

ATALANTA B

An annotated List of Japanese Butterflies

by

OTAKAR KUDRNA

The aim of this paper is to outline the distribution of butterflies in Japan with some further essential references to certain species. Since there is no contemporary work on this subject in any European language (at least since the great compendium „Macrolepidoptera of the World“ edited by the late A. SEITZ) and numerous new data have been published in Japanese during the past few decades as a result of broad entomological research and investigations, I thought worth while to work out a short account in order to bring our knowledge somewhat up to date and to some extent share the excellence of explorations by Japanese lepidopterists. This became possible thanks to the extreme kindness of Miss. C. C. DRESSER of the Oriental Department of Cambridge University Library who assisted with translations of excerpts from the Japanese literature. It is hoped to return to this subject later with a brief guide to critical species and detailed studies of a few genera, if sufficient material is available, as it was not possible to touch on many interesting problems in this paper. The rich butterfly fauna of Japan is about as well known as that of Europe.

Since a general outline of the history and composition of the Palearctic Papilionoidea, treating Japan as a part of that region, is already available (KOSTROWICKI, 1969) no further comments are required here.

As I had said above, this paper is a critical review based mainly on the modern literature, especially the following two works: YOKOYAMA & WAKABAISHI (1969) and SHIROZU & HARA (1969). These books also provide colour illustrations of all species recorded in Japan. The illustrations are of very good quality and in many cases sufficient for determination purposes without additional text. Therefore after the name of every species listed in this paper references are given to where a colour illustration is to be found in the above mentioned books using the abbreviations „Y & W“ and „S & H“ respectively. The numbers following the letters are not those of the colour plates themselves, but those used in the text to refer to figures on the plates. The order in which families, genera, species, their taxonomy and nomenclature are arranged in this paper correspond with that of YOKOYAMA & WAKABAISHI (1969), apart from a few exceptions, where

some changes were absolutely necessary. Many Japanese butterflies were figured in colour in some older books, too: e. g. LEECH (1892—94), SEITZ (1907—9), VERITY (1905—11) etc., to which no references are given here. Detailed references are given for certain species to more detailed taxonomic studies, useful e. g. for determination, details of life histories, variability in Japan etc. Very limited attention has been paid here to migrants and to species distributed in non-palaearctic parts of Japanese territory: e. g. to species inhabiting islands of Ryukyu Archipelago and other islands located approximately South-west of Kyushu and north of Taiwan (Formosa). Although these islands are close to Japan and politically a part of it, they cannot be considered a part of the East Palearctic Province (KOSTROWICKI, 1969), to which all the main Japanese Islands (Hokkaido, Honshu, Shikoku and Kyushu) and some offshore islands in the Sea of Japan (e. g. Cushima Island and some Islands north of Hokkaido) undoubtedly belong. The bibliography at the end of the paper is only selective: many of the papers listed here give further references on particular problems. Apart from Miss C. C. DRESSER, my thanks are due to Professor TAKASHI SHIROZU of Kyushu University for his kind gift of some specimens and valuable books. I am also indebted mainly for loans or gifts of literature, to (in alphabetical order) J. N. ELIOT, Sir RICHARD HYDE PARKER, MICHAEL SKELTON and B. C. S. WARREN. I am very grateful to DR. H. INOUE for reading the manuscript and his comments.

PAPILIONIDAE

Parnassius glacialis BUTLER

Y & W: 1; S & H: 2. — Hokkaido and southward up to Central Honshu in ravines, warmer meadows and sunny forests. Monovoltine, from May to June.

Parnassius stubbendorffii hoenei SCHWEITZER

Y & W: 2; S & H: 3. — Widely distributed in Hokkaido and also recorded from Rishiri Island. In meadows and sunny woods. Monovoltine, from May to June in lowlands, until August at higher altitudes.

Parnassius evermanni daisetsuzanus MATSUMURA

Y & W: 3; S & H: 88. — Locally common in the mountains of Central and North-East Hokkaido on rocky ground above 1.500 m. Monovoltine, on the wing in July.

Parnassius bremeri aino NAKAHARA

Y & W: 4. — Three specimens recorded from mountains of Central Hokkaido in the past. Believed extinct.

Luehdorfia japonica LEECH

Y & W: 5; S & H: 4. — In lowlands and low mountainous areas of Honshu. Singlebrooded, from April to May.

Luehdorfia puziloi inexpecta SHELJUZHKO

Y & W: 6; S & H: 5. — Hokkaido, in mountains up to over 2000 m, nearly all northern half of Honshu. Monovoltine, April to May in the southern localities, later in mountains and in Hokkaido until June.

Byasa alcinous KLUG

Y & W: 7; S & H: 6. — Honshu, Shikoku and Kyushu, mainly in warmer areas of Pacific coast. Not recorded from Hokkaido. Usually trivoltine, from April to October.

Graphium sarpedon nipponum FRUHSTORFER

Y & W: 8; S & H: 94. — South-western half of Honshu, Shikoku and Kyushu, mainly in humid areas. Two or three broods from April to August.

Graphium doson albidum WILEMAN

Y & H: 9; S & H 95. — Kyushu, Shikoku and mainly along the Pacific coast of Honshu in warmer humid areas. Usually two or three successive broods from May to August.

Papilio xuthus LINNAEUS

Y & W: 10; S & H: 1. — Widespread all over Japan, but rare in north and east Hokkaido. Normally bivoltine or trivoltine, but could produce up to five successive broods from March to October in warmer south-west areas.

Papilio hippocrates C. & R. FELDER

Y & W: 11; S & H: 7. — Hokkaido, Honshu, Shikoku and Kyushu. Two to four broods from May to August. — Considered conspecific with *machaon* LINNAEUS by some authors.

Papilio protenor demetrius CRAMER

Y & W: 12; S & H: 9. — Kyushu, Shikoku, some south-west off-shore islands and mainly warmer parts of Honshu, rare in the North-east of the latter. On the wing from April to August in up to four or five broods in the warmer areas.

