismene rubrocincta* Mabille, 1891: lxxviii.

Holotype: *illuska* - Male, [INDONESIA, Sulawesi], "Makassar,
Hewitson Coll 79-69, Ismene iluska Hiw. Type [male]," BMNH
H2422 (examined); *rubrocincta* - could not be located.

Description and diagnosis: Male brand regular and broader (3
mm). Ventral hindwing with trace of band.

Distribution: INDONESIA: Sulawesi (Ujung Pandang, Maros &
Tjamba, Bonthain, Kintaboree, Palu, "Celebes Merid," "S.
Celebes"), Kalao.
Genus *Allora* Waterhouse & Lyell, 1914


Generic characters: Head metallic green. Antenna longer than half length of costa. Second segment of palpi ventrally metallic. Tibia of mesothoracic leg with spines (Figure 1). Hair tuft absent from metathoracic tibia. Wing venation (Figure 3): Forewing: Origin of vein 3 opposite to origin of vein 10; origin of vein 5 at same distance from vein 4 and vein 6; discoidal cell as long as dorsum. Hindwing: cell shorter than half width of wing. Wings dorsally dark velvet-brown with purple sheen; brilliant metallic green or blue at base; ventrally dark metallic green or brown. Male genitalia: Tegumen with a pair of processes. Uncus ax-shaped. Saccus very short. Valva: costa with a finger-like process; tip of harpe modified. Aedoeagus short. Larval foodplant: Malpighiaceae.

**Key to the species of Allora**

1. Ventral side of the forewing, spots in spaces 1b and 2 narrow, or absent, apart from the cell spot. No white streak above the cell spot. Ventral process of harpe longer than dorsal one .......................... *A. doleschalii*
I'. Ventral side of the forewing, spots in spaces 1b and 2 wide, attach to the cell spot. Dorsal process of harpe broad and decurved, longer than ventral one ………………A. major

Allora doleschallii (Felder, 1860)

a. A. doleschallii gazaka (Fruhstorfer, 1911)

Ismene doleschalli gazaka Fruhstorfer, 1911: 63.

Allora doleschallii gazaka: Evans, 1949: 53.

Holotype: should be deposited in BMNH, but could not be located.

Description and diagnosis: Basal metallic green on dorsal wings narrow.

Distribution: INDONESIA: Batjan [Bacan].

b. A. doleschallii viridicans (Fruhstorfer, 1911)

(Plate 13a)

Ismene doleschalli viridicans Fruhstorfer, 1911: 63.

Allora doleschallii viridicans: Evans, 1949: 53.

Holotype: Male, [INDONESIA], "Ceram, doleschalli viridicans," BMNH H2410 (examined).

Description and diagnosis: Basal metallic blue on dorsal wings wide (6 mm). Ventral markings conspicuous; spot in space 2 attach to spot in space 3.

Distribution: INDONESIA: Buru, Seram [Ceram], Ambon.
c. *A. doleschalii doleschalii* (Felder, 1860)

(Plate 13b)

*Ismene doleschalii* Felder, 1860: 460.

*Hasora doleschallii*: Mabille, 1904: 86.


Holotype: [INDONESIA], "Molucas, Felder CollN, Rothschild Bequest BM1939-1," BMNH H2537 (examined).

Description and diagnosis: Basal metallic blue narrow. Ventral wings, spot in space 2 separated from spot in space 3.

Distribution: INDONESIA: Kai.

d. *A. doleschalii albertisi* (Oberthür, 1880)

(Plate 13c)

*Ismene albertisi* Oberthür, 1880: 528.

*Ismene strophius* Miskin, 1890: 123.

*Hasora raluana* Ribbe, 1899: 259.

*Ismene doleschalli sitiva* Fruhstorfer, 1911: 63.

*Hasora infernalis* Rothschild, 1916: 42.

*Allora doleschallii albertisi*: Evans, 1949: 54.


Holotypes: *albertisi* - could not be located; *strophius* - could not be located; *raluana* - could not be located; *sitiva*
- [INDONESIA], "Waigiu, H. Fruhstorfer, doleschalli sitiva, Fruhstorfer Coll. BM 1933-131," BMNH H2411 (examined);

Description and diagnosis: Basal metallic green narrow (4 mm); Ventral hindwing dark.

Distribution: INDONESIA: Biak, West Irian (Fakfak, Nabire);
PAPUA NEW GUINEA: Morobe Dist. (Wau), Tapini.


Bionomics: Males are observed at salt licks and flowers of Stachytarpheta (Parsons, 1991).

Remarks: Wing markings on the ventral side are very variable. Examples from New Guinea often lack spots.

e. A. doleschalli simessa (Fruhstorfer, 1911) (Plate 12a)

Ismene doleschalli simessa Fruhstorfer, 1911: 64.
Allora doleschalli doleschalli: Common & Waterhouse, 1972: 64, pl. 2, fig. 10; 1982: 17, pl. 1, fig. 10.
Allora doleschalli simessa: Barret & Burns, 1951: 172.

Holotype: could not be located.

Description and diagnosis: Similar to albertisi, but ventral azure markings clear.
Distribution: AUSTRALIA: Banks, Thursday and Prince of Wales Is., Cape York, Magnetic Island.

Bionomics: Adult fly margins of rain forest clearings (Common & Waterhouse, 1972).

f. A. doleschalii solon Evans, 1949

(Plate 12b, Figure 3da)

Allora doleschalii solon Evans, 1949: 54.

Holotype: should be deposited in BMNH, but could not be located.

Description and diagnosis: Basal metallic green wider (5 mm); wings ventrally chocolate-colored; apical spots clear; ventral forewing costa green.

Distribution: PAPUA NEW GUINEA: Bougainville (Arawa, Buin, Kiete), SOLOMON ISLANDS: Guadacanal (Aola), Choiseul, Florida Is.

g. A. doleschalii luna Evans, 1934

(Plate 12c)

Allora raluana luna Evans, 1934: 33.

Allora doleschalii luna: Evans, 1949: 54.


Description and diagnosis: Basal metallic green narrow;
ventral markings conspicuous. Spots in space 3 on ventral forewing larger. Ventral hindwing, cell spot smaller.

Distribution: SOLOMON ISLANDS: Rendova.

Allora major (Rothschild, 1916)

a. A. major zita Evans, 1934

(Plate 14a)

Allora major zita Evans, 1934: 33, 1949: 55, pl. 1.

Holotype: [INDONESIA], "Buru, 7. 21., W H Evans, BM 1932-274," BMNH H2414 (examined).

Description and diagnosis: Basal metallic blue color as in Coeliades chalybe, wide (10 mm); width of spots in spaces 1b and 2 of ventral forewing equal.

Distribution: INDONESIA: Buru.

b. A. major major (Rothschild, 1916)

(Plate 14b, Figure 38b)


Allora major major: Evans, 1949: 55, pl. 13; Common & Waterhouse, 1982: 18, pl. 14, fig. 19.


83
Description and diagnosis: Wing base metallic bluish green of between green and blue doleschalii in male, green in female, narrower (5 mm). Ventral forewing costa green. Ventral hindwing, spot in space 2 narrower than spot in space lb.

Distribution: PAPUA NEW GUINEA: Morobe Dist., Aroa River, Mimika R., Simbu Prov. (Kerowagi); AUSTRALIA: Claudie River.

c. *A. major lectra* Evans, 1949

(Plate 14c)

*Allora major lectra* Evans, 1949: 55.


Description and diagnosis: Wing base bluish green; spots conspicuous. Ventral forewing costa green.

Distribution: INDONESIA: Biak.

d. *A. major talesia* Evans, 1949

(Plate 14d)

*Allora major talesia* Evans, 1949: 55.


Description and diagnosis: Larger (27 mm). Basal metallic blue wide (12 mm). Ventral forewing costa green; submarginal
pale line not broken at vein 6.

Distribution: PAPUA NEW GUINEA: New Britain.
Genus *Hasora* Moore, 1881

*Hasora* Moore, 1881: 159. Type species: *Goniloba badra* Moore, 1966 by original designation.

*Parata* Moore, 1881: 160. Type species: *Coeliades taminatus* Hübner, 1818 by original designation.

Generic characters: Antenna shorter than 1/2 length of costa.

Wing venation (Figure 3): Forewing: vein 1b acutely bisinuate near base; origin of vein 3 more basad than that of vein 11; vein 6 straight; discoidal cell shorter than dorsum.

Hindwing: origin of vein 3 very close to that of vein 4; vein 5 present; origin of vein 7 middle of origin of veins 2 and 3; cell shorter than 1/2 width of wing. Hindwing prolonged at tornus. Males often with secondary sexual characters.

Females in many species with hyaline spot. Male genitalia: uncus with two or more processes. Succus short. Valva: costa often bifurcated and modified; tip of valva often serrate. All the known larvae feed on Papilionaceae (Leguminosae).

**Key to species of Hasora**

1. Female, forewing with yellow hyaline spots in space 1b, 2, 3, 4, 5, 6, 7, 8 and the cell .................*H. wilcocksi*

1'. Female with less or no spot ...............................2
2. Female, forewing with yellow hyaline spots in space 2, 3 and 6. Ventral side of the hindwing with white band from costa to vein 1b. Band narrow below discoidal cell

.................................................... H. mavis

2'. Female, forewing with more or less spots. If it possesses spots in space 2, 3 and 6, then the band on the ventral hindwing narrow and uniform .........................3

3. Uncus with a pair of process ..........................4

3'. Uncus with two pairs of process ......................10

4. Compound eyes hairy .................................... H. mus

4'. Compound eyes naked ...................................5

5. Ventral side of the hindwing with discal white band

......................................................... H. proxissima

5'. Ventral side of the hindwing without a band ........6

6. Ventral side of the hindwing metallic green ...H. salanga

6'. Ventral side of the hindwing brown ......................7

7. Forewing usually with a subapical dot. Ventral side of the hindwing usually with a white dot .............. H. anura

7'. Forewing without a subapical dot. Ventral side of the hindwing without a white dot ..........................8

8. Ventral side of the hindwing, tornus darker than ground color ......................................................9

8'. Ventral side of the hindwing, tornus not darker than ground color .................................................. H. myra
9. Ventral side of the forewing, dorsum paler than ground color ............................ H. lizetta
9'. Ventral side of the forewing, dorsum not significantly paler than ground color .......................... H. zoma
10. Ventral side of the hindwing with a band or trace of band .................................................. 11
10'. Ventral side of the hindwing without a band ........... 22
11. Stigma present ................................................................. 12
11'. Stigma absent ................................................................. 21
12. Dorsal side of the hindwing with yellow markings
................................................................................. H. schoenherr
12'. Dorsal side of the hindwing without yellow markings
................................................................................. 13
13. Forewing with a subapical dot ................................. 14
13'. Forewing without a subapical dot .......................... 15
14. Ventral side of the hindwing metallic ........... H. vitta
14'. Ventral side of the hindwing brown with purple sheen
................................................................................. H. moestissima
15. Male stigma oblique and continuous ..................... 16
15'. Male stigma on both sides of vein 1b, 2, 3 and 4 ...... 18
16. Dorsal end of valva twisted and form an oval process.
Ventral side of the hindwing metallic green or blue
................................................................................. H. taminatus
16'. Valva dorsally serrate .............................................. 17
17. Ventral side of the hindwing brown with purple sheen; band bluish white, narrow. Process of uncus short and pressed together .......................... *H. chromus*

17'. Ventral side of the hindwing chocolate; band white, wide. Process of uncus long ......................... *H. hurama*

18. Ventral side of the hindwing metallic blue ... *H. thridas*

18'. Ventral side of the hindwing brown .................. 19

19. Ventral side of the hindwing brown without purple sheen; band clear and white .............................. 20

19'. Ventral side of the hindwing brown with strong purple sheen; band very narrow and faint .............. *H. leucospila*

20. Ventral side of the hindwing, band spindle shaped. Tip of valva with a long curved process ............ *H. perplexa*

20'. Ventral side of the hindwing, band even. Tip of valva with short process ................................. *H. khoda*

21. Dorsal side of the hindwing covered with yellow-brown hairs ...................................................... *H. borneensis*

21'. Ventral side blue ........................................... *H. discolor*

22. Ventral side of the hindwing with a white cell spot ........................................................................... 23

22'. Ventral side of the hindwing without a white cell spot ..................................................................... 25

23. Ventral side pale brown. Wings produced. Hindwing more or less tailed ........................................... 24

89
23'. Ventral side dark chocolate. Wings round. Hindwing not tailed ............................................ H. buina

24. Ventral side of the hindwing, cell spot smaller than 1/2 width of cell ..................................... H. badra

24'. Ventral side of the hindwing, cell spot larger than 1/2 width of cell ..................................... H. quadripunctata

25. Ventral side of the hindwing with black spots

.................................................. H. subcaelestis

25'. Ventral side of the hindwing with no black spot ...... 26

26. Ventral side of the hindwing metallic blue

.................................................. H. celaenus

26'. Ventral side of the hindwing brown ....................... 27

27. Head and thorax covered with green hairs

.................................................. H. umbrina

27'. Head and thorax brown .................................. H. mixta

Hasora mus Elwes & Edwards, 1897

a. H. mus pahanga Evans, 1926

(Plate 15a, Figure 39a)

Hasora mus pahanga Evans, 1926: 59; 1932: 313; 1949: 56;


Description and diagnosis: Forewing length 20 mm. Wings

Distribution: MALAYSIA: Pahang, Perak, G. Jasar, G. Ijan. Bionomics: Males are found only near the hill top of 4000 - 7000 ft. and flies in bright sunlight (Eliot, 1978).

b. H. mus mus Elwes & Edwards, 1897

(Plate 15b)

Hasora mus Elwes & Edwards, 1897: 304, Pl. XX, figs. 2, 5.
Hasora mus mus: Evans, 1932: 313; 1949: 56, pl. 13.
Holotype: [MALAYSIA], "Kina Balu, Borneo, Stgr. sp. fig., ex coll H J Elwes 1920, J J Joicey coll BM 1925-451," BMNH H2427.
Description and diagnosis: Forewing length 19 mm. Dorsal hindwing, cilia pale yellow. Ventral wings paler.
Distribution: MALAYSIA: Kina Balu; BRUNEI.

c. H. mus alta de Jong, 1982 new status

Hasora alta de Jong, 1982: 34.
Holotype: Male, [INDONESIA], "S. Sumatra, top Mt. Tanggamoes, 2100 m, 19. - 31. III. 1940, M. A. LIEFTINCK," RMNH.
Distribution: INDONESIA: Sumatra (Mt. Tanggamoes).
Remarks: Only the type is known. De Jong (1982) described
this taxon as a distinct species. Judging from photographs of the type as well as the sketch of the male genitalia, I consider *alta* as a subspecies of *H. mus*.

*Hasora lizetta* Plötz, 1884

(Plate 15c, Figure 39b)

*Hasora lizetta* Plötz, 1884: 59, Pl. 1157; Evans, 1932: 314; 1949: 56, pl. 13.

*Hasora hadria* de Nicéville, 1889: 172; Elwes & Edwards, 1897: 298.

*Hasora wortha* Swinhoe, 1907: 435.

Holotypes: *lizetta* - could not be located; *hadria* - could not be located; *wortha* - Male, [INDONESIA], "Java, Crowley Bequest, 1901-78, Hasora wortha [male] Swinhoe Type," BMNH H2436 (examined).

Description and diagnosis: Forewing length 23 mm. Dorsal wings uniformly brown. Ventral wings brown. Ventral forewing, dorum paler. Ventral hindwing, outer third paler; tornus darker.

Hasora salanga (Plötz, 1885)
(Plate 15d)

Ismene salanga Plötz, 1885: 232.

Hasora woolletti Riley, 1923: 38.

Hasora salanga: Evans, 1932: 315; 1949: 56, pl. 13;
Pinratana, 1985: 18, Pl. 4, fig. 12.


Diagnosis and distribution: Forewing length 23 mm. Dorsal wings dark brown. Ventral wings dull metallic green.

Ventral hindwing, tornus black.

Distribution: MYANMAR: West Dawnas; MALAYSIA: Perak, Kina Balu, Sarawak, Pahang; INDONESIA: Sumatra (Korinchi).

Hasora proxissima Elwes & Edwards, 1897

a. H. proxissima siamica Evans, 1932
(Plate 16a, Figure 40a)

Hasora proxissima siamica Evans, 1932: 315; 1949: 56;
Pinratana, 1985: 18, Pl. 4, fig. 11.