Papilio memnon thunbergii SIEBOLD

Y & W: 13; S & H: 91. — Kyushu, Shikoku and some warmer parts of Honshu, its northernmost limit. Migrates from further south. Bivoltine, from May to September.

Papilio macilentus JANSON

Y & W: 14; S & H: 8. — Mainly mountains of Kyushu and Shikoku, Honshu and lowlands of Hokkaido. Bivoltine, from May to September.

Papilio helenus nicconicolens BUTLER

Y & W: 15; S & H: 90. — Common in Kyushu, Shikoku and in warmer areas along the Pacific coast of Honshu, rarer to the north-east of the latter. Normally bivoltine, from May to September, although may sometimes have three annual broods in the south-west.

Papilio bianor dehaani C. & R. FELDER

Y & W: 16; S & H: 92. — Widespread throughout the country, but rarer in warmer areas and plains, frequent in humid mountain valleys. Normally bivoltine, from May to September, occasionally trivoltine.

Papilio maackii tutanus FENTON

Y & W: 17; S & H: 93. — Widespread throughout Hokkaido, Honshu, Shikoku and Kyushu. Mostly bivoltine, from May to August.

Papilio polytes polycles FRUHSTORFER

Y & W: 195. — A rare migrant from further south recorded a few times in Japan.

PIERIDAE

Gonepteryx aspasia nipponica VERITY

Y & W: 18; S & H: 103. — Rare in mountains of Kyushu at lower altitudes and more widely distributed in Shikoku and Honshu. Monovoltine, June to July and then after hibernation in the following Spring. — Ssp. *iwateanus* MURAYAMA described from Iwate Prefecture (N. Houshu).

Gonepteryx rhamni maxima BUTLER

Y & W: 19; S & H: 104. — Confined to Central and North-eastern Honshu. Monovoltine, July to August and then after hibernation in Spring.

Aporia crataegi adherbal FRUHSTORFER

Y & W: 20; S & H: 11. — Widely distributed in Hokkaido, often very common in some areas. Monovoltine, in July and August.

Aporia hippia japonica MATSUMURA

Y & W: 21; S & H: 10. — Confined to mountains of Central Honshu, locally abundant at altitudes of 1000—2000 m. — See TABUCHI (1959) for life history and other details.

Ixias pyrene insignis BUTLER

Y & W: 22. — A migrant recorded twice in Kyushu and once in Honshu.

Hebomoia glaucipe liukiensis FRUHSTORFER

Y & W: 23; S & H (ssp. *shirozui* KUROSAWA & OMOTO): 18. — Confined to the southern tip of Kyushu and some of its off-shore islands; ssp. *shirozui* KUROSAWA & OMOTO described from Tanegashima Island and S. Kyushu. From April to November in probably four or five successive broods.

Eurema hecabe mandarina DE L'ORZA

Y & W: 24; S & H: 101. — Common and widespread in Kyushu, Shikoku and Honshu (ex. the North-east where rare), only a few records from Hokkaido. Polyvoltine, on wings from May to November.

Eurema laeta bethesba JANSON

Y & W: 25; S & H: 102. — Local in Honshu, Kyushu and Shikoku. Bivoltine, occasionally trivoltine, on the wing from June to November.

Eurema brigita CRAMER

Y & W: 197. — A migrant recorded in Kyushu where it may produce a generation or two, if conditions are favourable.

Anthocharis cardamines ishikii MATSUMURA

Y & W: 26; S & H: 17. — Confined to mountains of Central Honshu where it occurs at altitudes of 700 — 2300 m. Monovoltine, on the wing from May to July according to altitude, weather and locality. — See TABUCHI (1959) for life history and other details.

Midea scolymnus BUTLER

Y & W: 27; S & H: 16. — Widespread in Hokkaido, Honshu, Shikoku and Kyushu, rather a mountain species, but also at low altitudes. Monovoltine, from April to May, until June at higher altitudes. Pupa hibernates occasionally over two Winters.

Colias erate poliographus MOTSCHULSKY

Y & W: 28; S & H: 99. — Widely distributed in Hokkaido, Honshu, Shikoku and Kyushu and especially abundant in southern warmer parts of the country. Polyvoltine, up to five or six successive broods recorded in some warm areas from March to October.

Colias palaeno aias FRUHSTORFER

Y & W: 29; S & H: 100. — Confined to mountains of Central Honshu, where local at altitudes of about 2000 — 3000 m. Monovoltine, on the wing in July and beginning of August. — Two subspecies described:

C. palaeno aias FRUHSTORFER from eastern part of Japanese range (esp. Asama Mts. region) is bigger and has wider black marginal band than *C. palaeno sugitani* ESAKI known from western parts of Central Honshu (esp. northern Japan Alps). See TABUCHI (1959) for life history and other details.

Leptidea amurensis MÉNÉTRIÉS

Y & W: 30; S & H: 97. — Hokkaido, Honshu (esp. north-eastern and central parts) and local in Kyushu. Bivoltine or trivoltine, from April to September.

Leptidea morsei FENTON

Y & W: 31; S & H: 98. — Widespread in Hokkaido. Bivoltine, from May to August.

Artogeia nesis FRUHSTORFER

Y & W: 32 a, b (Spring brood), c, d (Summer brood); S & H: 15. — Confined to Hokkaido where widespread especially in slightly mountainous areas. Probably bivoltine, from May to August. There seem to be some records from the northern tip of Honshu too. — Superficially similar to both *A. japonica* SHIROZU and *P. melete* MÉNÉTRIÉS and often treated as a ssp. of *A. napi* L. (YOKOYAMA & WAKABAISHI, 1969 and SHIROZU & HARA, 1969). Raised to specific status by WARREN (1961) and according to its androconial scales placed in the *melete*-group. For detailed description of characters see SHIROZU (1952). Although androconial scales are the most important single character in males, their interpretation by YOKOYAMA & WAKABAISHI (1969) seems to be rather misleading.

Artogeia japonica SHIROZU

Y & W: 32 e, f (Spring brood), g, h, i, j (Summer brood). — Widely distributed in Honshu, Shikoku and Kyushu, Polyvoltine, from April to October, may have up to five or six annual broods in warmer areas. — Superficially similar to both *A. melete* MÉNÉTRIÉS and *A. napi* LINNÉ. Treated as a ssp. of *A. napi* L. (SHIROZU & HARA, 1969 and YOKOYAMA & WAKABAISHI, 1969), which may be correct. SHIROZU (1952) separated *A. japonica* SHIROZU from *A. melete* MÉNÉTRIÉS; it is known to be sympatric with *A. melete* MÉNÉTRIÉS. WARREN (1961) raised it to specific status after having examined its androconial scales and placed in the *napi*-group. For detailed description of characters see SHIROZU (1952).

Artogeia melete MÉNÉTRIÉS

Y & W: 33; S & H: 14. — Widespread and common in Hokkaido, Honshu, Shikoku and Kyushu, mainly in mountains at lower altitudes. In colder areas of the north mainly bivoltine, in warmer south-western parts of the country up to five or six annual broods from April to October.

Artogeia canidia juba FRUHSTORFER

Y & W: 35; S & H: 13. — Confined to Tsushima Island (west of southern Honshu) where widespread in woodlands. Polyvoltine, from March to October, usually five annual broods.

Artogeia rapae crucivora BOISDUVAL

Y & W: 36; S & H: 12. — Widely distributed and common throughout the country. Polyvoltine in warmer areas of the South, from April to November, usually bivoltine or trivoltine in colder northern parts of the country, (e. g. Hokkaido).

Pontia daplidice orientalis KARDAKOFF

Y & W: 34. — A migrant from the mainland recorded in Kyushu, South-west Honshu and Hokkaido.

Catopsilia pyranthe LINNAEUS

Y & W: 37. — A migrant recorded in Kyushu and Honshu.

Catopsilia pomona FABRICIUS

Y & W: 38. — A migrant recorded in Kyushu, Shikoku and Honshu.

Catopsilia crocale CRAMER

Y & W: 198; S & H: 96. — A migrant recorded in several localities in Kyushu and possibly established in some of off-shore islands south of Kyushu.

DANAIDAE

Danaus plexippus LINNAEUS

Y & W: 39. — A migrant recorded in Honshu and Amami Oshima Island southwest of Kyushu.

Limnas chrysippus LINNAEUS

Y & W: 43. — A migrant found in Kyushu, Shikoku and Honshu.

Tirumala hamata septentrionis BUTLER

Y & W: 40. — A migrant recorded a few times in Kyushu.

Tirumala limniace CRAMER

Y & W: 200. — A migrant found in Kyushu, Shikoku and Honshu.

Euploea mulciber barsine FRUHSTORFER

Y & W: 41. — A migrant recorded twice in Japan: Kyushu and Honshu.

Euploea leucostictos kadu ESCHSCHOLTZ

Y & W: 201. — A migrant recorded once in Honshu.

Parantica sita nipponica MOORE

Y & W: 42; S & H: 19. — Recorded throughout Japan and common in warmer areas of the south-west, very rare in colder areas of north-east. Up to three or four annual broods from April to November, the Autumn generation often numerous.

Salatura genutia CRAMER

Y & W: 44. — A migrant recorded in Kyushu, Shikoku and Honshu.

Radena similis LINNAEUS

Y & W: 199; S & H: 106. — A migrant native to some of the Amami Islands southwest of Kyushu and recorded often in Japan. It may have settled in the southern tip of Kyushu.

Idea leuconoe clara BUTLER

Y & W: 202; S & H: 107. — A migrant recorded in Japan; the northern limit of the distribution is Okinawa Island.

LIBYTHEIDAE

Libythea celtis celtoides FRUHSTORFER

Y & W: 45; S & H: 55. — Widely distributed throughout Japan, in warmer areas especially numerous some years. Monovoltine in Summer, adults hibernate. Ssp. *amamiana* SHIROZU described from Amami Islands.

SATYRIDAE

Ypthima argus BUTLER

Y & W: 46; S & H: 36. — Widespread in Kyushu, Shikoku and Honshu mainly in mountains at lower altitudes, local in Hokkaido. Monovoltine, in colder areas from June to August, two or even three annual broods from April to September in warmer areas.

Ypthima motschulskyi BREMER & GREY

Y & W: 47; S & H: 27. — Kyushu, Shikoku and south-western half of Honshu, rather local in colder parts of its range. Normally bivoltine, from June to September, in colder parts only monovoltine, from July to August. Ssp. *nipponica* MURAYAMA described from the main islands, the nominate form occurs in Tsushima Island.

Erebia nipponica JANSON

Y & W: 48; S & H: 24. — Mountains of Central and North-east Honshu and Hokkaido. Grassy slopes about 1600 — 2000 m in Central Honshu, at lower altitudes in the North. Monovoltine, on the wing from the middle of July to August. — Raised to specific status by WARREN (1936), very close to *E. sedakowi* Ev. At least five minor subspecies described, see TABUCHI (1959) for details and life history.

Erebia ligea takanonis MATSUMURA

Y & W: 49; S & H: 25. — Local in the mountains of Central Honshu, (grassy slopes about 1700 — 2500 m); ssp. *rishirizana* MATSUMURA in Daisetsuzan Mts. Central Hokkaido and Rishiri off-shore Island. Monovoltine, on the wing in July and August, two-year life cycle. — Superficially similar to *E. nipponica* JANSON, see TABUCHI (1959) for life history and other details.

Mycalesis gotama fulginia FRUHSTORFER

Y & W: 50; S & H: 28. — Rare and local in southern tip of Hokkaido and northeast Honshu, widespread in other parts of Honshu, Shikoku and Kyushu. A lowland species found in woods and meadows. One to two annual broods in cold areas of the North-East from July to September, up to four or may be five annual broods in warm parts of the South-west.