Holotype: "S. E. Siam, Nong-Yai 1300. 4.14, W H Evans, BM 1932-274, BM(NH) Rhopalocera(v) No 1265," BMNH H2445 (examined).
Description and diagnosis: Forewing length 22 mm. Ventral forewing with faint subapical band. Ventral hindwing, basal area dull greenish gray; white band 2 mm.

Distribution: THAILAND (Nong Yai Boo, Non Thebe, Nong Thebu).

b. *H. proxissima siva* Evans, 1932

(Plate 16d, Figure 40b)

*Hasora proxissima siva* Evans, 1932: 315; 1949: 56.

*Hasora proxima* [sic!] *chalybeia* Inoué & Kawazoe, 1964: 36, text fig. 2, fig. 3, 4, 5, 6.

Holotypes: *siva* - "Lawas, Borneo, W H Evans 1932-274," BMNH H2446 (examined); *chalybeia* -could not be located.

Description and diagnosis: Forewing length 22 mm. Ventral forewing with purple sheen. Ventral hindwing, basal area purple blue; white band 2 mm.


c. *H. proxissima proxissima* Elwes & Edwards, 1897

(Plate 16b, c)

*Hasora proxissima* Elwes & Edwards, 1897: 302, pl. XXI, fig 10.

Holotype: could not be located.

Description and diagnosis: Forewing length 23 mm. Ventral forewing, subapical pale band conspicuous. Ventral hindwing, basal area bright green; white band wide, 4 mm.

Distribution: PHILIPPINES: Mindanao.

d. H. proxissima takwa Evans, 1949
(Plate 16e)

Hasora proxissima takwa Evans, 1949: 57.

Holotype: "nr. Oetakwa R., Snow Mts., Dutch N. G. up to 3500 ft, x xii 1910 (Meek), Rothschild Bequest B.M. 1939-1, BM(NH)Rhopalocera(v)1279," BMNH (examined).

Description and diagnosis: Forewing length 23 mm. Ventral hindwing shining indigo blue; band wider, 5 mm, continuous. Extremely similar to H. discolor, but vein 3 much nearer to vein 2 instead of center of veins 2 and 4. Differs from H. vitta similima in that white band entering discoidal cell.


e. H. proxissima lavella Evans, 1926
(Plate 16f)

Hasora proxissima lavella Evans, 1926: 71; 1949: 57, pl. 1, 13.
Holotype: "Vella Lavella, Solomon Is, March 1908 (A.S. Meek), Rothschild Bequest B.M. 1939-1, BM(NH)R(v)1280," BMNH (examined).

Description and diagnosis: Forewing length 24 mm. Ventral hindwing, basal area dark green; outer margin chocolate brown; white band 3 mm.

Distribution: PAPUA NEW GUINEA: Bougainville; SOLOMON ISLANDS: Vella Lavella.

Hasora anura de Nicéville, 1889

a. H. anura anura de Nicéville, 1889

(Plate 17a, b, d, e)

Hasora anura de Nicéville, 1889: 170, pl. B, figs 1, 5; Watson, 1891: 12; Elwes & Edwards, 1897: 298; Evans, 1932: 314.

Hasora anura anura: Evans, 1949: 57, pl. 13; Pinratana, 1985: 19, Pl. 5, fig. 14.

Hasora danda syn. nov. Evans, 1949: 58, pl. 13; Pinratana, 1985: 19, Pl. 5, fig. 15.

Holotypes: anura - could not be located; danda - "Ataran," BMNH (examined).

Description and diagnosis: Forewing length 22 mm. Wings round, more or less with purple sheen. Ventral forewing with small dots in spaces 3 and 6; dorsum paler. Ventral hindwing
with a cell dot; outer third paler.

Distribution: INDIA: Sikkim, Darjiling, Pedong, Naga Hill, Suroi, Manipur, Cherra Punji, Mishmimaron; MYANMAR: Nam Tamai V., Shan St; THAILAND; VIETNAM.

Remarks: Evans (1949) described *danda* as a distinct species, but the characters he pointed out: dark discal line not indented in space 5 and dorsal forewing dots and ventral hindwing cell dot absent; are within the range of individual variation of *anura*.

b. *H. anura china* Evans, 1949

(Plate 17c, d, e)

*Hasora anura china* Evans, 1949: 57.


Description and diagnosis: Forewing length 23 mm. Ventral wings brown with purple sheen. Ventral hindwing, outer third paler.

Hasora anura anura: Shirōzu, 1960: 361, pl. 71, fig. 856, 857, 858, 859.

Description and diagnosis: Female: Forewing length 22 mm. Wings without purple sheen. Spots in spaces 2 and 3 and three subapical spots narrower than anura and china.

Holotype:

Distribution: TAIWAN.


Hasora wilcocksi Eliot, 1970
(Plate 18a)


Description and diagnosis: Wings dark brown. Dorsal wings with conspicuous yellow hyaline spots in spaces 1b to 8 and cell end. Ventral hindwing with spots in space 6.

Distribution: MALAYSIA: Tioman.

Remarks: The only type female is known. The wing marking is similar to anura.
Hasora myra (Hewitson, 1867)

a. H. myra funebris Evans, 1932

(Plate 18b)

Hasora funebris Evans, 1932: 314.

Hasora myra funebris Evans, 1949: 58, pl. 1.

Holotype: "Gunong Ijan, Malay, W H Evans, BM 1932-274," BMNH H2429 (examined).

Description and diagnosis: Forewing length 24 mm. Dorsal wings brown; basal half covered with hairs. Ventral forewing, dorsum somewhat paler.

Distribution: MALAYSIA: Perak, Fraser's Hill, Gn. Ijan.

b. H. myra myra (Hewitson, 1867)

(Figure 41a)

Ismene myra Hewitson, 1867: [Ismene] I, fig.


Holotype: "Java, Hewitson coll 79-69, Ismene Myra I.,” BMNH H2430 (examined).

Description and diagnosis: Dorsal wings pale brown. Ventral hindwing, tornal quarter yellow.

Distribution: INDONESIA: Sumatra (Batang Proepoe, Battak Mts.), Java (Java Occ., Gedeh).
Hasora zoma Evans, 1934
(Plate 18c, Figure 41b)

Hasora zoma Evans, 1934: 34; 1949: 58, pl. 1, 13; Pinratana, 1985: 18, Pl. 4, fig. 13.


Description and diagnosis: Forewing length 23 mm. Ventral wings uniformly brown. Differs from H. lizetta in that dorsum of ventral forewing not paler.

Distribution: MALAYSIA; INDONESIA: Sumatra, "Larut Hills."

Hasora umbrina (Mabille, 1891)
(Plate 18d)

Ismene umbrina Mabille, 1891: 79.
Hasora hobroa Swinhoe, 1907: 436.


Holotype: umbrina - could not be located; hobroa - "Celebes, 1900-14, Hasora habroa [male] Swinhoe Type," BMNH H2434 (examined).

Description and diagnosis: Forewing length 23 mm. Head, thorax, abdomen and basal area of wings dorsally covered with metallic green hairs. Ventral wings grayish brown. Ventral forewing, dorsum more or less paler.
Distribution: INDONESIA: Sulawesi (Bonthain, Merid, Samanga, "S. Celebes").

**Hasora buina** Evans, 1928

(Plate 18e, Figure 42)

*Hasora buina* Evans, 1928: 71; 1949: 59, pl. 1, 13.

Holotype: "Buin, Bougainville, January 1908 (A.S. Meek), Rothschild Bequest BM 1939-1," BMNH (examined).

Description and diagnosis: Forewing length 24 mm. Dorsal wings dark brown with metallic green hairs at bases. Ventral wings dark brown. Ventral forewing with tornal white spot. Ventral hindwing with white cell dot and two discal white spots in space 2.

Distribution: PAPUA NEW GUINEA: Bougainville; SOLOMON ISLANDS: Vella Lavella.

**Hasora discolor** (Felder & Felder, 1859)

a. *H. discolor splendida* (Mabille, 1876)

(Plate 19a)

*Ismene splendida* Mabille, 1876: 264.

**Hasora discolor splendida**: Evans, 1949: 59, pl. 1.


Description and diagnosis: Forewing length 23 mm. Ventral
forewing with no white marking under the cell. Ventral hindwing, discal band yellowish, spindle-shaped, 6 mm, contracted at vein 2.

Distribution: INDONESIA: Batchan, Obi.

Remarks: The type specimen is mislabeled. It is probably from Batchan (Evans, 1949).

b. **H. discolor discolor** (Felder & Felder, 1859)

(Plate 19b, Figure 43a)

**Goniloba discolor** Felder & Felder, 1859: 405.

**Hasora discolor discolor**: Evans, 1949: 59, pl. 13.

Holotype: could not be located.

Diagnosis: Forewing length 24 mm. Ventral hindwing, basal area metallic indigo blue; outer area purple black; band bluish.

Distribution: INDONESIA: Ceram, Buru.

c. **H. discolor mastusia** Fruhstorfer, 1911

**Hasora discolor mastusia** Fruhstorfer, 1911: 64; Evans, 1949: 59; Common & Waterhouse, 1971: 64, pl. 2, fig. 11, pl. 3, fig. 1, 2; Wilson, 1987: 24, pl. 1.

Holotype: "Type, Australia, Queensland, ex coll. Fruhstorfer, Fruhstorfer Coll. B.M. 1933-131, discolor mastusia Fruhst.,"

BMNH H2448 (examined).
Description and diagnosis: Ventral hindwing, discal band not contracted.


Early stages: Final instar larva: Head orange brown. Thorax and abdomen yellowish white with dirso-lateral darker spots and longitudinal stripes; clothed with short hairs. As in other larvae of the group, it hides inside a curled leaf shelter.

Foodplant: Papilionaceae: Mucuna gigantea.

Bionomics: Adults are found near the margin of rain forest and clearings within the forest.

d. H. discolor eira Evans, 1949

(Plate 19c)

Hasora discolor eira Evans, 1949: 60.

Holotype: "New Ireland, February 1924 (A. F. Eichhorn), Rothschild Beq. BM 1939-1," BMNH (examined).

Description and diagnosis: Ventral hindwing band wider, 7 mm, bluish than yellowish.
Hasora borneensis Elwes & Edwards, 1897

a. H. borneensis borneensis Elwes & Edwards, 1897

Hasora borneensis Elwes & Edwards, 1897: 302, pl. xx, fig. 8, 11; Evans, 1932: 315; [borneensis borneensis] Evans, 1949: 60, pl. 13.


Description and diagnosis: Forewing length 27 mm. Dorsal wings, bases paler, but not straw-colored.

Distribution: MALAYSIA: Kinabalu; INDONESIA: "Batjan" [mislabeled].

b. H. borneensis luza Evans, 1949

(Plate 19d, Figure 43b)


Description and diagnosis: Forewing length 25 mm. Dorsal wings, bases broadly straw-colored. Ventral hindwing, band
wide, 5 mm at vein 8, contracted at vein 2, not reaching to costa.

Distribution: PHILIPPINES: Luzon (St. Thomas), Mindoro, Leyte, Masbate, Negros, Panaon, Samar, Mindanao.

**Hasora chromus** (Cramer, 1782)

a. *H. chromus inermis* Elwes & Edwards, 1897

**Hasora inermis** Elwes & Edwards, 1897: 301, pl. xx, fig. 16, pl. xxvii, figs. 94, 94a.

**Hasora chromus inermis**: Evans, 1949: 60.


Description and diagnosis: Larger than *chromus*. Forewing length 25 mm. Ventral wings, purple sheen faint; band wider mm, bluish white, diffused on outer edge.

Distribution: JAPAN: Okinawa, Yaeyama.

Early stages: Shirōzu & Hara (1960) and Fukuda et al. (1984) described the early stages. Final instar larva: Head light brown; ocelli black. Thorax and abdomen grayish brown with four dorsal white longitudinal lines and dorso-lateral black dots.

Foodplant: Papilionaceae: **Pongamia pinnata** (Fukuda et al., 1984).
b. *H. chromus chromus* (Cramer, 1782)  

(Plate 20a, b)

*Papilio chromus* Cramer, 1782: pl. cclxxxiv, fig. E.  
*Papilio alexis* Fabricius, 1775 [homonym by Poda (1761)]  
*Ismene contempta* Plötz, 1884: 56.  
*Hasora attenuata* Mabille, 1904: 86.  
*Hasora ganapata* Fruhstorfer, 1911: 72.  

Holotypes: *chromus* - could not be located; *alexis* - could not be located; *lucescens* - could not be located; *contempta* - could not be located; *attenuata* - "Nouv guinee," BMNH H2496 (examined); *gonapata* - "D New Guinea, Fruhstorfer Coll BM 1933-131," BMNH H2495 (examined).

Description and diagnosis: Smaller than *inermis*. Forewing length 22 mm. Ventral wings, purple sheen more intense. Ventral hindwing, band 1mm.

Distribution: SRI LANKA; INDIA: "South India," Balucistan, Kanara, Kumaon, Manipur; MYANMAR: Karen, Maymyo; THAILAND; MALAYSIA: Perak; INDONESIA: "Borneo," Moluccas, Tenimber; HONG KONG; TAIWAN; PHILIPPINES: Leyte, Marinduque, Negros, Tawitawi, Ticao; PAPUA NEW GUINEA: New Ireland; AUSTRALIA:
Northern Territory, Torres Strait, Cape York, Queensland.
Early stages: Early instar larva: pinkish brown with dark longitudinal lines. Final instar larva: Hairy.

\[ \text{c. } \text{H. \textit{chromus bilunata} (Butler, 1882)} \]
(Figure 44a)

\text{Ismene bilunata} Butler, 1883: 391.

\text{Hasora chromus bilunata}: Evans, 1949: 61.

Holotype: Female, "Fidji, 87-38," BMNH H2494.

Description and diagnosis: Smaller. Forewing length 21 mm. Ventral wings without purple sheen. Ventral hindwing, band faint.

Distribution: VANUATU; FIJI.

\[ \text{Hasora taminatus} \text{ (Hübner, 1818)} \]

\[ \text{a. } \text{H. \textit{taminatus taminatus} (Hübner, 1818)} \]

\text{Coeliades taminatus} Hübner, 1818: 31.

\text{Hesperia butleri} Aurivillius, 1898: 150.

\text{Hasora taminatus taminatus}: Evans, 1932: 316; 1949: 61, pl. 13.

Holotype: could not be located.

Description and diagnosis: Forewing length 19 mm. Ventral
hindwing, basal area dull indigo blue; band 1.5 mm, sharply edged.


Early stages: Bell (1924) describes the life cycle.

Foodplant: Papilionaceae: *Derris scandes*.

b. *H. taminatus bhavara* Fruhstorfer, 1911

(Plate 21a)

*Hasora taminatus bhavara* Fruhstorfer, 1911: 72; Evans, 1932: 316; 1949: 61; Pinratana, 1985: 19, Pl. 5, fig. 17.

Holotype: "Type, Assam, Khasia Hills, ex coll H. Fruhstorfer," BMNH H2480.

Description and diagnosis: Similar to *taminatus*, but band narrower.

Distribution: INDIA: Sikkim, Manipur, Khasia, Kuijar, Naga; MYANMAR: Tilin Yau, Maymyo; THAILAND: Doi Sutep; CHINA: Omei-Shan, Teng-yuen-Ting.

c. *H. taminatus vairacana* Fruhstorfer, 1911

(Plate 21b)

*Hasora taminatus vairacana* Fruhstorfer, 1911: 70; Evans, 1949: 62; Shirōzu, 1960: 365, pl. 71, fig. 868, 869, 870, 871.
Holotype: "Type, Formosa, Fruhstorfer, VI 08 Chip Chip, Fruhstorfer Coll BM 1933-131," BMNH H2481 (examined).

Description and diagnosis: Forewing length 20 mm. Wings round. Ventral hindwing grayish brown; band 1 mm.

Distribution: TAIWAN: Suishako, Kosempo, Arisan.


d. *H. taminatus malayana* (Felder, 1860)

*Ismene malayana* Felder, 1860: 401.

*Hasora almea* Swinhoe, 1909: 90.

*Parata canostigma* Joicey & Talbot, 1921: 174.

*Hasora taminatus almea*: Evans, 1932: 316.

*Hasora malayana salemana* Kalis, 1933: 64.