Mycalesis francisca perdiccas HEWITSON

Y & W: 51; S & H: 29. — Widespread in Kyushu, Shikoku and most of Honshu (ex. the North-East) mainly in forests in mountainous areas at lower altitudes. Mostly trivoltine, from May to September, four annual broods possible in some warm areas.

Coenonympha oedippus annulifer BUTLER

Y & W: 52; S & H: 30. — Mostly local in mountains of Central and South-west Honshu, mainly in damp valleys. Monovoltine, June to July.

Coenonympha hero neoperseis FRUHSTORFER

Y & W: 53; S & H (ssp. *latifasciata* MATSUMURA): 31. — Locally common in Central and North-eastern Hokkaido in both mountains and plains (ssp. *latifasciata* MATSUMURA) and also restricted to a small area south-west of Central Hokkaido (ssp. *neoperseis* FRUHSTORFER). Monovoltine, June to July.

Oenis asamana MATSUMURA

Y & W: 54; S & H: 20. — Confined to a restricted area of Central Honshu in Japanese Alps approx. from Mr. HAKUBA in the North to the Hotaka

Peaks in the south, where locally abundant at altitudes of 2400—31000 m on ridges, gravelly slopes and near cols from end of June to mid-August, two-years life cycle. — For 'geographical variability, life history and other details see TABUCHI (1959). Ssp. *sugitanii* SHIROZU described from Yatsugatake Mts.

Oeneis daisetsuzana MATSUMURA

Y & W: 55; S & H: 21. — Confined to mountains of Central Hokkaido, mainly the Daisetsuzan Mts. group, common in some eastern areas, local and rare in the west. Occurs among rocks at altitudes of over 1500 m from July to August.

Minois dryas bipunctatus MOTSCHULSKY

Y & W: 56; S & H: 108. — Widely distributed in lower mountains of Kyushu, Shikoku and Honshu, local in Hokkaido. Monovoltine from July to August.

Lopinga achine achinoides BUTLER

Y & W: 57; S & H: 22. — Local in Hokkaido, widespread in mountains of Central Honshu in forests, also recorded from south-west Honshu. Monovoltine, in July and August.

Lasiommata deidamia interrupta FRUHSTORFER

Y & W: 58; S & H: 23. — In wooded valleys of Central and North-eastern Honshu and also found in Shikoku and Hokkaido. Bivoltine from May to September, perhaps trivoltine occasionally in some areas.

Lethe sicelis HEWITSON

Y & W: 59; S & H: 111. — Widely distributed in most of Honshu (ex. North-East) Shikoku and Kyushu, mainly in warmer lowland areas. Bivoltine, from June to September.

Lethe diana BUTLER

Y & W: 60; S & H: 110. — Widespread in Kyushu, Shikoku and most of Honshu, local in north-eastern Honshu and Hokkaido. Up to three or four annual successive broods in warmer areas of the South-West from April to September, probably monovoltine from June to July in Hokkaido.

Lethe marginalis MOTSCHULSKY

Y & W: 61; S & H: 112. — Kyushu, Shikoku, south-west and central Honshu, mainly in mountains, but recorded also from north-eastern Honshu. Monovoltine, from July to August.

Harima callipteris BUTLER

Y & W: 62; S & H: 114. — In lowlands of Hokkaido, especially

widespread in Central Honshu and becoming a mountain species further south, Shikoku and Kyushu, where at altitudes of over 1000 m usually among bamboo grass. Normally monovoltine, in July and August, possibly occasionally bivoltine in some areas.

Kirinia epaminondas STAUDINGER

Y & W: 63; S & H: 115. — South-western tip of Hokkaido, central and south-west Honshu, although found locally also in its northern parts, Kyushu and Shikoku; mainly in dark deciduous forests. Monovoltine, July to August.

Ninguta schrenckii menalcas FRUHSTORFER

Y & W: 64; S & H: 113. — Local in Hokkaido, more widely distributed in Honshu, especially Central and South-western in lowlands. Monovoltine, June to July.

Neope goschkevitschii MÉNÉTRIÉS

Y & W: 65; S & H: 109. — Widespread and common in Kyushu, Shikoku and northward up to Central Honshu, becoming less frequent in North-eastern Honshu and Hokkaido. Bivoltine from April to August in most of the country, monovoltine, from June to August in its northern cold parts.

Neope nipponica BUTLER

Recently separated from the preceding species: the lowland populations apparently belong to *N. goschkevitschii* while those from mountainous parts to *nipponica* BUTLER. For details see: FUJIOKA, T. (1972): Illustrated butterflies of Japan. — Tokyo (in Japanese).

Melanitis phedima oitensis MATSUMURA

Y & W: 66; S & H: 116. — Widely distributed in Kyushu and Shikoku and mainly along the Pacific coast up to Central Honshu, also known in south-west Honshu. Usually trivoltine, from June to November.

Melanitis leda LINNAEUS

Y & W: 67; S & H: 117. — Kyushu, Shikoku and especially along the Pacific coast of Honshu, very rarely recorded in colder northern parts. Probably only a migrant except for those settled in southernmost parts of Kyushu and some south-west off-shore islands where probably trivoltine, from June to November.

NYMPHALIDAE

Sasakia charonda HEWITSON

Y & W: 68; S & H: 42. — Hokkaido (mainly in southern warmer parts), Honshu, Shikoku and Kyushu (ex. southern parts of the latter). Mono-voltine, from June to August. This species is the „National Butterfly“ of Japan.

Apatura ilia substituta BUTLER

Y & W: 69; S & H: 45. — Widespread and common: Hokkaido, Honshu, Shikoku and Kyushu. Usually bivoltine in warmer areas from May to September, monovoltine, from July to August in colder parts of the country.

Hestina japonica C. & R. FELDER

Y & W: 70; S & H: 43. — Distributed in Hokkaido, Honshu, Shikoku and Kyushu, more widespread in mountainous parts of the warmer areas, not over 1000 m in Central Honshu and northward. Mainly two, occasionally three annual broods in the south from May to October, monovoltine, in colder areas from July to August.

Hestina assimilis shirakii SHIROZU

Y & W: 204; S & H: 44. — Native only to Amami Oshima Island south of Kyushu.