*Hasora taminatus malayana*: Evans, 1932: 316, pl. xxx, figs. 1, 15; 1949: 62; Pinratana, 1985: 20, Pl. 6, fig. 17; de Jong & Treadaway, 1993: 13.

Holotypes: *malayana* - could not be located; *almea* - Female, "N. Borneo, Brunei, 1909-281," BMNH H2484 (examined);

*constigma* - "55.20 Hainan Interior, May 1920, C.T. Bowring, J
J Joicey coll BM 1925-451," BMNH H2483; solemana - could not be located.

Description and diagnosis: Ventral hindwing, basal area metallic blue; band very narrow.

Distribution: MYANMAR; THAILAND; CHINA: Hainan; HONG KONG; MALAYSIA: Sabah; INDONESIA: Sumatra, Nias, Java; PHILIPPINES: Balabac, South Palawan.

e. *H. taminatus andama* Evans, 1949

(Plate 21c)

*Hasora taminatus andama* Evans, 1949: 62.

Holotype: "Type, Andaman Is, VIII 1923, G G Field BM 1924-351," BMNH (examined).

Description and diagnosis: Forewing length 27 mm. Ventral hindwing, outer area as well as basal area brilliant green; band 1.5 mm.

Distribution: INDIA: Andaman (Port Blair, "South Andaman"); Nicobar: (Kar Nicobar).

f. *H. taminatus milona* Evans, 1934

(Plate 21d)

*Hasora taminatus milona* Evans, 1934: 35; 1949: 62.

Holotype: "Type, Camorta, Doherty, J J Joicey Coll BM 1925-451," BMNH H2482 (examined).
Diagnosis: Smaller than andama. Forewing length 24 mm. Ventral hindwing, basal area metallic green; outer area metallic purple; band 1.5 mm.

Distribution: INDIA: Nicobar (Central Nicobar, Great Nicobar).

\[g. \text{ H. taminatus padma} \text{ Fruhstorfer, 1911}\]

(Plate 21e, Figure 44b)


Description and diagnosis: Forewing length 22 mm. Ventral hindwing, basal area metallic green; band 1.5 mm.

Distribution: PHILIPPINES: Palawan, Luzon, marinduque, Mindoro, Cebu, Leyte, Negros, Panay, Sibuyan, Mindanao; INDONESIA: Sumba, Timor, "Malay Archipelago."

h. H. taminatus attenuata (Staudinger, 1889)

Ismene malayana attenuata Staudinger, 1889: 137.

Hasora meala Swinhoe, 1907: 437.

Hasora acakra Fruhstorfer, 1911: 73.


Holotypes: attenuata - could not be located; meala -

111

Description and diagnosis: Forewing length 21 mm. Ventral hindwing, basal area metallic blue; band very narrow and irregular.

Distribution: INDONESIA: Sulawesi (Macassar, Maros & Tjamba, Tawaya, Gorotolo, Makian, Dongala), Buton I., Besi I., Sula Besi.

i. H. taminatus amboinensis Swinhoe, 1909

(Plate 21f)

Hasora amboinensis Swinhoe, 1909: 91.
Hasora pramidha Fruhstorfer, 1911: 73.
Hasora taminatus junta Evans, 1934: 35.
Hasora taminatus amboinensis: Evans, 1949: 63.


Description and diagnosis: Very variable. Ventral hindwing, basal area varying between padma and attenuata.

j. *H. taminatus dipama* Fruhstorfer, 1911

(Plate 21g)

*Hasora taminatus dipama*: Evans, 1949: 63.


Description and diagnosis: Forewing length 21 mm. Ventral hindwing, bluish green; band obsolete.

Distribution: INDONESIA: Waigeo.

Remarks: Only the type is known.

---

*Hasora hurama* (Butler, 1870)

a. *H. hurama mola* Evans, 1949

(Plate 22a, Figure 44c)

*Hasora hurama mola* Evans, 1949: 63.


Diagnosis: Forewing length 21 mm. Ventral wings brown with slight purple sheen; band 2 mm, continuous, tapering to 0.5 mm at costa.

Distribution: INDONESIA: Batchan, Ternate, Obi, Halmahera.

---

b. *H. hurama hurama* (Butler, 1870)

(Plate 22b)

*Hesperia hurama* Butler, 1870: 498.

113
Hasora *vivapama* Fruhstorfer, 1911: 74.


Holotypes: *hurama* - "Type H. T., Cape York, N Australia [male], Hasora hurama Butl. Godman-Salvin Coll 1914-5," BMNH H2479 (examined); *vivapama* - "Saparoea, Fruhstorfer, Fruhstorfer Coll. BM 1933-131," BMNH H2476 (examined);


Description and diagnosis: Forewing length 23 mm. Ventral wings with slight purple sheen; band 2 mm, not tapered at costa.

Distribution: INDONESIA: Ambon, West Irian; AUSTRALIA: Northern territory, Banks I., Cape York, Mackay, Watts I.

Foodplant: Papilionaceae: *Derris trifoliata*.

c. H. *hurama arua* Evans, 1934

(Plate 22c)

Hasora *hurama arua* Evans, 1934: 35; 1949: 64.


Description and diagnosis: Larger than *hurama*. Forewing
length 25 mm. Ventral wings shining violet blue.

Distribution: INDONESIA: Aru.

d. *Hasora hurama kieta* Strand, 1921

*Hasora kieta* Strand, 1921: 152.

*Hasora hurama kieta*: Evans, 1949: 64.

Holotype: could not be located.

Description and diagnosis: Forewing length 21 mm. Ventral hindwing, band 3 mm.


Remarks: Two females from Admiralty Islands in BMNH have band as wide as *diana*, but the white markings on the ventral forewing are absent. A female from San Cristobal in AME has a trace of white markings on the ventral forewing.

e. *Hasora hurama diana* Evans, 1958

(Plate 22d)


Description and diagnosis: Forewing length 22 mm. Ventral wings brown with no purple sheen. Ventral forewing with subapical row of white spots. Ventral hindwing, band shining white, 4 mm.

Distribution: SOLOMON ISLANDS: Rennell I.; Bellona I.

**Hasora schoenherr** (Latreille, 1823)

a. **H. schoenherr gaspa** Evans, 1949

*Hasora schoenherr gaspa* Evans, 1949: 64; Pinratana, 1985: 20, pl. 6, fig. 18a.


Description and diagnosis: Forewing length 22 mm. Antenna, club yellow. Dorsal hindwing, band reaching to costa.


b. **H. schoenherr chuza** (Hewitson, 1867)

(Plate 20c, Figure 45a)

*Ismene chuza* Hewitson, 1867: [Ismene], pl. i, fig. 4.

*Choaspes chuza*: Distant, 1886: 373, pl. xxxiv, fig. 27.

*Hasora chuza*: Elwes & Edwards, 1897: 304.

*Hasora schoenherr sumatranus* Kalis, 1933: 74.
Hasora schoenherr chuza: Evans, 1949: 64; Pinratana, 1985: 20, pl. 6, fig. 18b.


Description and diagnosis: Forewing length 25 mm. Antenna, shaft also yellow. Forewing, spots hyaline. Dorsal hindwing, band not reaching to costa.

Distribution: MALAYSIA: Fraser's Hill, Telon R., Selangore, Perak, Kinabalu; INDONESIA: Sumatra (Lebong Tandai, Battak Mts, Bila), Sulu Arch., Sibiga, Merapok; PHILIPPINES: Palawan.

c. H. schoenherr schoenherr (Latreille, 1823)

Hesperia schoenherr Latreille, 1823: 742.

Goniloba derma Riley, 1926: 234.

Hasora schoenherri schoenherri [sic!]: Evans, 1932: 316, pl. xxx, fig. 1.16.

Hasora schoenherr schoenherr: Evans, 1949: 64, pl. 13.

Holotypes: schoenherr - could not be located; derma - could not be located.

Description and diagnosis: Forewing length 25 mm. Ventral hindwing, band wider 5 mm.

Distribution: INDONESIA: Java.

117
d. *H. schoenherr cridatta* Fruhstorfer, 1911

*Hasora schoenherr cridatta* Fruhstorfer, 1911: 75; Evans, 1949: 64.


Description and diagnosis: Ventral hindwing paler than *chuza*.

Distribution: INDONESIA: Nias.

e. *H. schoenherr saida* (Hewitson, 1867)

(Plate 20d, Figure 45b)

*Ismene saida* Hewitson, 1867: [Ismene], Pl. i, Fig. 5.

*Ismene gentiana* Felder & Felder, 1867: 527, pl. 72, fig. 18, 19.

*Hasora saida*: Elwes & Edwards, 1897: 304.

*Hasora schoenherr gentiana*: Evans, 1932: 316.


Holotypes: *saida* - "Philippines, Hewitson Coll 79-69, Ismene saida 3," BMNH H2500 (examined); *gentiana* - "S. Luzon, Rothschild Bequest, BM 1939-1," BMNH (examined).

Description and diagnosis: Antenna yellow. Forewing, spots in spaces 2, 3 and discoidal cell not hyaline; subapical spots in spaces 6, 7 and 8 white. Dorsal hindwing, base not brown. Ventral hindwing, band 5 mm.
Distribution: PHILIPPINES: Luzon, Marinduque, Mindoro, Leyte, Negros, Sibuyan, Mindanao.

Hasora mixta Mabille, 1876

a. H. mixta prabha Fruhstorfer, 1911

Hasora mixta prabha Fruhstorfer, 1911: 68; Evans, 1949: 65; de Jong & Treadaway, 1993: 16.

Hasora mixta lioneli Fruhstorfer, 1911: 68.

Hasora mixta tyrius Fruhstorfer, 1911: 68.

Hasora mixta yanuna Fruhstorfer, 1911: 68.

Hasora simplicissima lioneli: Evans, 1932: 314.

Holotypes: prabha - "Palawan 1898 Doherty, ex coll. H. Fruhstorfer," BMNH H2471 (examined); lioneli - could not be located; tyrius - could not be located; yanuna - "Nias, ex coll. Fruhstorfer, Fruhstorfer Coll BM 1933-131," BMNH H2470 (examined).

Description and diagnosis: Forewing length 22 mm. Female, apical and discal spots conspicuous. Similar to H. badra, but ventral hindwing, cell spot faint or absent.

Distribution: MYANMAR: Ataran; MALAYSIA: [Borneo]; INDONESIA: Shabat, Sumatra (Battak Mts.), Nias, Java, Sulu; PHILIPPINES: Palawan.
b. *H. mixta mixta* (Mabille, 1876)

(Plate 23a, Figure 46a)


*Ismene philetas* Plötz, 1884: 56.

*Hasora simplicissima*: Elwes & Edwards, 1897: 299.

*Hasora mixta cirta* Fruhstorfer, 1911: 68.


Description and diagnosis: Similar to *prabha*, but ventral wings with purple sheen. Female, apical spot absent.


c. *H. mixta fenestrata* Fruhstorfer, 1911

*Hasora simplicissima fenestrata* Evans, 1932: 314.


Holotype: could not be located.
Description and diagnosis: Female with only a spot in space.

Distribution: INDONESIA: Sulawesi (Makian, Tondano, Palu, Sino), Sula Besi, Mangola, Xulu.

d. H. mixta simplicissima (Mabille, 1876)

Ismene simplicissima Mabille, 1876: 25.


Description and diagnosis: Wings rounded. Ventral wings, purple sheen intense; markings faint. Ventral hindwing with a white spot in space lb. Female with no spot.

Distribution: INDONESIA: Batjan, Obi, Halmahera, Amboina.

Hasora celaenus (Stoll, 1782)

(Plate 23b, Figure 46b)

Papilio celaenus Stoll, 1782: 215, pl. 393, fig. A, B.

Thymele lugubris Boisduval, 1832: 161.

Hasora violacea Elwes & Edwards, 1897: 299.

Hasora akshita Fruhstorfer, 1911: 64.

Holotypes: celaenus - could not be located; lugubris - could not be located; violacea - could not be located; akshita -

Description and diagnosis: Forewing length 22 mm. Dorsal wings brown. Ventral wings shining indigo blue in male, light green in female.


**Hasora badra** (Moore, 1857)

a. **H. badra lanka** Evans, 1926


Description and diagnosis: Dorsal wings yellowish brown. Ventral hindwing, cell spot yellow.

Distribution: SRI LANKA.

b. **H. badra badra** (Moore, 1858)

(Plate 23c, Figure 47)

*Goniloba badra* Moore, 1858: 245, pl. 7, fig. 3, 3a; 1866: 778.

*Hasora badra*: Moore, 1881: 159, pl. lxv, figs. 4, 4a; Watson, 1891: 12; Elwes & Edwards, 1897: 298; Bell, 1924: 144.

*Ismene certhia* Plötz, 1884: 59.

122
Hasora badra godana Fruhstorfer, 1911: 65.

Hasora badra sankarya Fruhstorfer, 1911: 66.

Hasora badra badra: Evans, 1932: 314, pl. xxx, fig. 1.6; 1949: 66, pl. 14; Shirōzu, 1960: 368, pl. 71, figs. 860, 861, 862, 863; Pinratana, 1985: 20, pl. 6, fig. 19; de Jong & Treadaway, 1993: 16.

Holotypes: badra - "60.15 F.I.C., Java Horsf. 60.15 F.I.C., 062," BMNH H2439 (examined); certhia - could not be located; godana - "Formosa Fruhstorfer, Fruhstorfer Coll BM 1933-131," BMNH H2438 (examined); sankarya - "Engano April-Juli Fruhstorfer, Fruhstorfer Coll. BM 1933-131," BMNH H2440 (examined).

Description and diagnosis: Forewing length 23 mm. Ventral wings brown with purple sheen; cell spot white, 1 mm.


Early stages: Bell (1924) and Fukuda et al. (1984) described the larvae. Final instar larva: Head red with five black dots. Thorax and abdomen green with dorsal yellow longitudinal lines and transverse stripes; dorso-lateral black spots conspicuous.

**Hasora quadripunctata** (Mabille, 1876)

a. *H. quadripunctata gnaeus* (Plötz, 1884)

(Plate 23d)

*Ismene gnaeus* Plötz, 1884: 58.

*Hasora gnaeus*: Elwes & Edwards, 1897: 298.

*Hasora madatta* Fruhstorfer, 1911: 65.


Holotypes: *gnaeus* - could not be located; *madatta* - "Java occident. Sukabumi 2000 1893, H. Fruhstorfer," BMNH H2441 (examined).

Description and diagnosis: Wings wider. Forewing length 23 mm. Ventral hindwing, white cell spot 2 mm.

Distribution: MALAYSIA: Kina Balu; INDONESIA: Sumatra (Bila, Selesseh), Java; BRUNEI; PHILIPPINES: Mindoro, Leyte, Samar, Mindanao.

b. *H. quadripunctata celebica* (Staudinger, 1889)

(Plate 23e)

Holotype: could not be located.
Description and diagnosis: Wings narrower. Forewing length 22 mm. Ventral hindwing, cell spot 1.5 mm. Female with small spots in spaces 2, 3 and discoidal cell on forewing.
Distribution: INDONESIA: Sulawesi (Macassar, Samanga).

c. H. quadripunctata quadripunctata (Mabille, 1876)
Ismene quadripunctata Mabille, 1876: 265.
Description and diagnosis: Wingth still narrower. Forewing length 21 mm. Ventral wings, purple sheen intense. Ventral hindwing, spot 2mm. Female with no spot.
Distribution: INDONESIA: Moluccas.

Hasora subcaelestis Rothschild, 1916
(Plate 24a, b)
Hasora subcaelestis Rothschild, 1916: 43; [subcoelestis]
Evans, 1949: 67, pl. 2, 14.
Holotype: "Base Camp, Utakwa R., sea level, Dutch N. Guin.
Novemb 1912, A R F Wollaston, Rothschild Bequest BM 1939-1,"
BMNH (examined).

Description and diagnosis: Forewing length 25 mm. Dorsal
wings uniformly dark brown. Ventral wings black with blue
veins, streaks and bands.

Distribution: PAPUA NEW GUINEA: Hydrographer Mts., S.
Geelvink Bay, Babooni, Kapaur, Oetakwa R., Aroa R., Humboldt
Bay, Mefor Is.

Hasora vitta Butler, 1870
a. H. vitta indica Evans, 1932
(Figure 48c)

Hasora vitta indica Evans, 1932: 315; 1949: 68; Pinratana,
1985: 21, pl. 6, fig. 20a.

Holotype: "Karen Hills, 6000, 4.20, W H Evans BM 1932-274,"
BMNH H2461 (examined).

Description and diagnosis: Forewing length 22 mm. Ventral
hindwing dark indigo blue. Ventral hindwing, band 2.5 mm,
outer edge diffused.

Distribution: INDIA: Nilgiri, Kanara, Manipur, Karwar,
Sikkim, Darjiling, Mt. Abu, E. Pegu, Assam; MYANMAR:
Yenwetung; THAILAND: Chang Mai; CHINA: Pa Tse Fang, Ta-tsien-
lou, Kouy-Tcheou, Nanning, Chaotung, Konangsi; HONG KONG.

Early stages: Bell (1924) described the life cycle in detail.
Young (1993) illustrated two types of larvae. One with reddish orange head, and another with black head. The former type may match Bell's description.

Foodplant: Papilionaceae: *Milletia racomosa, M. auriculata* (Bell, 1924).

b. *H. vitta manda* Evans, 1949

*Hasora vitta manda* Evans, 1949: 68.


Description and diagnosis: Ventral hindwing, basal area greenish blue; band sharply defined.

Distribution: INDIA: South Andaman (Port Blair).

c. *H. vitta vitta* (Butler, 1870)

(Plate 24c, Figure 48 b, d)

*Hesperia vitta* Butler, 1870: 498.

*Ismene chabrona* Plötz, 1884: 56.

*Hasora vitta*: Elwes & Edwards, 1897: 300; *[vitta vitta]* Evans, 1932: 315; 1949: 68, pl. 14; Pinratana, 1985: 21, pl. 6, fig. 20b.

*Hasora chabrona*: Elwes & Edwards, 1897: 300; Bell, 1924: 285.

Holotype: *vitta* - "Type H. T., Labuan Borneo (Low), Ex Druce Coll., Hasora vitta Butl., Godman-Salvin Coll 1914-5, BM(NH)"
Rh.(v)No.1266," BMNH H2462 (examined); chabrona - could not be located.

Description and diagnosis: Forewing length 21 mm. Forewing with yellow hyaline spot in space 6. Ventral hindwing, band 1.5 mm. Differs from H. taminatus malayana and H. chromus in that band wider, and from H. proxissima in having forewing spot.

Distribution: MYANMAR: "Burma," Tavoy; THAILAND; MALAYSIA: Perak, Mt. Taban, Fraser's Hill, Kina Balu; INDONESIA: Sumatra (Bukit Kutu, Bila, P. Panding, Kilim Bungo, Batang Proepoe), Banka, Java, Nias.

d. H. vitta proximata (Staudinger, 1889)

(Figure 48e)

Ismene proximata Staudinger, 1889: 137.

Hasora proxisimata [sic!]: Elwes & Edwards, 1897: 301.


Holotype: could not be located.

Description and diagnosis: Forewing length 23 mm. Ventral forewing, bar at end cell conspicuous. Ventral hindwing, basal area metallic blue; band 2 mm.

Distribution: PHILIPPINES: Palawan.
e. *H. vitta pathana* Fruhstorfer, 1911

*Hasora pathana* Fruhstorfer, 1911: 70.

Holotype: could not be located.

Description and diagnosis: Forewing length 22 mm. Ventral hindwing, outer area also metallic green.

Distribution: PHILIPPINES: Luzon, Mindoro, Mindanao.

f. *H. vitta sula* Evans, 1932

*Hasora vitta sula* Evans, 1932: 315; 1949: 68.


Description and diagnosis: Darker than other *vitta* subspecies. Ventral hindwing, band narrow, 1 mm, sharply defined.

Distribution: INDONESIA: Sulawesi, Sula Besi.

g. *H. vitta simillima* Rothschild, 1916

(Plate 24d)

*Hasora simillima* Rothschild, 1916: 42.

*Hasora latifascia* Joicey & Talbot, 1917: 222.

*Hasora vitta similima* [sic!]: Evans, 1949: 69.

Holotypes: *simillima* - "Base Camp, Utakwa R., sea level, Dutch N. Guin., Decemb 1912, A.F.R.Wollaston, Rothschild"
Bequest BM 1939-1, BM(NH)R(v)1267, "BMNH H2450 (examined); latifascia - "Biak, Schouten Is., North N Guinea, June 1914, A C and F Pratt, J J Joicey Coll BM 1925-451," BMNH H2451 (examined).

Description and diagnosis: Forewing length 24 mm. Forewing without subapical dot in space 6. Ventral hindwing, basal area indigo blue, outer area purple-blue, band wide, 3 mm. Distribution: INDONESIA: Waigeu, Mefor I., Biak, Irian (Kapaur).

**Hasora moestissima** (Mabille, 1876)

a. **H. moestissima moestissima** (Mabille, 1876)

(Plate 25a, Figure 48a)

**Ismene moestissima** Mabille, 1876: 25.


Description and diagnosis: Forewing length 22 mm. Dorsal wings grayish brown with yellow hyaline spot in space 6. Ventral wings without purple sheen. Ventral hindwing, band 1 mm, not reaching to costa.

Distribution: PHILIPPINES: Luzon, Mindoro, Leyte, Negros,
Samar, Mindanao (Davao), "Benguet"; INDONESIA: Sulawesi (Macassar, Palu).

b. *H. moestissima unica* Evans, 1934
(Plate 25b)

*Hasora khoda unica* Evans, 1934: 34.
*Hasora caeruleostriata* de Jong & Treadaway, 1993: 17.


Description and diagnosis: Forewing length 24 mm. Ventral forewing, pale bar at cell end absent. Ventral hindwing, band bluish white, 1 mm.

Distribution: PHILIPPINES: Palawan, Luzon, Marinduque, Mindanao.

Remarks: The collecting locality of the type specimen is not clear. Evans (1949) decided that it was Aru. I believe that the type was mislabeled, because all the later specimens were collected in the Philippines, and not in Aru. This taxon may be just a form of *moestissima.*
**Hasora perplexa** (Mabille, 1876)

(Plate 25c, Figure 49)

**Ismene perplexa** Mabille, 1876: 25.

**Hasora perplexa**: Evans, 1949: 69, pl. 14.


Description and diagnosis: Wings broad. Dorsal and ventral wings dark brown with purple sheen. Ventral forewing, dorsum more or less paler. Ventral hindwing, white band 3 mm, narrow at costa and vein 2.

Distribution: INDONESIA: Moluccas.

Remarks: Only the type is known.

**Hasora leucospila** (Mabille, 1891)

a. **H. leucospila leucospila** (Mabille, 1891)

(Plate 26a, c)

**Ismene leucospila** Mabille, 1891: 79.

**Hasora palinda** Swinhoe, 1905: 618.

**Hasora leucospila matisca** Fruhstorfer, 1911: 76.

**Hasora leucospila parnia** Fruhstorfer, 1911: 76; Evans, 1932: 315.

**Hasora leucospila leucospila**: Evans, 1949: 71, pl. 14; Pinratana, 1985: 21, pl. 7, fig. 21; de Jong & Treadaway, 1993: 18.
Holotype: leucospila - could not be located; palinda - "Java purfrom E. Swinhoe 1906-118, Hasora palinda Swinhoe [male] type," BMNH H2465 (examined); matisca - "Philippinen, Bazilan II-III 98, Doherty, ex coll Fruhstorfer," BMNH H2467 (examined); parnia - "Nord-Borneo, ex coll Fruhstorfer," BMNH H2466 (examined).

Description and diagnosis: Forewing length 25 mm. Dorsal forewing brown with black brand on both sides of veins 1b, 2, 3 and 4. Ventral hindwing brown with purple sheen; trace of white band faintly seen above dark tornus. One female from Sulawesi: Forewing with yellow hyaline spots in spaces 2 and 3. Ventral hindwing pale brown with trace of purple discal band and white dot in space 1b; tornus darker.

Distribution: MYANMAR: Tenasserim, Vietonia Point; MALAYSIA: Perak (Maxwell Hill), "Borneo"; INDONESIA: Sumatra (Lebong Tandai), Java, Sulawesi (Toli-Toli); PHILIPPINES: Luzon, Mindoro, Leyte, Negros, Samar, Mindanao.

b. H. leucospila spila Evans, 1949

(Plate 26b)

Hasora leucospila spila Evans, 1949: 71.

Description and diagnosis: Ventral wings, purple sheen intense; band absent.

Distribution: INDONESIA: Amboina.

Hasora mavis Evans, 1934

(Plate 26d, e)

Hasora khoda mavis Evans, 1934: 34; 1949: 70.


Description and diagnosis: Extremely similar to H. borneensis, but wings with purple sheen. Genitalia also different.

Distribution: MALAYSIA; PHILIPPINES: Mindanao.

Remarks: Wing shape, markings and the distribution suggest that this taxon is a female of leucospila of which the female is not really known.

Hasora khoda Mabille, 1876

a. H. khoda coulteri Wood Mason & de Nicéville, 1887

Hasora couleteri Wood Mason & de Nicéville, 1887: 378, pl. xviii, figs. 8, 8a, 8b; Elwes & Edwards, 1897: 300.

Hasora khoda coureteri: Evans, 1932: 315; 1949: 70;

Pinratana, 1985: 21, pl. 7, fig. 22.

Holotype: could not be located.
Description and diagnosis: Forewing length 22 mm. Ventral hindwing, band 2 mm.


b. H. khoda tantra Fruhstorfer, 1911

Hasora tantra Fruhstorfer, 1911: 66.
Hasora avajra Fruhstorfer, 1911: 66.
Hasora khoda tantra: Evans, 1949: 70.


Description and diagnosis: Ventral hindwing, band only faintly indicated.

Distribution: INDONESIA: Nias, Java.

c. H. khoda latalba de Jong, 1982


Description and diagnosis: Forewing length 22 mm. Ventral hindwing, band 1 mm in male and 2 mm in female.

Distribution: INDONESIA: Sumatra, Simalue.
d. *H. khoda minsona* Swinhoe, 1907

(Plate 27a)

*Hasora minsona* Swinhoe, 1907: 435.

*Hasora mimosa* [misspelling] Swinhoe, 1908: 34, pl. III, fig. 2.

*Hasora khoda venesta* Evans, 1934: 34.

*Hasora khoda minsona*: Evans, 1949: 70.


Description and diagnosis: Forewing length 21 mm. Ventral hindwing, band 1 mm. Similar to *H. moestissima*, but purple sheen and forewing spot in space 6 absent.


e. *H. khoda burgeri* Ribbe, 1889

*Hasora burgeri* Ribbe, 1889: 73.

*Hasora khoda burgeri*: Evans, 1949: 70.

Holotype: could not be located.

Description and diagnosis: Larger than *minsona*. Forewing length 27 mm.
Distribution: INDONESIA: Sulawesi (Bonthain, Palu), Toekan Bessi, Siao, Talaut.

f. H. *khoda plexa* Evans, 1949

*Hasora khoda plexa* Evans, 1949: 70.


Description and diagnosis: Ventral hindwing, band wider, 5 mm.

Distribution: INDONESIA: Batchan, Ceram, Amboina.

g. H. *khoda dampierensis* Rothschild, 1915

(Plate 27b)


*Hasora khoda dampierensis*: Evans, 1949: 70.

Holotype: "Dampier Isl, Feb & March 1914 [Meek's Expedition], Rothschild Bequest BM 1939-1, BM(NH)R(v)1269," BMNH (examined).

Description and diagnosis: Forewing length 26 mm. Ventral hindwing chocolate brown; band 3 mm at widest, not reaching to costa, continuous at space 1b.

h. *H. khoda linda* Evans, 1934

*Hasora khoda linda* Evans, 1934: 35; 1949: 70.


Description and diagnosis: Forewing length 24 mm in male, 26 mm in female. Male: ventral hindwing, band faint. Female: Dorsal wings brown; bases covered with paler hairs. Forewing with yellow hyaline spots in spaces 2, 3, 6 and 7. Ventral hindwing, band faint.

Distribution: Bougainville, Florida I.

i. *H. khoda haslia* Swinhoe, 1899


Holotype: Male, "Brisbane pur from E. Swinhoe 1900-250," BMNH H2460 (examined).

Description and diagnosis: Large. Forewing length 26 mm. Ventral hindwing, band 1 mm.

Distribution: AUSTRALIA: Brisbane, Cooktown, Noosa, Queensland, Sydney, New South Wales.

Early stages:

Foodplant: Papilionaceae: *Millettia megasperma*. 

138
j. H. *khoda khoda* (Mabille, 1876)

*Ismene khoda* Mabille, 1876: 25.


Description and diagnosis: Forewing length 22 mm. Ventral hindwing, band narrow and suffused.

Distribution: Lifu, Ile Sandvich.

---

*Hasora thridas* (Boisduval, 1832)

a. *H. thridas thridas* (Boisduval, 1832)

(Plate 27c)

*Thymele thridas* Boisduval, 1832: 161.

*Ismene ribbei* Plötz, 1886: 115.

*Hasora apara* Fruhstorfer, 1911: 74.


Holotypes: *thridas* - could not be located; *ribbei* - could not be located; *apara* - "Obi, H. Fruhstorfer, Fruhstorfer Coll BM 1933-131," BMNH H2468 (examined).

Description and diagnosis: Forewing length 25 mm. Ventral wings metallic greenish blue. Ventral hindwing with trace of band, 1 mm; tornus indigo blue.

Distribution: INDONESIA: Amboina, Ceram, Halmahera, Obi, Gisser.
b. *H. thridas chalybeata* Joicey & Talbot, 1917

*Hasora chalybeata* Joicey & Talbot, 1917: 222.

*Hasora thridas chalybeata*: Evans, 1949: 72.


Description and diagnosis: Ventral hindwing, band faint.

Genus *Coeliades* Hübner, 1818

*Coeliades* Hübner, 1818: 31. Type species: *Papilio forestan* Stoll, [1782]; by selection by Hemming, 1935.

*Rhopalocampta* Wallengren, 1857: 47. Type species: *Papilio forestan* Stoll, [1782]; by selection by Scudder, 1875.

Generic characters: Sexes alike. Antenna half as long as costa; apiculus one-fifth length of shaft. Wing venation (Figure 3): Forewing: vein 1b curved downwards; vein 6 slightly curved near origin; vein 5 arising nearer to vein 6 than to vein 4; vein 3 arising more or less distad to vein 10; discocellular vein faint; cell two-thirds length of costa. Hindwing: vein 7 arising mid vein 3 and vein 2; vein 5 faint or absent; discocellular vein faint; cell less than half wing length. Wings with no hyaline spot or secondary sexual character. Abdomen shorter than hindwing, with dark hair tuft on intersegmental membrane between 8th tergite and tegumen. Larvae have wide range of foodplants: Asclepiadaceae, Barringtoniaceae, Combretaceae, Euphorbiaceae, Malpighaceae, Papilionioideae and other families.

**Key to the species of Coeliades**

1. Wings metallic blue or greenish blue, usually with a
white spot on the ventral side of the hindwing ............2
1'. Wings not so .................................................................3
2. Ventral side of the hindwing, white spot crosses space 3
.......................................................... C. bixana
2'. Ventral side of the hindwing, white spot, if present, not beyond space 3, the white marking may absent ......C. chalybe
3. Hindwing, cilia white .........................................................4
3'. Hindwing, cilia tornally yellow, orange, or red ...........5
4. Ventral side of the hindwing with white band
.......................................................... C. ramanatek
4'. Ventral side of the hindwing with no band .......C. libeon
5. Ventral side of the hindwing plain with no marking
.......................................................... C. rama
5'. Ventral side of the hindwing with a discal band or subtornal markings ........................................6
6. Ventral side of the hindwing with white or yellow band
.......................................................... 7
6'. Ventral side of the hindwing with subtornal red markings. If the band is present, narrower than 3mm ..........12
7. Ventral side of the hindwing, band encloses black spots
.......................................................... 8
7'. Ventral side of the hindwing, band not enclose black spots .................................................................10
8. Ventral side of the hindwing with a black spot in space
4; band not narrower at costa ......................... C. hanno
8'. Ventral side of the hindwing without a black spot in
space 4; band narrower at costa ......................... 9
9. Ventral side of the hindwing, band white, tornus black
................................................................. C. pisistatus
9'. Ventral side of the hindwing, band yellow, tornus orange
................................................................. C. sejuncta
10. Ventral side of the hindwing, band wider, 10 mm, not
sharply edged ............................................... C. fervida
10'. Ventral side of the hindwing, band 5 mm, sharply edged
................................................................. 11
11. Ventral side of the hindwing without a white spot in
space 1b ........................................................ C. fidia
11'. Ventral side of the hindwing with an isolated white spot
in space 1b ...................................................... C. forestan
12. Ventral side of the hindwing, space 1b brown
................................................................. C. keithloa
12'. Ventral side of the hindwing, space 1b red or yellow
................................................................. C. menelik

Coeliades bixana Evans, 1940
(Plate 28c, Figure 50a)

Ismene bixa: Kirby, 1871: 582.
Hesperia bixa: Butler, 1887: 573.
Rhopalocampta bixae: Mabille, 1904: 88; Aurivillius, 1925: 508, pl. 75; Strand, 1933: 44.