Dichorragia nesimachus nesiotus FRUHSTORFER

Y & W: 75; S & H: 40. — Common in mountainous areas of Honshu, Kyushu and Shikoku, rather rare in lowlands and some off-shore islands, but not really a mountain species. Bivoltine, from April to August.

Cyrestis thyodamas mabella FRUHSTORFER

Y & W: 76; S & H: 41. — South-western Honshu, Shikoku, Kyushu and some off-shore islands, especially widespread and common in warmer areas along the Pacific coast. Trivoltine, from May to October.

Phalanta phalanta DRURY

Y & W: 203. — A migrant recorded once in Nagasaki in 1880.

Limenitis populi jezoensis MATSUMURA

Y & W: 71; S & H: 34. — Confined to restricted areas in mountains of Central Honshu at altitudes of about 800 — 1800 m and to Hokkaido at lower levels. Monovoltine in July and August. — See TABUCHI (1959) for life history and other details.

Ladoga glorifica FRUHSTORFER

Y & W: 72; S & H: 33. — Confined to Honshu, where widely distributed and often to be found in proximity with *L. camilla japonica* MÉNÉTRIÉS. Bivoltine, occasionally perhaps trivoltine, from May to September.

Ladoga camilla japonica MÉNÉTRIÉS

Y & W: 77; S & H: 32. — Widespread in Hokkaido, Honshu, Shikoku and Kyushu, in the warmer areas of south-west Japan found more in mountains and rare in plains; in deciduous woods. Bivoltine (or trivoltine in some warmer areas), from May to September.

Neptis alwina kaempferi DE L'ORZA

Y & W: 73; S & H: 35. — Rare in south-western peninsula of Hokkaido, more widely distributed and frequent in north and Central Honshu mainly in mountains at lower altitudes. — Hardly separable from *N. alwina alwina* BREMER GREY, see ELIOT (1969) for characters and other details.

Neptis philyra excellens BUTLER

Y & W: 74; S & H: 37. — Widely distributed throughout Hokkaido, Honshu, Shikoku and Kyushu, but in warmer south-western parts of the country rather rare and limited more-less to mountains. Monovoltine, from June to August. — For description and characters see ELIOT (1969).

Neptis sappho intermedia PRYER

Y & W: 78; S & H: 36. — Widespread throughout the country: Hokkaido, Honshu, Shikoku and Kyushu. Usually bivoltine, in colder areas from June to September, up to four annual broods in warmer areas from April to September. — For separation of *N. sappho* PALLAS (= *aceris* FABRICIUS), subspeciation and other details see ELIOT (1969).

Neptis pryeri BUTLER

Y & W: 79; S & H: 38. — Local in Honshu, Shikoku and Kyushu (ex. south-west); mostly infrequent. Monovoltine, in the north, mostly bivoltine in warmer south. — For description see ELIOT (1969).

Neptis rivularis insularum FRUHSTORFER

Y & W: 80; S & H: 39. — Widespread and common throughout Hokkaido (*N. rivularis aino* SHIROZU), in Honshu restricted mainly to mountainous areas of Central and North-east. In woodlands. Bivoltine, from May to August, in Hokkaido mainly monovoltine, in July and August. — For description see ELIOT (1969). *N. rivularis aino* SHIROZU is hardly separable from *N. rivularis bergmani* BRYLE (ELIOT, 1969).

Neptis hylas luculenta FRUHSTORFER

Y & W: 205. — Known only from Amami and Ryu-Kyu Islands and further south.

Araschnia burejana strigosa BUTLER

Y & W: 81; S & H: 51. — Widespread in Hokkaido, Honshu, Shikoku and Kyushu, generally more in mountainous areas. Normally bivoltine, from May to August.

Araschnia levana obscura FENTON

Y & W: 82; S & H: 52. — Widespread in Hokkaido, where it is often found sympatric with *A. burejana strigosa* BUTLER. Bivoltine, from May to August.

Polygonia c-aureum LINNAEUS

Y & W: 83; S & H: 47. — Common in south-west Hokkaido, Honshu, Shikoku and Kyushu, chiefly in warmer areas and not over 1000 m in mountains of central Honshu. Polyvoltine, from June to November, normally four annual broods in warmer areas.

Polygonia c-album hamigera BUTLER

Y & W: 84; S & H: 48. — Common all over Hokkaido, in Honshu, Shikoku and Kyushu (ex. extreme south of the latter). More widespread in colder areas, in warmer areas often limited to mountains. Bivoltine, from June to October, adults hibernate.

Polygonia vau-album samurai FRUHSTORFER

Y & W: 85; S & H: 135. Widespread in both plains and highlands of Hokkaido, in Honshu local in central and north-eastern parts of the island and restricted to mountains, mainly around 1000 m. Monovoltine, from July to August and then after hibernation in the following Spring.

Vanessa indica HERBST

Y & W: 86; S & H: 53. — Widespread and common throughout Japan. Polyvoltine, from May to November, up to five annual broods in warmer areas.

Vanessa cardui LINNAEUS

Y & W: 87; S & H: 54. — Widespread throughout the country, but usually less frequent than *V. indica* HERBST. Polyvoltine, from June to November, up to five successive broods in warmer areas.

Nymphalis xanthomelas japonica STICHEL

Y & W: 88; S & H: 49. — Widespread throughout the country but rare in Hokkaido and also less frequent in southern parts of Shikoku and Kyushu. Monovoltine, on the wing from May to July and hibernates until following Spring.

Nymphalis antiopa asopos FRUHSTORFER

Y & S: 89; S & H: 50. — Common and widespread in Hokkaido in both mountains and lowlands, in Honshu limited to central and mainly north-eastern parts and found chiefly in mountains around 1500 m. Monovoltine, in July and August and then after hibernation in the following Spring.

Inachis io geisha STICHEL

Y & W: 90, S & H: 136. — Common in highlands and lowlands of Hokkaido and in north-eastern Honshu, in central Honshu restricted to mountains and local, recorded as high as 2800 m. Bivoltine, from June to September, adults hibernate until the following Spring.