Coeliades bixae: Evans, 1937: 11, pl. 8.

Coeliades bixana Evans, 1940: 410; 1947: 641; Lindsey & Miller, 1965: 49.

Holotype: male, [GHANA], "Odumase Swamp, Coomassie 1913 Sleed, J J Joicey Coll, B.M. 1925-451," BMNH H2535 (examined).

Description and diagnosis: Forewing length 27 mm. Wings dorsally dark metallic blue. Thorax dorsally blue, ventrally orange. Hindwing lobed. Ventral hindwing white spot separated from costa.

Distribution: GUINEA; IVORY COAST; GHANA: Kumasi, Gold Coast; NIGERIA; CAMEROON; ZAIRE: Kasai, "Banterberri"; ANGOLA; "Lake Asebbe"; "Bopoto."

Remarks: This species had been confused with an American taxon, Pyrrhopige bixae.

Coeliades chalybe (Westwood, 1852)

a. C. chalybe chalybe (Westwood, 1852)

(Plate 28a, b, Figure 50b)

Ismene chalybe Westwood, 1852: 515; Doubleday & Hewitson, 1852: pl. 77, fig. 2; Aurivillius, 1891: 226.
Rhopalocampta chalybe: Mabille, 1904: 88; Aurivillius, 1896: 291; 1925: 508, pl. 75.
Coeliades chalybe: Evans, 1937: 11, pl. 8; Lindsey & Miller, 1965: 50, fig. 10; Boorman, 1970: 40, fig. 106, 55; Carcasson, 1981: 97; Kielland, 1990: 227, pl. 56; Larsen, 1991: 388, pl. 57, fig. 720i.
Description and diagnosis: Forewing length 21 mm. Wings bright metallic blue in male, darker and greenish in female. Ventral hindwing, white spot reaches to costa.
Distribution: GAMBIA; LIBERIA; GHANA; NIGERIA; CAMEROON; EQUATORIAL GUINEA; GABON; ZAIRE; ANGOLA; UGANDA; KENYA; TANZANIA.

b. C. chalybe immaculatus (Carpenter, 1935)
Rhopalocamptia chalybe immaculata Carpenter, 1935: 404.
Holotype: Hope Entomological Collection, Oxford University.
Description and diagnosis: White marking on the ventral side of the hindwing absent.
Distribution: ETHIOPIA.
**Coeliades fervida** (Butler, 1880)

(Plate 28d, Figure 50c)

*Hesperia fervida* Butler, 1880: 339.


*Coeliades fervida*: Evans, 1937: 13, pl. 8; Viette, 1956: 10, fig. 8, 14.

Holotype: "Madagascar 80.23," BMNH H2525 (examined).

Diagnosis: Forewing length 25 mm. Wings dorsally dark brown with orange tornal area. Ventral hindwing dark brown; white band wide, 10 mm at costa; tornus with triangular orange area.

Distribution: MALAGASY REPUBLIC: Madagascar.

---

**Coeliades forestan** (Stoll, 1784)

a. *C. forestan forestan* (Stoll, 1784)

(Plate 32a, Figure 55a)

*Papilio Plebeius Urbicola forestan* Stoll, 1784: 210, pl. 391, figs. E, F.

*Ismene forestan*: Kirby, 1871: 581; Mathew, 1889: 428; Aurivillius, 1891: 226.

*Hesperia forestan*: Butler, 1887: 573.


*Coeliades forestan*: Carpenter, 1935: 404; Evans, 1937: 13,
pl. 8; Lindsey & Miller, 1965: 51, fig. 12; Pinhey, 1965: 198, pl. 41, fig. 7; Gifford, 1965: 1; Williams, 1971: 224; Kielland, 1990: 227, pl. 56; Larsen, 1991: 389, Pl. 57, fig. 723i.

Holotype: could not be located.

Description and diagnosis: Forewing length 22 mm. Ventral hindwing dark brown; band white; 4 mm, not contracted at costa; with a separated white dot in space 1b.

Distribution: Most of Africa.

Early stages: Mathew (1889) described the larva and pupa.

Foodplant: Papilionioideae: Indigofera, Sesbania, Crotalaria, Canavalia, Milletia, Phaseolus, Robinia, Cassia; Solanaceae: Solanum; Asclepidaceae: Marsdenia, Dregea; Geraniaceae: Geranium; Combretaceae: Combretum, Quisqualis, Terminalia; Malpighiaceae: Spedamnocarpus; Malvaceae: Gossypium.

b. C. forestan arbogastes (Guenee, 1862)

(Plate 32b)

Thymele arbogastes Guenee, 1862: 19.

Hesperia margarita Butler, 1879: 392.


(examined); margarita - female, "Madagascar 78.64," BMNH H2527 (examined).

Description and diagnosis: Dorsal wings greenish rather than yellowish as in forestan.

Distribution: MALAGASY REPUBLIC: Madagascar, Seychelles.

Coeliades rama Evans, 1937
(Plate 32c, Figure 55b)

Ismene ratek: Kirby 1871: 581.

Coeliades rama Evans, 1937: 13, pl. 8; Viette, 1956: 9, fig. 7, 12.


Description and diagnosis: Forewing length 21 mm. Wings dorsally dark brown, ventrally dark greyish brown with no marking; hindwing cilia orange.

Distribution: MALAGASY REPUBLIC: Madagascar.

Coeliades libeon (Druce, 1875)
(Plate 31a, Figure 54a)

Ismene libeon Druce, 1875: 416.

Ismene unicolor Mabille, 1877: 39.

Ismene andonginis Plötz, 1884: 60.
Ismene brussauxi Mabille, 1890: 221.

Rhopalocampta unicolor: Mabille, 1904: 88.

Rhopalocampta libeon: Mabille, 1904: 88; Aurivillius, 1925: 508.


Rhopalocampta libeon unicolor: Aurivillius, 1925: 508.

Rhopalocampta libeon brussauxi: Aurivillius, 1925: 508.

Coeliades libeon form libeon: Evans, 1937: 12.

Coeliades libeon form brussauxi: Evans, 1937: 12.


Description and diagnosis: Forewing length 22 mm. Wings uniformly dark brown with no markings; hindwing cilia white.

Distribution: LIBERIA: "Harbel"; CAMEROON; GABON; CONGO; UGANDA; MALAWI; "RHODESIA."

Remarks: Druce (1875) thought that this taxon was a form of ramanatek.

Coeliades ramanatek (Boisduval, 1833)

a. C. ramanatek ramanatek (Boisduval, 1833)

(Plate 31b, Figure 54b)

Thymele ramanatek Boisduval, 1833: 210, pl. 9, fig. 3.

Ismene ramanetek [sic!]: Kirby, 1871: 581.

Rhopalocampta ramanatek: Mabille, 1904: 88; Aurivillius, 1925: 508, pl. 75; [ramenetek] Strand, 1933: 40.

Coelidaes ramanatek ramanatek: Evans, 1937: 12, pl. 8; Viette, 1956: 7, fig. 2, 4.


Description and diagnosis: Forewing length 21 mm. Dorsal wings dark greyish brown. Dorsal hindwing, tornus and cilia white. Ventral forewing with a discal bar and white tornal area. Ventral hindwing with a white discal dot and submarginal white band.

Distribution: MALAGASY REPUBLIC: Madagascar.
b. *C. ramanatek comorana* Evans, 1937


Diagnosis: Ventral wings, white discal bar and dot smaller.

Distribution: COMORO: Grande Comore, Mayotte, Anjouan.

---

*a. C. keithloa keithloa* (Wallengren, 1857)

(Plate 29a, Figure 51a)

*Rhopalocampta keithloa* Wallengren, 1857: 48; Mabille, 1904: 88; Aurivillius, 1925: 509, pl. 75.

*Ismene stella* Trimen, 1862: 287.

*Ismene keithloa*: Kirby, 1871: 581.

*Ismene tancred* Plötz, 1884: 62.


Holotypes: *keithloa* - could not be located; *stella* - male, [SOUTH AFRICA], "Natal D'Urban, Ex Trimen Coll., Cat p467 No.1, J.J. Joicey Coll. BM 1923-451," BMNH H2530 (examined);
*tancred* - female, [SOUTH AFRICA], Natal, MS. Plate No. 1182 (examined).

Description and diagnosis: Forewing length 24 mm. Wings brown. Ventral hindwing, orange marking in space 2 not
reaches to tornus; with two black dots in space 1b.
Distribution: SOUTH AFRICA: Natal; ZIMBABWE.

b. C. keithloa lorenzo Evans, 1947
(Plate 29b, Figure 51b)
Coeliades keithloa lorenzo Evans, 1947: 641.
Description and diagnosis: Forewing length 25 mm. Dorsal hindwing, orange area narrower than that of keithloa. Ventral hindwing, orange marking reaches to tornus, with a black bar rather than a dot.
Distribution: MOZAMBIQUE: Maputo [Lourenço Marques].

Coeliades menelik (Ungemach, 1932)
a. C. menelik kenya Evans, 1937 new combination
(Plate 29c, Figure 52b)
Holotype: [KENYA], "Brit. E. Africa, Mombasa 12-13 Feb 1912,
S.A. Neave, 14 Feb 1912, 1912:193," BMNH H2529 (examined).

Description and diagnosis: Forewing length 28 mm. Ventral hindwing pale greyish brown; tornus orange with two black dots in space 1b and two oblonged marginal black spots.

Distribution: KENYA: Mombasa, Sabaki Valley, Melindi, Takaunga, Tarna, Lamn, Nasim, Kilimanjaro; TANZANIA.


Remarks: M. J. W. Cock found that larvae of *kenya* differed from that of *keithloa* which was believed to be conspecific (Larsen, 1991).

b. *C. menelik merua* Evans, 1947 new combination

(Plate 29d, Figure 52a)

*Coeliades merua* Evans, 1947: 643.


Diagnosis: Forewing length 24 mm. Ventral hindwing: markings paler than *kenya*, with a black bar instead of two dots; space 1b faintly yellow; in one male example, discal yellow band (1mm) from orange marking almost reaches to costa.

Distribution: KENYA: Meru.
c. C. menelik menelik (Ungemach, 1932)

Rhopalocampta menelik Ungemach, 1932: 99.

Coeliades menelik: Evans, 1937: 15, pl. 8; Carpenter, 1935: 404.


Holotype: in Ungemach collection.

Description and diagnosis: Ventral hindwing, tornal orange wider, reaches to discoidal cell, with a black bar in space 2 and a dot in space 3.


Coeliades hanno (Plötz, 1879)

(Plate 30a, Figure 53a)

Ismene hanno Plötz, 1879: 363.

Ismene necho Plötz, 1884: 63.

Rhopalocampta hauno: Mabille & Vuillot, 1891: pl. 3, fig. 1.


Rhopalocampta necho: Mabille, 1904: 88; Aurivillius, 1925: 509.

Rhopalocampta necho ab. tripunctata Aurivillius, 1925: 509,
pl. 75.

Coeliades hanno: Carpenter, 1935: 404; 1937: 14, pl. 8;
Lindsey & Miller, 1965: 52, fig. 13; Kielland, 1990: 227, pl. 56; Larsen, 1991: 390, Pl. 53, fig. 725i.
Holotypes: hanno - could not be located; necho - could not be located; tripunctata - could not be located.

Description and diagnosis: Forewing length 22 mm. Ventral hindwing band 5 mm, not contracted at costa; cream yellow in male, white in female. Similar to C. pisistratus, but has black spots in space 4.

Distribution: SENEGAL; LIBERIA; GHANA; NIGERIA; CAMEROON; SAO THOME; GABON; CONGO; ZAIRE; ANGOLA; UGANDA; KENYA; TANZANIA; ETHIOPIA.


**Coeliades sejuncta** (Mabille & Vuillot, 1891)

(Plate 30b)

*Ismene sejuncta* Mabille & Vuillot, 1891: 19, pl. 3, fig. 2.

*Rhopalocampta sejuncta*: Mabille, 1904: 88; Aurivillius, 1925: 509, pl. 75.

*Coeliades sejuncta*: Evans, 1937: 14, pl. 8; Kielland, 1990: 228, pl. 56; Larsen, 1991: 390, Pl. 57, fig. 726i.

Holotype: female, Ussagara in Zoologische Museum der Humboldt Universität, Berlin.

Description and diagnosis: Forewing length 26 mm. Ventral hindwing, band 5 mm, 2.5 mm at costa, yellow; tornus orange with four black markings.

Distribution: KENYA; TANZANIA; MALAWI.

*Coelides pisistratus* (Fabricius, 1793)

(Plate 30c, Figure 53b)

*Hesperia pisistratus* Fabricius, 1793: 345.


*Ismene pisistratus*: Kirby, 1871: 581.

*Ismene valmaran*: Kirby, 1871: 581.

*Rhopalocampta pisistratus*: Mabille, 1904: 88; Aurivillius, 1925: 508, pl. 75; Strand, 1933: 42.

*Coeliades pisistratus*: Carpenter, 1935: 404; Evans, 1937: 14, pl. 8; Lindsey & Miller, 1965: 52; Pinhey, 1965: 199, pl. 41, fig. 8; Kielland, 1990: 228, pl. 56.

Holotype: in Zoological Museum of Copenhagen.

Description and diagnosis: Forewing length 22 mm. Ventral hindwing, band white, 5 mm, contracted at costa. Similar to *hanno*, but has no spot in space 4.

Distribution: ETHIOPIA; TANZANIA; "RHODESIA"; SOUTH AFRICA: Transvaal, Natal.

Coeliades fidia Evans, 1937.

(Plate 30d)

Coelidaes fidia Evans, 1937: 13, pl. 1, fig. 2, pl. 8;
Viette, 1956: 15, fig. 10, 13, 15.

Holotype: "Madagascar, Macoamana 1917, R. Oberthür coll,

Description and diagnosis: Forewing length 21 mm. Wings
dorsally brown. Ventral hindwing brown; white band 6 mm at
costa; cilia orange. Similar to C. forestan but with no
white dot in space 1a of ventral hindwing.

Distribution: MALAGASY REPUBLIC: Madagascar.
Genus Choaspes Moore, 1881

Choaspes Moore, 1881: 158. Type species: Thymele benjaminii Guérin-Méneville, 1843 by original designation.

Generic characters: Compound eyes hairy. Antenna longer than 1/2 length of forewing costa. Wing venation (Figure 3):

Forewing, base of vein 3 more basad than that of vein 11.

Hindwing, discoidal vein and vein 5 absent. Wings usually indigo blue or greenish blue with yellow or orange tornal area on hindwing. Hindwing tornus normal, lobed or tailed.

Hyaline spot absent. Tibia of metathoracic leg in male with erectile hair tuft fitting into thoracic pouch and recumbent hair pencil associated with abdominal groove filled with shining scales. Male genitalia: uncus single, long; saccus short. Larval foodplant: mainly Sabiaceae, but other families are also utilized.

Key to the species of Choaspes

1. Stigma present on the dorsal side of the wings in the male .............................................................. 2
1'. Stigma absent ......................................................... 4

2. Dorsal wings ground color dark greenish brown. Stigma dense .............................................. C. stigmatus
2'. Dorsal wings ground color indigo blue. Stigma sparse
3. Dorsal hindwing spots present in orange tornal area
................................. C. plateni
3'. Dorsal hindwing spots absent in orange tornal area
................................. C. adhara
4. Palpi reddish orange ventrally. Ventral hindwing, tornal yellow area reaches to vein 4, inwardly turning reddish orange ................................. C. illuensis
4'. Palpi yellow or pale orange ................................. 5
5. Valva with beak-like process (Figure 6b)...................... 6
5'. Valva without beak-like process ............................... 7
6. Dorsal hindwing tornal area orange or yellow, very narrow
................................. C. benjaminii
6'. Dorsal hindwing tornal area yellow, 5 mm
................................. C. pallidus
7. Valva with projection extending from the tip ............... 8
7'. Valva with projection along the dorsal edge (Figure 59).
Wings dark greenish brown ................................. C. xanthopogon
8. Valval projection disk-like (Figure 60c). Veins not darker than pale green ground color. Wings produced
................................. C. subcaudatus
8'. Valval projection finger-like (Figure 60a, b). Veins darker than ground color, wing color varies
................................. C. hemixanthus
**Choaspes stigmatus** Evans, 1932

a. *C. stigmatus stigmatus* Evans, 1932  
(Plate 34a, Figure 57a)

*Choaspes stigmata stigmata* Evans, 1932: 320.  
*Choaspes platani stigmata*: Evans, 1949: 73, pl. 2.  
Description and diagnosis: Hindwing tornus normal; tornal markings reddish orange. Similar to three sympatric species: *C. benjaminii japonicus*, *C. xanthopogon xanthopogon*, and *C. hemixanthus furcatus*, but larger and easily recognizable in having male stigma. Tornal tongue is separated from the spot in space 1b (merged in other three species).  
Distribution: INDIA: Delhi, Sikkim (Darjeeling), Assam, "N. India"; CHINA: Kwangtung (Hainan Is.); THAILAND: Nan; VIETNAM: "Central-Tonkin."  
Foodplant: Sabiaceae: *Meliosma pungens*.

b. *C. stigmatus caudatus* Evans, 1932  
(Plate 34b, Figure 57b)

*Choaspes stigmata caudata* Evans, 1932: 320.  
*Choaspes platani caudata*: Evans, 1949: 74, pl. 2; Maruyama, 1991: 8, pl. 6, H23.
Holotype: Male, [MYANMAR], "King Is., Mergui, 2.22, W H Evans, BM 1932-274," BMNH H2505 (examined).

Description and diagnosis: Hindwing, tornus lobed; tornal markings yellow; tornal tongue present. Similar to C. benjaminii flavens, C. pallidus, C. xanthopogon cora and C. subcaudatus crawfurdi, but male stigma present (absent in other species), tornal tongue present (faint in pallidus), tornal tongue not extend spots (extends in crawfurdi), and tongue attaches to spot in space 1b (separated in cora and flavens).

Distribution: MYANMAR: Tenasserim (Mergui); THAILAND: Chiang Mai, Fang, Muang Chone, Ranong; MALAYSIA; SINGAPORE; INDONESIA: Sumatra (Battak, Medan, Setinjak, Selesseh, Loeboe Rajak, Batan Proepoe, Padang), Nias, Bangka, Borneo.

Early stages: Igarashi (1992) illustrated the final instar larva and pupa from Borneo. Final instar larva: Head orange with six small dots. Thorax and abdomen velvet-black with a pair of azure dots and four cream-white bands.

Foodplant: Sabiaceae: Meliosma sarawakensis (Igarashi, 1992).

c. C. stigmatus extensus Evans, 1932

(Plate 34c)

Choaspes stigmata extensa Evans, 1932: 320

Choaspes plateni extensa: Evans, 1949: 74, pl. 2.

Description and diagnosis: Hindwing, tornus lobed; markings yellow; tornal tongue absent. Similar to C. subcaudatus, but tornus tailed in subcaudatus.

Distribution: INDONESIA: Java, Bali, Lombok.

Early stages: Pipers & Snellen (1910) reported two larval color "forms" of subcaudata. Evans (1949) considered the larva with yellow spots (Pipers & Snellen, 1910, fig. 23) to be the larva of this taxon without any explanation. If the larval form recapitulates the phylogenetic relationship, then the other form with stripes must be the larva of this taxon (Chiba, 1989).

Final instar larva: Head orange with six spots. Thorax and abdomen velvet-black with a pair of azure dots and greyish green bands.

Foodplant: Sabiaceae: Meliosma lanceolata, M. ferruginea (Pipers & Snellen, 1910).

Choaspes benjaminii (Guérin-Méneville, 1843)

a. C. benjaminii benjaminii (Guérin-Méneville, 1843) (Figure 56a)

Thymele benjaminii Guérin-Méneville, 1843: 79, pl. xxii, figs. 2, 2a.
Choaspes benjamini: Moore, 1881: 159, pl. lxiv, figs. 1, a, b.


Choaspes benjaminii benjamini: Evans, 1949: 74, pl. 2, 14.

Holotype: could not be located.

Description and diagnosis: Darker than japonicus. Ventral hindwing, tornal black tongue smaller. Male genitalia, outer margin of harpe smoothly round.

Distribution: SRI LANKA; INDIA: South India.

b. C. benjaminii japonicus (Murray, 1875)

(Plate 33a, Figure 56b)

Ismene benjaminii var. japonica Murray, 1875: 4.

Rhopalocampta benjaminii formosana Fruhstorfer, 1911: 78.

Rhopalocampta benjamini: Bell, 1925: 304.

Choaspes benjaminii japonica: Evans, 1949: 75.

Choaspes benjaminii formosana: Evans, 1949: 75; Shirōzu, 1960: 368, pl. 72, 876, 877, 878, 879.


Description and diagnosis: Ventral hindwing, tornus normal,
markings reddish orange, tornal tongue larger, tends to be separated from black spot in space lb. Male genitalia, outer margin of harpe flat. Extremely similar to C. xanthopogon xanthopogon and C. hemixanthus furcatus. Dorsal wings bluish green in japonicus, dark green in xanthopogon, and pale green in furcatus. Examination of male genitalia is necessary to insure the identification.

Distribution: NEPAL; INDIA: North West Himalayas, Mussoorie, Kumaon, Sikkim (Darjhiling), Assam, Manipur; MYANMAR: Maymyo, Karens, Shan States; CHINA: Szechwan (Omei-shan, K'ang-ting [Tatsienlu]), Yunnan (K'un-ming), Chekiang (Takeng Tou, Ningpo), Hupeh (I-chang), Kwangtung (Hainan Is.), "Kuatung," "Lou-tse-kian," Moupin; HONG KONG; TAIWAN; JAPAN; THAILAND: Chiang Dao, Fang, Melanoung; VIETNAM: Tuyen Quang [Cochin], "Tonkin"; PHILIPPINES: "Palawan" [doubtful].

Early stages: All the stages are studied in detail in Japan (Shirōzu & Hara, 1960; Fukuda et al., 1984) and in Taiwan. Final instar larva: head reddish orange with six black spots; thorax and abdomen black with a pair of blue dots, striped with yellow transverse bands.


Remarks: Taiwanese form has been known as distinct subspecies
formosana. However, the second brood individual (summer form) in Japan shows the same dark bluish color. Therefore, here formosana is sunk as a synonym.

c. C. *benjaminii flavens* Eliot, 1992

(Plate 33b, Figure 56c)

*Choaspes benjaminii flavens* Eliot, 1992: 437, genitalia figure 340, Plate 52, fig. 31.


Description and diagnosis: Hindwing, tornus lobed; marking yellow; tornal tongue separated from black spot in space lb.

Distribution: MALAYSIA: Gunung Jasar.

Remarks: This taxon has been confused with Sumatran *pallidus* (Eliot, 1978). The author pointed out that Malayan *benjaminii* is distinct from Sumatran *pallidus*. Then, Eliot (1992) described it as a new species.

*Choaspes pallidus* Evans, 1932 new status

(Plate 33c, Figure 57c)

*Choaspes benjaminii pallida* Evans, 1932: 321; 1949: 75.

Holotype: [INDONESIA], Sumatra, in Zoological Survey of India, Calcutta.

Description and diagnosis: Hindwing, tornal yellow marking
wider; tornal tongue faint; black spots smaller and clearly separated.

Distribution: INDONESIA: Sumatra.

Remarks: This species replaces benjaminii in Sumatra. Though this species does not possess the male stigma, male genitalia is rather similar to stigmatus than benjaminii. Therefore, pallidus is elevated to species. Specimens from West Malaysia reported as C. benjaminii pallida were misidentified C. benjaminii flavens. This taxon is known only from Sumatra.

Choaspes adhara Fruhstorfer, 1911 new status
(Plate 35a, Figure 58a)

Choaspes renidens: Semper, 1892: 289.
Rhopalocampta adhara Fruhstorfer, 1911: 79; Swinhoe, 1912: 243.
Choaspes plateni adhara: Evans, 1934: 35; 1949: 74.
Choaspes plateni visaya de Jong, 1980: 266, Abb. 6, 7.

Holotypes: adhara - could not be located; visaya - Male, [PHILIPPINES], "S. Leyte, Catmon, St. Bernand, 11 February 1979, leg. M. Medicielo" in Treadaway collection.

Description and diagnosis: Large. Dorsal hindwing, tornus lobed, yellow area 4 mm. Similar to plateni, but black tongue present.
Distribution: PHILIPPINES: Luzon, Marinduque, Negros, Leyte, Mindanao.

**Choaspes plateni** (Staudinger, 1888)

(Plate 35b, Figure 58b)

*Ismene plateni* Staudinger, 1888: 293.

*Ismene renidens* Mabille, 1891: 78.

**Choaspes plateni** plateni: Evans, 1949: 74, pl. 2, 14.

Holotype: could not be located.

Description and diagnosis: Similar to *adhara*, but tornal tongue absent.

Distribution: INDONESIA: Sulawesi.

Early stages: Igarashi (pers. comm.) collected and reared the larva. The markings of the final instar larva is similar to that of *C. benjaminii japonicus*.

**Choaspes illuensis** (Ribbe, 1900)

a. *C. illuensis* illuensis (Ribbe, 1900)

**Rhopalocampta illuensis** Ribbe, 1900: 334, pl. 6.

**Choaspes illuensis** illuensis: Evans, 1949: 75, pl. 14.

Holotype: could not be located.

Description and diagnosis: Wings greener than *ornatus*.

Ventral hindwing, tornal tongue reaching to the black spot.

Distribution: INDONESIA: Ceram.

167
b. **C. illuensis ornatus** Rothschild & Jordan, 1903

(Plate 35c, Figure 58c)

**Choaspes illuensis ornatus** Rothschild & Jordan, 1903: 481, pl. XI, Fig. 2; Evans, 1949: 75.


Description and diagnosis: Wings bluer than *illusensis*.

Ventral hindwing, tornal tongue not reaching to the black spot.


Early stages: Parsons (pers. comm.) showed me a photograph of the larva. It was almost identical to *C. benjaminii japonicus*.

---

**Choaspes xanthopogon** (Kollar, 1844)

a. **C. xanthopogon xanthopogon** (Kollar, 1844)

(Plate 36a, Figure 59a)

**Hesperia xanthopogon** Kollar, 1844: 453, pl. 18.

**Choaspes similis** Evans, 1932: 321.

**Choaspes xanthopogon**: Evans, 1932: 321; 1949: 76, Pl. 2, 14.
**Choaspes xanthopogon crysopterus** Hsu, 1988: 237, figs. 3, 4, 5, 6.

**Holotypes:** *xanthopogon* - could not be located; *similis* - Male, "Assam, 8.20., W.H.Evans BM 1932-274," BMNH H2509 (examined); *crysopterus* - Male, "TAIWAN, Taoyuan, Mt. Lala 1500 - 1700m, emerged on 12 October 1986, Yu-Feng Hsu leg., stock no. NTUIM-2003. Insect Museum, Department of Plant Pathology & Entomology, National Taiwan University."

**Diagnosis:** Hindwing tornus normal, marking reddish orange. Extremely similar to *C. benjaminii japonicus* and *C. hemixanthus furcatus*. For identification, see *C. benjaminii japonicus*.

**Distribution:** NEPAL; INDIA: Kashmir, Kumaon, Sikkim (Darjiling), Assam, Manipur; MYANMAR; THAILAND: Chiang Dao, Fang; CHINA: Szechwan (K'ang-ting), Hopei (Tientsin), "Moupin," "Siao-lou," "Tay-tou-ho"; TAIWAN; JAPAN [possible, but not confirmed].

**Early stages:** Hsu (1988) illustrated and described all the stages in detail. Final instar larva: Head yellow with six large black spots. Thorax and abdomen velvet-black with a pair of white spots, dorsal row of spots and lateral irregular yellow markings on each segment.

**Foodplant:** Sabiaceae: *Sabia transarisanens* (Hsu, 1988).
Distribution: PHILIPPINES: Luzon, Negros (Mumbacal), Mindanao.

**Choaspes subcaudatus** (C. & R. Felder, 1867)

a. **C. subcaudatus crawfurdi** (Distant, 1886)

(Plate 38a, Figure 60e)

**Ismene crawfurdi** Distant, 1882: 247.

**Choaspes crawfurdi**: Distant, 1886: 372, Tab. XXXIV, fig. 26.

**Rhopalocampta crawfurdi**: de Nicéville & Martin, 1896: 554;
Elwes & Edwards, 1897: 307.

**Choaspes subcaudata crawfurdi**: Evans, 1949: 76.


Description and diagnosis: Similar to **C. stigmatus caudatus**, but the male stigma absent and the ground color is pale green (dark bluish green in **caudatus**).

Distribution: MYANMAR: Taungoo, Mergui, Kadan [king] Is.; THAILAND; MALAYSIA: Province Wellesley, N. Borneo; INDONESIA: Borneo (Kretam), W. Sumatra, Nias.

Early stages: Igarashi (1992) illustrated the final instar larva and pupa from Borneo. Final instar larva: Head orange with eight black spots. Thorax and abdomen velvet-black with a pair of azure spots on each segment, four large dorsal...
yellow spots and lateral rectangular markings; spiracles black.


b. *C. subcaudatus subcaudatus* (C. & R. Felder, 1867)  
(Plate 38b)

*Rhopalocampta subcaudata*: Elwes & Edwards, 1897: 307; Piepers & Snellen, 1910: 18, Pl. VI, fig. 23.
Holotype: Male, "subcaudata n., coll Felder, Rothschild Bequest BM 1939-1," BMNH H2508 (examined).
Description and diagnosis: Hindwing tornus more produced than in *crawfurdi*; tornal tongue faint.
Distribution: INDONESIA: West Java.
Early stages: Final instar larva: Head faint orange with eight spots. Thorax and abdomen velvet-black with a pair of azure spots on each segment, dorsal row of deep yellow spots and lateral yellow markings. See also *C. stigmatus extensus*. Foodplant: Combretaceae: *Combretum latifolium* (Piepers & Snellen, 1910).
**Choaspes hemixanthus** Rothschild & Jordan, 1903

a. **C. hemixanthus furcatus** Evans, 1932

(Plate 37a, figure 60a)

**Choaspes plateni furcata** Evans, 1932: 321.

**Choaspes hemixanthus furcata**: Evans, 1949: 77, Pl. 2.

**Rhopalocampta smilacis** Mell, 1950: 87, Abb. 1, Fig. 2.

Holotypes: *furcatus* - Male, [INDIA], "Sikkim, Teesta V, 4.27, W.H. Evans 1932-274," BMNH H2512 (examined); *smilacis* - could not be located.

Description and diagnosis: In spite of the different appearance, male genitalia is almost identical with other subspecies. Extremely similar to **C. benjarninii japonicus** and **C. xanthopogon xanthopogon**. For identification, see **C. benjarninii japonicus**.


Early stages: Mell (1950) described in detail. His identification of foodplant is doubtful. Igarashi (1992) illustrated the final instar larva and pupa from Hong kong.

Final instar larva: Head reddish orange with six black spots. Thorax and abdomen velvet-black with a pair row of azure
spots, dorsal yellow spots and lateral rectangular spots. Spiracles black.


   (Plate 37b, Figure 60b)
   Holotype: Female, "Indonesia, Central Sulawesi, Palopo, September 1989," AME (examined).
   Diagnosis: Ventral hindwing, tornal yellow marking reaches to costa, with three large black dots. Male genitalia of between *hemixanthus* and *subcaudatus*.
   Distribution: INDONESIA: Central Sulawesi (Palopo).

c. *C. hemixanthus mona* Evans, 1934
   (Plate 37c, Figure 60c)
   *Choaspes hemixanthus mona* Evans, 1934: 36.
   Holotype: Male, [INDONESIA], "Halmahera, W.H. Evans, BM 1932-274," BMNH (examined).
   Description and diagnosis: Hindwing, tornal yellow narrower than *hemixanthus*, black dots absent.