Kaniska canace no-japonicum SIEBOLD

Y & W: 91; S & H: 46. — Widely distributed throughout Japan including many off-shore islands. Polyvoltine in the south from June to October, bivoltine or monovoltine in colder parts of the country, chiefly in Summer.

Aglais urticae conexa BUTLER

Y & W: 92; S & H: 137. — Restricted to mountains of central Honshu and locally also in its north-eastern part, in Hokkaido in both highlands and plains. In Honshu chiefly at altitudes from 1000 — 2000 m. Monovoltine, in Summer and then after hibernation in the following Spring. — See TABUCHI (1959) for life history and other details.

Precis almana LINNAEUS

Y & W: 93; S & H: 140. — A migrant possibly settled in the southern tip of Kyushu.

Precis orithya LINNAEUS

Y & W: 94; S & H: 141. — A migrant settled in some of islands south of Kyushu. Solitary specimens recorded in several parts of Japan.

Hypolimnas bolina LINNAEUS

Y & W: 95. — A migrant from further south recorded in Kyushu, Shikoku and Honshu.

Hypolimnas misippus LINNAEUS

Y & W: 96; S & H: 138. — A migrant recorded in various parts of the country. It could probably establish there for a generation during summer months in favourable localities, but it does not survive winter.

Hypolimnas antilope truentus FRUHSTORFER

Y & W: 97. — A migrant from further south recorded on a few occasions in Japan; resident in Southern Ryukyu Islands.

Melitaea scotosia BUTLER

Y & W: 98; S & H: 120. — Confined to Honshu where it occurs in marshes at higher altitudes in most of the mountain groups. Monovoltine in July and August. — For description see HIGGINS (1941).

Melitaea diamina regana FRUHSTORFER

Y & W: 100; S & H: 119. — Restricted to mountains of central Honshu where rather local at altitudes of 400 — 800 m. Monovoltine in June and July. — See HIGGINS (1941) for description and other data.

Mellicta ambigua niphona BUTLER

Y & W: 99; S & H: 118. — Widespread in some mountain ranges of Central Honshu in alpine meadows at altitudes of about 1000 m. Monovoltine, from June to August. — HIGGINS (1955) considered *M. ambigua* MÉN. to be conspecific with *M. athalia* ROTT.: *M. athalia ambigua* MÉN. mod. *niphona* BUTLER. NICULESCU (1964) and VERITY (1940) treated *M. ambigua* MÉN. as „bona species“

Mesoacidalia charlotta fortuna JANSON

Y & W: 105; S & H: 134. — Common throughout Hokkaido (ssp. *basalis* MATSUMURA), less frequent or rare in mountains of central and north-east Honshu above 800 m. Monovoltine, from June to August.

Fabriciana adippe pallescens BUTLER

Y & W: 101; S & H: 132. — Widely distributed throughout Japan (including some of northern off-shore islands) in meadows; the commonest of all fritillaries. Monovoltine, June to July.

Fabriciana nerippe C. & R. FELDER

Y & W: 106; S & H: 133. — Widespread and common in Kyushu, Shikoku and south-west Honshu, becoming rare and local northward in the latter, especially in its central and north-eastern parts. Mainly in low mountains in Kyushu, in lowlands in Shikoku and Honshu. Monovoltine, from June to August.

Argyronome laodice japonica MÉNÉTRIÉS

Y & W: 102; S & H: 130. — Widely distributed and common in Hokkaido (including some northern off-shore islands), Honshu, Shikoku and Kyushu. Mainly in thinly wooded areas in mountains at low altitudes. Monovoltine, from June to October, often aestivates in Summer.

Argyronome russlana lysippe JANSON

Y & W: 107; S & H: 131. — Widespread in Hokkaido, Honshu, Shikoku and Kyushu, more frequent in colder areas (e. g. Honshu and Hokkaido)

and rare in warm parts along the Pacific coast of Kyushu and Shikoku. Monovoltine, from June to September, adults aestivate in warmer parts of the country.

Argynnis paphia geisha HEMMING

Y & W: 103; S & H: 126. — Widespread throughout Hokkaido, Honshu, Shikoku and Kyushu, in warmer areas along the Pacific coast rather restricted to mountains and rare in lowlands. Monovoltine, from June to October, adults aestivate in warmer areas.

Argynnis anadyomene midas BUTLER

Y & W: 108; S & H: 129. — Rather widespread throughout Hokkaido, Honshu, Shikoku and Kyushu, but not common. Monovoltine from May to October. — Subspecific status of Japanese population is questionable.

Damora sagana liane FRUHSTORFER

Y & W: 104; S & H: 127. — Distributed in Hokkaido, Honshu, Shikoku and Kyushu, but rare from central Honshu northward. Monovoltine, from June to October.

Argyreus hyperbius LINNAEUS

Y & W: 109; S & H: 128. — Common in Kyushu and some of its off-shore islands, Shikoku and south-west Honshu, rare in central and north-east Honshu and once recorded from Hokkaido. One of the commonest fritillaries in lowlands of Shikoku and Kyushu, where polyvoltine from April to November, up to five successive annual broods. In colder areas in July.

Brenthis daphne rabdia BUTLER

Y & W: 110; S & H: 124. — Very local in warmer parts of Hokkaido and (as ssp. *iwatensis* OKANO) in north-eastern Honshu. More widely distributed in mountains of central Honshu usually at altitudes below 500 m. Monovoltine from June to August.

Brenthis ino tigroides FRUHSTORFER

Y & W: 111; S & H: 125. — Widespread throughout Hokkaido (ssp. *mashvensis* KONO) in both highlands and lowlands and in mountains of central and north-eastern Honshu. Monovoltine, in July and August.

Clossiana iphigenia sachalinensis MATSUMURA

Y & W: 112; S & H: 122. — Confined to mountains of central and eastern Hokkaido. Monovoltine in June and July.

Clossiana thore jezoensis MATSUMURA

Y & W: 113; S & H: 123. — Rather local in mountains of Central and eastern Hokkaido, chiefly at altitudes of 600 — 1000 m. Monovoltine, in June and July.

Clossiana freija asahidakeana MATSUMURA

Y & W: 114; S & H: 121. — Confined to a restricted area in Daisetsuzan Mts. in east-central Hokkaido. Mainly at altitudes of about 1800 m. Monovoltine, in July and August.

LYCAENIDAE

Artopeetes pryeri MURRAY

Y & W: 115; S & H: 60. — Widely distributed throughout Japan, becoming less frequent and somewhat limited to mountains in the south. Monovoltine in June and July.

Araragi enthea JANSON

Y & W: 116; S & H: 64. — Hokkaido, Honshu, Shikoku and very local in Kyushu. Frequent in the northern half of the country. Monovoltine in July and August.

Antigius attilia BREMER

Y & W: 117; S & H: 62. — Hokkaido, Honshu, Shikoku, Kyushu and Cushima Island, less frequent in both north and south of this area. Monovoltine, in June and July.

Antigius butleri FENTON

Y & W: 118; S & H: 63. — Hokkaido, Honshu and Kirishima Mts. in Kyushu. Monovoltine, on the wing in June and July.

Japonica lutea HEWITSON

Y & W: 119; S & H: 56. — Widespread in Hokkaido and Honshu, in Shikoku and Kyushu only in mountains. Monovoltine in June and July.

Japonica saepestriata HEWITSON

Y & W: 120; S & H: 57. — Hokkaido, Honshu, Northern Shikoku. Monovoltine in June and July.

Coreana raphaelis yamamotoi OKANO

S & H: 59. — Restricted to north-eastern part of Honshu and Yamagata Prefecture (ssp. *ohruii* SHIROZU). Monovoltine, in June and July.

Shirozua jonasi JANSON

Y & W: 121; S & H: 61. — Hokkaido and Honshu, mainly central and north-eastern parts of the latter. Monovoltine, in August.

Ussuriana stygiana BUTLER

Y & W: 122; S & H: 58. — Throughout the country, mostly in lower mountains, rare in Kyushu. Monovoltine, in June and July.

Wagimo signata BUTLER

Y & W: 123; S & H: 65. — Hokkaido, Honshu and Kokonoe Mts. in Kyushu. Monovoltine, June and August.

Iratsume orsedice BUTLER

Y & W: 124; S & H: 66. — Honshu, Shikoku, Kyushu (central mountains). Mostly local in mountains. Monovoltine, June to July.

Neozephyrus taxila japonicus MURRAY

Y & W: 125; S & H: 76. — Hokkaido, Honshu, Shikoku, Kyushu. More distributed in colder areas, becoming rather local and less frequent south-west of Central Honshu. Monovoltine, June to August.

Chrysozephyrus ataxus kirishimaensis OKAJIMA

Y & W: 126 c, d, e, f; S & H: 77. — Honshu, Shikoku, Kyushu and Cushima Island. Monovoltine, July to August. — *C. ataxus yakushimaensis* YAZAKI confined to Yakushima Is. (Y & W: 126 a, b).

Chrysozephyrus smaragdinus BREMER

Y & W: 127; S & H: 75. — Hokkaido (in both lowlands and mountains), Honshu, Shikoku and Kyushu. In warmer areas only in mountains. Monovoltine, June to July.

Chrysozephyrus aurorinus OBERTHÜR

Y & W: 128; S & H: 74. — Hokkaido, Honshu, Shikoku, restricted in Kyushu. In warmer south-western areas only in mountains and rare. Monovoltine, July to August.

Chrysozephyrus hisamatsusanus NAGAMI & ISHIGA

Y & W: 129. — Local in Honshu, Shikoku and Kyushu in mountains at lower altitudes. Monovoltine, June to July. — Distribution, bionomy and taxonomic status rather uncertain, little known.

Favonius orientalis MURRAY

Y & W: 130; S & H: 68. — Hokkaido, Honshu, Shikoku, Kyushu, Cushima Is. and some other off-shore islands. Monovoltine, June to August.

Favonius jezoensis MATSUMURA

Y & W: 131; S & H: 70. — Hokkaido (widespread), Honshu, local in Shikoku and Kyushu in mountains. Monovoltine, June to August.

Favonius ultramarinus hayashii SHIROZU

Y & W: 132; S & H: 71. — Local: Hokkaido, Honshu, Kyushu (in mountains). Monovoltine, June to August.

Favonius cognatus STAUDINGER

Y & W: 133; S & H: 69. — Hokkaido and mainly Central and North-east Honshu, in south Honshu very local in mountains, rare. Monovoltine, July to August.

Favonius yuasai SHIROZU

Y & W: 134; S & H: 72. — Confined to North-east and Central Honshu, local in mountains. Also recorded from a restricted area in Kyushu. Monovoltine, June to July.

Favonius saphirinus STAUDINGER

Y & W: 135; S & H: 73. — Local in Hokkaido, Honshu, Kyushu and Cushima Island. Monovoltine, June to August.

Favonius latifasciatus SHIROZU & HAYASHI

Y & W: 208; S & H: 148. — Very local in Honshu in lowland. Monovoltine, June to July. — Very close to *F. ultramarinus hayashii* SHIROZU, possibly conspecific (although early stages seem to be slightly different, too).

Quercusia fujisana MATSUMURA

Y & W: 136; S & H: 67. — South-west Hokkaido, Honshu, Shikoku and Kyushu, in south-west restricted to mountains and rare. Monovoltine, June to July. Ssp. *latimarginata* MURAYAMA described from Kyushu.

Strymonidia w-album fentoni BUTLER

Y & W: 137; S & H: 144. — Common throughout Hokkaido, rather local in Honshu, restricted mainly to central area in Kyushu. Monovoltine, May to August (distinctly earlier in southern parts of Japan).

Strymonidia mera JANSON

Y & W: 138; S & H: 145. — S. W. Hokkaido, widespread in north-east and Central Honshu, mountains of Central Shikoku and northern Kyushu. Monovoltine, July to August.