Remarks: Only the type male is known.

d. *C. hemixanthus hemixanthus* Rothschild & Jordan, 1903

(Plate 37d, Figure 60d)

*Choaspes hemixanthus* Rothschild & Jordan, 1903: 482, Pl. XI, f. 3.


Description and diagnosis: Wings cream yellow with darker veins. Hindwing tornal area widely yellow.


Early stages: Igarashi (1992) illustrated the final instar larva and pupa. Final instar larva: Head orange with seven black spots (dorsal spots separated. They are merged in other taxa). Thorax and abdomen yellow with dark purple bands; spiracles black. Similar to the larva of *Pyrrhiades*.

Genus *Pyrrhochalcia* Mabille, 1904

*Pyrrhochalcia* Mabille, 1904: 89. Type species: *Papilio iphis* Drury, 1773 by selection by Lindsey (1925).

Generic characters: Antenna shorter than 1/2 length of forewing costa. Wing venation (Figure 3): Forewing, discoidal cell as long as 2/3 length of costa; origin of vein 3 distad of that of vein 11; vein 6 waved and closer to vein 7. Hindwing, origin of vein 7 opposite of vein 3; vein 5 absent. Metathoracic tibial hair tuft present. Hair tuft on tip of abdomen present.

*Pyrrhochalcia iphis* (Drury, 1773)

(Plate 39a, Figure 61)

*Papilio Plebeius Urbicola iphis* Drury, 1773: 26, pl. 15, figs. 3, 4.

*Papilio Plebeius Urbicola phidias* Cramer, 1780: 85, pl. 244, fig. A, B.

*Papilio Plebeius Urbicola jupiter* Fabricius, 1787: 87.


*Pyrrhochalcia iphis*: Mabille, 1904: 89; Shepard, 1933: 46; Evans, 1937: 15, pl. 8; Boorman, 1970: 40, fig. 107, 55; Lewis, 1973: 130, fig. 26, 266; Smart, 1976: 112, fig. 1, 2; Carcasson, 1981: 96.
Holotypes: *iphis* - could not be located; *phidias* - could not be located; *jupiter* - in Zoological Museum of Copenhagen.

Description and diagnosis: Head and palpi red. Dorsal wings velvet-dark blue in male, pale green with black basal area and veins in female. Ventral forewing metallic greenish blue. Ventral hindwing metallic green with bluish margin and veins. Similar to *Pyrrhiades lucagus*, but *lucagus* is smaller and ventral wings are uniform velvet-dark blue as in dorsal side.

Distribution: GAMBIA; SIERRA LEONE; LIBERIA; IVORY COAST; GHANA: Gold Coast, Acca; NIGER: Bosso; NIGERIA: Lagos, Ibadan, Apapa, Warri, Bonny, Old Calabar, Lokoja; CAMEROON; GABON; ZAIRE; ANGOLA: Canhoca; "Agoue," "Port Victoria," "Lake Asebbe," "Banterberri," "Abanga R."


Remarks: Carcasson (1981) mentions that the skippers mimic day-flying Agaristid moths.
Genus *Pyrrhiades* Lindsey & Miller, 1965


Generic characters: Antenna less than half length of costa. Abdomen nearly as long as inner margin of hindwing.

Hindwing: discocellular vein vestigial; cell half length of hindwing; vein 7 arises basad of origin of vein 3 (Figure 3).


Key to the species of *Pyrrhiades*

1. Ventral side of the hindwing without markings ..........2
1'. Ventral side of the hindwing with a median band enclosing a black spot in space 2 ..........................3

2. Cilia dark ...............................................*P. lucagus*
2'. Cilia white except orange tornus on the hindwing
3. Wings dorsally blue .............................................. 4
3'. Wings dorsally slate-coored ...................... P. anchises
4. Wings dorsally metallic royal blue. Ventral side of the hindwing band orange ......................... P. bocagii
4'. Wings dorsally light cobalt blue. Ventral side of the hindwing band white ......................... P. pansa

**Pyrrhiades lucagus** (Cramer, 1777)

*(Plate 39b, Figure 62a)*

*Papilio lucagus* Cramer, [1777]: 123, pl. 176, fig. G.

*Ismene juno* Plötz, 1879: 364.


*Pyrrhochalcia juno*; Aurivillius, [1925]: 506.

*Coeliades juno*; Evans, 1937: 10, pl. 1, fig. 1, pl. 8.

*Coeliades lucagus*; Evans, 1946: 641.

*Pyrrhiades lucagus*; Lindsey & Miller, 1965: 53, figs. 14, 15.

Holotypes: *lucagus* - could not be located; *juno* - Male, "Aburi," MS plate No. 1193, BMNH (examined).

Description and diagnosis: Head red. Wings dorsally metallic blue, ventrally metallic greenish blue; cilia black.

Distribution: SIERRA LEONE; IVORY COAST; GHANA: Gold Coast, Gambaga, Kumasi [Coomassie], Nokpanduri, Walelvoa, Yondi, Anfoega, Accra; LIBERIA.

179
Remarks: Many authors have considered that **lucagus** very closely related to [**Pyrrhochalcia**] _iphis_. Their similarity in appearance, however, is due to parallel evolution. Whether this is a case of mimicry or not is still unsolved. _P. iphis_ is believed to mimic day-flying Agaristid moths (Carcasson, 1981).

**Pyrrhiades aeschylus** (Plötz, 1884) new combination

(Plate 39c, Figure 62b)


*Rhopalocampta axhylus* [sic!]: Fleury, 1926: 153.

*Coeliades aeschylus*: Evans, 1937: 10, pl. 8; Lindsey & Miller, 1965: 52.

Holotype: "Senegal," MS plate No. 1192, BMNH (examined).

Description and diagnosis: Head red. Wings dark metallic blue; cilia cream white except orange at hindwing tornus.

Distribution: SENEGAL: Casamance; SIERRA LEONE.

**Pyrrhiades bocagii** (Sharpe, 1893) new combination

(Plate 40a, Figure 62c)

*Ismene bocagii* Sharpe, 1893: 557.

*Rhopalocampta bocagii*: Holland, 1896: 100; Riley, 1928: 64.

*Coeliades bocagii*: Evans, 1937: 11, pl. 8.
Holotype: could not be located.

Description and diagnosis: Wings dorsally bright metallic blue, ventrally purple-brown; cilia dark.

Distribution: REPUBLIC OF SAO TOME AND PRINCIPE: São Tomé, Principe.

**Pyrrhiades anchises** (Gerstaecker, 1871) new combination

a. *P. anchises anchises* (Gerstaecker, 1871) new combination

(Plate 40b, Figure 63a)


*Ismene taranis* Hewitson, 1876: 347.

*Hesperia anchises*: Butler, 1885: 775.


*Coeliades anchises*: Carpenter, 1935: 404; Evans, 1937: 11, pl. 8; Gifford, 1965: 1.

Holotype: could not be located.

Description and diagnosis: Wings slate-colored; cilia white on hindwing except yellow at tornus; ventral hindwing with a black spot in space 2 completely enclosed by white median band; submarginal spot yellowish orange.


Bionomics: The adult is an avid visitor of flowers, damp patches, and urine.

b. *P. anchises jucunda* (Butler, 1881) new combination

(Plate 40c)

*Hesperia jucunda* Butler, 1881: 179.
*Coeliades jucunda*: Evans, 1937: 11, pl. 8.

Description and diagnosis: Differs from subspecies *anchises* in following characters. Head, palpi 1st and 2nd segments, coxae darker orange. Abdomen ventrally orange, no lateral spots. Cilia white except orange tornus on hindwing. Ventral hindwing median black spot larger, fused with a small black spot; median band orange, variably reduced; submarginal
spot in space 2 orange and larger.

Holotype: Male, [DEM. REP. YEMEN], "Socotra 81.90, 751," BMNH H2528 (examined).

Distribution: DEM. REP. YEMEN: Socotra; OMAN: Muscat.

Early stages: Larsen (1980: 71; 1984: 23) illustrates the larva. Final instar larva: Head reddish orange with seven small black spots. Thorax and abdomen reddish orange with yellowish white stripes; spiracles black.


**Pyrrhiades pansa** (Hewitson, 1867) new combination

(Plate 40d, Figure 63b)

**Ismene pansa** Hewitson, 1867: 54.

**Hesperia ernesti** Grandidier, 1867: 274.

**Rhopalocampta pansa**: Holland, 1896: 98.

**Coeliades ernesti**: Evans, 1937: 11, pl. 8; Viette, 1956: 5, figs. 1, 3; Williams, 1989: 23, pl. VI.

Description and diagnosis: Wings dorsally metallic light blue with wide black margin; cilia black, tornus more or less yellow; ventral wings dull brownish grey; ventral hindwing with a black spot in space 2 enclosed by cream white band extends from costa to vein 1b.

Holotypes: pansa - Female, "Madagascar, Hewitson Coll 79-69,"
Ismene pansa 3., BMNH H2516; ernesti - could not be located.

Distribution: MALAGASY REPUBLIC: Madagascar; MAURITIUS; Reunion.

Food plant: Malpighaceae: Hiptage benghalensis (Williams, 1989).
Genus *Badamia* Moore, 1881

*Badamia* Moore, 1881: 156. Type species: *Papilio exclamationis* Fabricius, 1775 by original designation.


Larval foodplant: Combretaceae and Malpighiaceae.

Key to the species of *Badamia*

1. Larger, forewing length 29 mm. Forewing of the male, spot in space 2 narrow and elongate. Cilia fuscous

   ................................................................. *B. exclamationis*

1'. Smaller, forewing length 24 mm, and yellower. Forewing of the male, spot in space 2 not narrow and elongate. Cilia gray in the male, ochreous in the female ............ *B. atrox*

*Badamia exclamationis* (Fabricius, 1775)

(Plate 41a, b, Figure 64a)

*Papilio exclamationis* Fabricius, 1775: 530.

*Papilio ladon* Cramer, 1780: 163 or 164, pl. 284, fig. C or G.
Hesperia ericus Fabricius, 1798: 432.

Calpodes forulus Hübner, 1819: 17, n. 1147.

Ismene thymbron Felder, 1860: 461.


Holotypes: exclamationis - in Zoological Museum of Copenhagen; ladon - could not be located; ericus - in Zoological Museum of Copenhagen; forulus - could not be located; thymbron - "Amboina, Dalwball [?], Felder Colln, Rothschild Bequest, B.M. 1939-1," BMNH H2536 (examined).

Description and diagnosis: Forewing length 28 mm. Wings greyish brown. Dorsal forewing with hyaline spots in spaces 2, 3 and discoidal cell. Cilia fuscous. Spots larger in female.

Distribution: SRI LANKA; INDIA: Chitral, Sikkim, Assam, Andamans; MYANMAR; THAILAND; CHINA; TAIWAN; JAPAN; MALAYSIA; PHILIPPINES; INDONESIA: "Borneo," Java, Bali, Sumatra, Sulawesi, Timor, Adonara, Halmahera, Ceram, Aru; PAPUA NEW GUINEA: New Britain; SOLOMON ISLANDS; AUSTRALIA: Queensland, New South Wales; TONGA; SAMOA; FIJI; NEW HEBRIDES; NEW CALEDONIA.

Early stages: Final instar larva: Head yellowish red with six
black markings. Thorax and abdomen yellow with dorsal longitudinal line and broad and narrow dark transverse stripes.


**Badamia atrox** (Butler, 1877)

a. *B. atrox atrox* (Butler, 1877)

(Plate 41 c, d, Figure 64b)

**Hesperia atrox** Butler, 1877: 357.

**Badamia atrox atrox**: Evans, 1949: 73, pl. 2, 14.

Holotype: Female, "Lifu 77.85," BMNH H2502 (examined).

Description and diagnosis: Wings darker than other *atrox* subspecies; base paler than ground color. Female spot in space 1b small.

Distribution: Loyalty Is.

b. *B. atrox flava* Evans, 1934

(Plate 42a)

**Badamia atrox flava**, 1934: 35; 1949: 73.

Description and diagnosis: Wings paler than atrox. Female spots in space 1b larger.

Distribution: VANUATU: New Hebrides, "Roumea."

c. *B. atrox subflava* Waterhouse, 1920

*Badamia atrox subflava* Waterhouse, 1920: 471; Evans, 1949: 73.

Holotype: could not be located.

Description and diagnosis: Larger than other *atrox* subspecies. Wing color uniform. Spots larger. Male ventral hindwing paler.

Distribution: FIJI.

d. *B. atrox collenettei* Evans, 1934

(Plate 42b)

*Badamia atrox collenettei* Evans, 1934: 35; 1949: 73.

Holotype: "Atouova, Hiwa Oa, Marquesas, Flying round flowering tree, 4.2.25, St. George Expedn, C. L. Collenette," BMNH H2503 (examined).

Description and diagnosis: Spot in space 2 more like that of *exclamationis*.

Remarks: Known from a single specimen.

Distribution: Marquesas Is.
### Table 1. Character states of Coeliadine genera

<table>
<thead>
<tr>
<th>Character</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
<th>#6</th>
<th>#7</th>
<th>#8</th>
<th>#9</th>
<th>#10</th>
<th>#11</th>
<th>#12</th>
<th>#13</th>
<th>#14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genrea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burara</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Bibasis</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Allora</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hasora</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coeliades</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Choaspes</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pyrrhiades</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Pyrrhochalcia</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Badamia</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUT GROUP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>?</td>
</tr>
</tbody>
</table>
Figure 1. Tibia of the mesothoracic leg of *Allora*.
Figure 2. Wing venation of *Burara*.

Veins are numbered by numerical system.
Figure 3. Wing venation of Coeliadine genera.

a. Bibasis, b. Hasora, c. Allora, d. Choaspes,
e. Coeliades, f. Pyrrhocalthia, g. Pyrrhiades,

h. Badamia.
Figure 4. Cladogram of the subfamily Coeliadinae.
Burara
Bibasis
Hasora
Allora
Choaspes
Coeliades
Pyrrhiades
Pyrrhochalcia
Badamia
PYRRHOPIGINAE
Figure 5. Contours of species density of *Choaspes*.
Figure 6. Groups of the genus *Choaspes*.

a. Groups and subgroups

b. Position of valva in relation to the uncus in two *Choaspes* groups. Left: The *benjaminii* group. Right: The *xanthopogon* - subgroup.
subgroup ••• stigmatus

[benjaminii - group]

[benjaminii - subgroup ...
  benjaminii
  pallidus]

[xanthopogon - group]

[xanthopogon - subgroup ...
  xanthopogon
  hemixanthus - subgroup ...
  hemixanthus
  subcaudatus]

adhara
plateni
illuensis
Figure 7. *Choaspes* species from North India.

Top left: *C. stigmatus stigmatus*.

Top right: *C. benjamina japonicus*.

Bottom left: *C. xanthopogon xanthopogon*.

Bottom right: *C. hemixanthus furcatus*. 
Figure 8. Choaspes species from the Malay Peninsula.

Top left: C. *stigmaticus caudatus*.

Top right: C. *benjaminii flavens*.

Bottom right: C. *subcaudatus crawfurdi*.
Figure 9. *Choaspes* species from the Philippines.

Top right: *C. adhara*.

Bottom left: *C. xanthopogon estrella*.
Figure 10. Distribution of *Choaspes*

- **stigmatus**
- **benjaminii, pallidus, adhara, plateni** and **illuensis**
- **xanthopogon**
- **hemixanthus** and **subcaudatus**
Figure 11. Distribution of *Burara* (1)

- oedipodea
- tuckeri
- anadi
- jaina
- phul
Figure 12. Distribution of Burara (2)

etelka

harisa
gomata
Figure 13. Distribution of Burara (3)

- vasutana
- amara
- striata
- miracula
- aquilina
Figure 14. Distribution of *Bibasis*

- sena
- mahintha
- nestor
- illuska
Figure 16. Distribution of Hasora.
(1) muz - group

muz lizetta salango proxissima
Figure 17. Distribution of Hasora.

(2) myra - group

○ anura
• myra
△ zoma
□ wilcocksi
Figure 18. Distribution of Hasora.

(3) **d**isc**o**lor - group

- umbrina
- buina
- dis**c**olor
- borneensis
Figure 19. Distribution of *Hasora*.

(4) **chromus** - group

- **chromus**
- **taminatus**
- ▲ **hurama**
- □ **schoenherr**
Figure 20. Distribution of Hasora.

(5) celaenus - group

- mixta
- celaenus
- badra
- quadripunctata
- subcaeolestis
Figure 21. Distribution of Hasora.

(6) vitta - group

△ vitta
○ moeestissima
○ perplexa
Figure 22. Distribution of Hasora.

(7) thridas - group

- leucospila
- mavis
- khoda
- thridas
Figure 23. Distribution of *Coeliades* (1)

- ○ *bixana*
- ● *chalybe*
- △ *fervida*
Figure 24. Distribution of Coeliades (2)

- libeon
- ramanatek
Figure 25. Distribution of *Coeliades* (3)

- [ ] *hanno*
- [ ] *sejuncta*
- [ ] *keithloa*
- [ ] *menelik*
- [ ] *fidia*
Figure 26. Distribution of *Pyrrhiades*

- lucagus
- aeschylus
- bocagii
- anchises
- pansa
Figure 27. Distribution of Badamia

- exclamationis
- atrox
Figure 28. Androconial scales of Burara.

a. *B. oedipodea belesis*,
b. *B. oedipodea oedipodea*,
c. *B. oedipodea excellens*, d. *B. tuckeri*,
e. *B. anadi anadi*, f. *B. anadi purpurea*,
g. *B. anadi owstoni*, h. *B. jaina jaina*,
i. *B. jaina margana*, j. *B. jaina velva*,
Figure 29. *Burara* species.

a. *B. oedipodea oedipodea*

b. *B. tuckeri*
Figure 30. *Burara* species.

*B. anadi anadi*
Figure 31. *Burara* species.

a. *B. jaina jaina*

b. *B. phul*
Figure 32. *Burara* species.

a. *B. etelka etelka*

b. *B. etelka imperialis*
Figure 33. *Burara* species.

a. *B. harisa consobrina*

b. *B. harisa harisa*

c. *B. harisa niasana*

d. *B. harisa consobrina*

e. *B. harisa consibrina*

f. *B. harisa aphrodite*
Figure 34. *Burara* species.

a. *B. gomata lorumini*

b. *B. vasutana*
Figure 35. *Burara* species.

a. *B. amara*

b. *B. miracula*
Figure 36. *Burara* species.

a. *B. striata*

b. *B. aquilina chrysaeglia*

c. *B. aquilina siola*
Figure 37. *Ribasis* species.

a. *B. sena* palawana

b. *B. mahintha*

c. *B. nestor*

d. *B. iluska*
Figure 38. *Allora* species.

a. *A. doleschallii solon*

b. *A. major major*
Figure 39. *Hasora* species.

a. *H. mus pahanga*

b. *H. lizetta*
Figure 40. *Hasora* species.

a. *H. proxissima siamica*

b. *H. proxissoma siva*
Figure 41. *Hasora* species.

a. *H. myra myra*

b. *H. zoma*
Figure 42. *Hasora* species.

*H. buina*
Figure 43. *Hasora* species.
   a. *H. discolor discolor*
   b. *H. borneensis luza*
Figure 44. *Hasora* species.

a. *H. chromus bilunata*

b. *H. taminatus padma*

c. *H. hurama mola*
Figure 45. Hasora species.

a. H. schoenherr chuza

b. H. schoenherr saida
Figure 46. *Hasora* species.

a. *H. mixta mixta*

b. *H. celaenus*
Figure 47. *Hasora* species.

*H. badra*
Figure 48. *Hasora* species.

a. *H. moestissima*

b. *H. vitta vitta*

c. *H. vitta indica*

d. *H. vitta vitta*

e. *H. vitta proximata*
Figure 49. *Hasora* species.

a. *H. perplexa*

b. *H. thridas*
Figure 50. *Coeliades* species.

a. *C. bixana*

b. *C. chalybe*

c. *C. fervida*
Figure 51. *Coeliades* species.

a. *C. keithloa keithloa*

b. *C. keithloa lorenzo*
Figure 52. *Coeliades* species.

a. *C. menelik merua*

b. *C. menelik kenya*
Figure 53. *Coeliades* species.

a. *C. hanno*

b. *C. pisistratus*
Figure 54. *Coelijades* species.

a. *C*. *libeon*

b. *C*. *ramanatek*
Figure 55. *Coeliades* species.

a. *C. forestan*

b. *C. rama*
Figure 56. *Choaspes* species.

a. *C. benjaminii benjaminii*

b. *C. benjaminii japonicus*

c. *C. benjaminii flavens*
Figure 57. *Choaspes* species.

a. *C. stigmates stigmates*

b. *C. stigmates caudatus*

c. *C. pallidus*
Figure 58. Choaspes species.

a. *C. adhara*

b. *C. plateni*

c. *C. illuensis ornatus*
Figure 59. *Choaspes* species.

a. *C. xanthopogon xanthopogon*

b. *C. xanthopogon estrella*

c. *C. xanthopogon cora*
Figure 60. *Choaspes* species.

a. *C. hemixanthus furcatus*
b. *C. hemixanthus wallacei*
c. *C. hemixanthus mona*
d. *C. hemixanthus hemixanthus*
e. *C. subcaudatus crawfurdi*
Figure 61. *Pyrrhochalcia iphis*
Figure 62. *Pyrrhiades* species.

a. *P. lucagus*

b. *P. aeschylus*

c. *P. bocagii*
Figure 63. *Pyrrhiades* species.

a. *P. anchises anchises*

b. *P. pansa*
Figure 64. *Badamia* species.

a. *B. exclamationis*

b. *B. atrox atrox*
Plate 1. *Burara* species (1).

a. *R. oedipodea ataphus*
b. *R. oedipodea oedipodea*
c. *R. oedipodea paltra*
d. *R. oedipodea excellens*
Plate 2. *Burara* species (2).

a. *B. tuckeri*

b. *B. anadi anadi*

c. *B. anadi purpurea*

d. *B. anadi owstoni*
Plate 3. *Burara* species (3).

a. *B. jaina* fergussonii

b. *B. jaina* astigmatus

c. *B. jaina jaina*

d. *B. jaina velva*
Plate 4. *Burara* species (4).

a. *B. etelka etelka*, male

b. *B. etelka etelka*, female

c. *B. etelka imperialis*, male

d. *B. etelka imperialis*, female
Plate 5. *Burara* species (5).

a. *B. phul*

b. *B. harisa aphrodite*

c. *B. harisa consobrina*, male

d. *B. harisa consobrina*, female
Plate 6. *Burara* species (6).

a. *B. harisa niasana*, male
b. *B. harisa niasana*, female
c. *B. harisa andamana*, male
d. *B. harisa andamana*, female
Plate 7. *Burara* species (7).

a. *B. gomata lara*

b. *B. gomata lalita*

c. *B. gomata lorquini*

d. *B. gomata radios*a
Plate 8. *Burara* species (8).

Females.

a. *B. gomata* lalita
b. *B. gomata* lorquini
c. *B. gomata* radiosa
d. *B. gomata* minda
Plate 9. *Burara* species (9)

a. *B. vasutana*

b. *B. amara*

c. *B. miracula*

d. *B. striata*
Plate 10. *Burara* species (10)

a. *B. aquilina chrysaeglia*

b. *B. aquilina chrysaeglia*, female

c. *B. aquilina aquilina*

d. *B. aquilina siola*
Plate 11. *Bibasis* species.

a. *B. sena sena*

b. *B. sena uniformis*

c. *B. sena vaicravana*

d. *B. sena alor*

e. *B. mahintha*

f. *B. nestor*
Plate 12. *Allora* species (1).

a. *A. doleschalli simessa*

b. *A. doleschalli solon*

c. *A. doleschalli luna*
Plate 13. *Allora* species (2).

a. *A. doleschalli viridicans*

b. *A. doleschalli doleschalli*

c. *A. doleschalli albertisi*
Plate 14. *Allora* species (3).

a. *A. major* zita
b. *A. major* major
c. *A. major* lectra
d. *A. major* talesia
Plate 15. *Hasora* species (1).

a. *H. mus pahanga*

b. *H. mus mus*

c. *H. lizetta*

d. *H. salanga*
Plate 16. *Hasora* species (2).

a. *H. proxissima siamica*

b. *H. proxissima proxissima*

c. *H. proxissima proxissima*, female

d. *H. proxissima siva*

e. *H. proxissima takwa*

f. *H. proxissima lavella*
Plate 17. *Hasora* species (3).

a. *H. anura anura*

b. *H. anura anura*

c. *H. anura china*

d. *H. anura* females (dorsal side)

   Top left: *H. anura anura*

   Top right: *H. anura china*

   Bottom: *H. anura taiwana*

e. *H. anura* females (ventral side)
Plate 18. *Hasora* species (4).

a. *H. wilcocksi*

b. *H. myra funebris*

c. *H. zoma*

d. *H. umbrina*

e. *H. buina*
Plate 19. *Hasora* species (5).

a. *H. discolor splendidia*

b. *H. discolor discolor*

c. *H. discolor eira*

d. *H. borneensis luza*
Plate 20. *Hasora* species (6).

a. *H. chromus chromus*

b. *H. chromus chromus*, female

c. *H. schoenherr chuza*

d. *H. schoenherr saida*
Plate 21. *Hasora* species (7).

a. *H. taminatus bhavara*

b. *H. taminatus vaicravana*

c. *H. taminatus andama*

d. *H. taminatus milona*

e. *H. taminatus padma*

f. *H. taminatus amboinensis*

g. *H. taminatus dipama*
Plate 22. *Hasora* species (8).

a. *H. hurama mola*
b. *H. hurama hurama*
c. *H. hurama arua*
d. *H. hurama diana*
Plate 23. Hasora species (9).

a. H. mixta mixta

b. H. celaenus

c. H. badra badra

d. H. quadripunctata gnaeus

e. H. quadripunctata celebica
Plate 24. *Hasora* species (10)

a. *H. subcaelestis*

b. *H. subcaelestis*

c. *H. vitta vitta*

d. *H. vitta similima*
Plate 25. *Hasora* species (11).

a. *H. moestissima* moestissima

b. *H. moestissima* unica

c. *H. perplexa*
Plate 26. *Hasora* species (12).

a. *H. leucospila leucospila*

b. *H. leucospila spila*

c. *H. leucospila*, female

d. *Hasora* females (dorsal side)

   Left: *H. borneensis luza*

   Right: *H. mavis*

e. *Hasora* females (ventral side)
Plate 27. *Hasora* species (13).

a. *H. khoda minsona*

b. *H. khoda dampierensis*

c. *H. thridas*
Plate 28. *Coeliades* species (1).

a. *C. chalybe*

b. *C. chalybe*, female

c. *C. bixana*

d. *C. fervida*
Plate 29. *Coeliades* species (2).

a. *C. keithloa keithloa*

b. *C. keithloa lorenzo*

c. *C. menelik kenya*

d. *C. menelik merua*
Plate 30. *Caeliades* species (3):

a. *C. hanna*

b. *C. sejuncta*

c. *C. pisistratus*

d. *C. fidia*
Plate 31. Coeliades species (4).

a. C. libeom
b. C. ramanatek
Plate 32. *Coeliades* species (5).

a. *C. forestan* forestan

b. *C. forestan* arborgastes

c. *C. rama*
Plate 33. *Choaspes* species (1).

a. *C. benjaminii japonicus*

b. *C. benjaminii flavens*

c. *C. pallidus*
Plate 34. *Choaspes* species (2).

a. *C. stigmatus* stigmatus

b. *C. stigmatus* caudatus

c. *C. stigmatus* extensus
Plate 35. *Choaspes* species (3).

a. *C. adhara*

b. *C. plateni*

c. *C. illuensis ornatus*
Plate 36. *Choaspes* species (4).

a. *C. xanthopogon xanthopogon*

b. *C. xanthopogon cora*

c. *C. xanthopogon estrella*
Plate 37. *Choaspes* species (5).

a. *C. hemixanthus furcatus*

b. *C. hemixanthus wallacei*

c. *C. hemixanthus mona*

d. *C. hemixanthus hemixanthus*
Plate 38. *Choaspes* species (6).

a. *C. subcaudatus crawfurdi*

b. *C. subcaudatus subcaudatus*
Plate 39. *Pyrrhochalcia* and *Pyrrhiades* species (1).

a. *P. iphis*
b. *P. lucagus*
c. *P. aeschylus*
d. *P. bocagii*
Plate 40. *Pyrrhiades* species (2).

a. *P. anchises anchises*

b. *P. anchises jucunda*

c. *P. pansa*
Plate 41. *Badamia* species (1).

a. *B. exclamationis*, male

b. *B. exclamationis*, female

c. *B. atrox atrox*, male

d. *B. atrox atrox*, female
Plate 42. *Badamia* species (2).

a. *B. atrox flava*

b. *B. atrox collenettei*
LITERATURE CITED


Cramer, P. 1775 - 1790. Uitlandsche Kapellen, voorkomende in
de drie Waereld-Deelen Asia, Africa en America, by een verzameld en beschreven. Amsterdam, Baalde 2: 1 - 152.


______________. & L. Martin 1896. A list of the 404


Drury, D. 1770 - 1782. Illustrations of natural History; wherein are exhibited upwards of two hundred and forty figures of exotic insects . . . to which is

Entomologist 103: 73 - 74.


_________. 1934. Indo-Australian Hesperiidae; Descriptions of new genera, species and subspecies.
Entomologist 67: 33 - 36.


Felder, C. von 1860. Lepidopterorum Amboinensium a Dre L.
Doleschall annis 1856 - 1858 collectorum species
novae diagnosibus collustrate. (1) Rhopalocera. In
G. R. von Frauenfeld, Diagnosen einiger neuer
Insecten und Untersuchung mehrerer Sandproben
verschiedener Küstenpunkte, gesammelt während der
Wien 40: 448 - 462.

__________ . & R. Felder 1859. Lepidopterologische

__________ . & ________. 1865 - 1875. Rhopalocera. In
Reise der österreichischen Fregatte "Novara" um die
Erde in den Jahren 1857, 1858, 1859 unter den
Befehlen Commodore B. von Wüllerstorf-Urbair.
Zoologischer Theil. Zweiter Band. Vienna,
Abtheilung.

Fruhstorfer, H. 1905. Seltene Hesperiden. Soc. ent. 20:
140 - 141.

__________ . 1910 - 1911. Neue Hesperiden des Indo-
Malayischen Faunengebietes und Besprechung
verwandter Formen. Deut. ent. Zeit. [Iris] 25: 9 -
78.

Gifford, D. 1965. A list of the butterflies of Malawi.
Blantyre, Society of Malawi.


Hsu, Y.-F. 1988. A revision of Choaspes xanthopogon

409


Johnston, G. & B. Johnston 1980. This is Hong Kong: Butterflies. Hong Kong, Government Printer.


____________ & _________ 1921. Descriptions of new forms


Linnaeus, C. 1758. Systema naturae per regna tria naturae,
secundum Classes, Ordines, Genera, Species cum Characteribus, Differentiis, Synonymis, Locis.
Holmiaea, Laurentii Salvii, (Edition 10). 1
(Animalia).


________. 1891. Description d'Hesperides nouvelles. Premire Partie, Deuxieme Partie, Troisieme Partie. C. r. Soc. ent. Belg. 35: lix - lxxxviii, cxi - cxxi, clxvii - clxxxvii.


Nelson, G. & N. Platnick 1981. Systematics and Biogeography


Niederländisch-Ostindien. Deut. ent. Zeit. [Iris]
13: 334 - 337.

Entomologist 56: 35 - 38.

______ . 1926. On the identity of certain Hesperiidae
(Lepidoptera) described by Latreille. Trans. ent.

______ & E. J. Godfrey. 1925. New Rhopalocera from Siam
and Hainan. Entomologist 58: 140 - 143.

Röber, J. K. M. 1891. Beitrag zur kenntniss der Indo-
34: 261 - 334.

Rothschild, Lord W. 1915. On the Lepidoptera in the Tring
Museum sent by Mr. A. S. Meek from the Admirality
Islands, Dampier, and Vulcan Islands. Novit. zool.

____________. 1916. Lepidoptera of the British
Ornithologists' Union and Wollaston Expeditions in
the Snow Mountains, Southern Dutch New Guinea.
Macrolepidoptera. Tring.

____________. & K. Jordan 1903. Some new or unfigured


416
========. 1908. On the species of Hesperiidae from the Indo-malayan and African regions, described by Herr


Swofford, 1989. PAUP


Vane-Wright, R. I., S. Schulz and M. Boppr 1992. The