Strymonidia pruni jezoensis MATSUMURA

Y & W: 139; S & H: 147. — Confined to Hokkaido. Monovoltine, June.

Strymonidia iyonis OTA & KUSUNOKI

Y & W: 209; S & H: 146. — Confined to Shikoku, where very local and rare in Ehime Prefecture. Monovoltine, June — July. Recently recorded in W. Honshu (as ssp. *kibiensis* SHIROZU & NANBA).

Ahlbergia ferrea BUTLER

Y & W: 140; S & H: 149. — Hokkaido, Honshu, Shikoku and Kyushu, rather widespread and common. Monovoltine, March to June according to locality and climatic conditions.

Rapala arata BREMER

Y & W: 141; S & H: 150. — Hokkaido, Honshu, Shikoku, Kyushu and Cushima Island, widely distributed, but rarely very frequent. Mainly in mountains at lower altitudes. Bivoltine in South-west from April to August. Monovoltine in Hokkaido, June to July.

Spindasis takanonis MATSUMURA

Y & W: 142; S & H: 78. — Widespread in central and north Honshu, but recorded throughout the island. Monovoltine, June to July.

Three ssp. in Japan: *takanonis*, *akkuranis* MURAYAMA and *septentrionalis* HAYASHI.

Narathura japonica MURRAY

Y & W: 143; S & H: 152. — Honshu (mainly southern half), Shikoku and Kyushu in evergreen forests in low mountains. Normally three to four annual broods from June to October.

Narathura basalus turbata BUTLER

Y & W: 154; S & H: 153. — Local and rare in warmer parts of Honshu, Shikoku and Kyushu. Three to four generations from June to October.

Panchala ganesa loomisi PREYER

Y & W: 144; S & H: 151. — Honshu, Shikoku and Kyushu, rather local in evergreen forests often along rivers. Trivoltine, June to October.

Taraka hamada DRUCE

Y & W: 146; S & H: 156. — Hokkaido, Honshu, Shikoku and Kyushu. Polyvoltine in warm south-western parts of the country (up to five or six annual broods from May to November) and usually trivoltine in colder areas (June to October).

Lycaena phlaeas daimio SEITZ

Y & W: 147; S & H: 157. — Common and widespread in Hokkaido, Honshu, Shikoku, Kyushu and Cushima Island, Usually trivoltine in warmer parts of south-west, bivoltine, in Hokkaido.

Glaucopsyche lycormas BUTLER

Y & W: 148; S & H: 164: — Local in Hokkaido and northern tip of Honshu. Monovoltine, June to July.

Scolitantides orion jezensis MATSUMURA

Y & W: 149; S & H: 165. — Confined to Hokkaido. Essentially monovoltine, May to June; partial second brood recorded in some localities in July and August.

Shijimiaeoides divina barine LEECH

Y & W: 150; S & H: 166. — Central and North Honshu, Aso and Kuju Mts. in Kyushu (ssp. *asonia* MATSUMURA). Monovoltine, on the wing in June.

Plebejus argus micrargus BUTLER

Y & W: 151; S & H: 160. — Hokkaido, Central and North Honshu, rare and local also in mountains of south-west Honshu and Kyushu. Monovoltine, June to August.

Lycaeides argyrognomon praeterinsularis VERITY

Y & W: 152; S & H: 159. — Local in Honshu, a single specimen recorded in Shikoku. Supposed to be trivoltine from June to October. — *L. argyrognomon shiranatai* SHIROZU described from North Honshu, very close to the former (SHIROZU, 1952).

Lycaeides subsolanus yagina STRAND

Y & W: 153; S & H 161. — Confined to mountains of Central Honshu. Monovoltine, in June and July. — There is a school of thought that *L. subsolanus yagina* VERITY (= *asamensis* MATSUMURA; = *shiroumana* MATSUMURA) is conspecific with *L. yarigadakeana* MATSUMURA and *iburiensis* BUTLER; the early stages are extremely similar. See SHIROZU (1952) for other details.

Lycaeides yarigadakeana MATSUMURA

Y & W: 154; S & H: 162. — Restricted to a few localities in Northern Japan Alps in central Honshu, where it is to be found at altitudes of about 1550 to 1900 m. Monovoltine, July to Mid-August. — See TABUCHI (1959) for more details on distribution and life-history, also pictures. *L. yarigadakeana* MATSUMURA is very closely related to *L. subsolanus yagina* STRAND, the early stages of both are very alike, they may even be conspecific.

Lycaeides iburiensis BUTLER

Y & W: 155. — Local in Central Hokkaido. Monovoltine, on the wing in July. — *Lycaeides iburiensis* BUTLER is often considered conspecific with

either *L. subsolanus yagina* STRAND or *L. yarigadakeana* MATSUMURA; they all may well form only one species.

Maculinea arionides takamukai MATSUMURA

Y & W: 156; S & H: 155. — South-west Hokkaido, North-east and — particularly widespread — in Central Honshu, where it occurs in mountains at altitudes of about 1000 to 1700 m. Monovoltine, July to August.

Maculinea teleius kazamoto DRUCE

Y & W: 157; S & H: 154. — Hokkaido, nearly whole Honshu (ex. extreme south-west and west-central) and in mountains of Central Kyushu. Monovoltine, July to September. — There are at least four supposedly distinct subspecies in Japan.

Zizeeria maha argia MÉNÉTRIÉS

Y & W: 158; S & H: 167. — Honshu (ex. extreme north), Shikoku and Kyushu and some off-shore islands; widespread and common in warmer areas south of Central Honshu. Polyvoltine, in warmer parts of Japan up to five or six annual broods from April to November.

Everes lacturnus kawaii MATSUMURA

Y & W: 159; S & H: 174. — Restricted to south-west of Central Honshu (Wakayama Prefecture), S. Shikoku and Kyushu. Bivoltine in Kyushu, June to October; possibly monovoltine in Honshu, August to September or October.

Everes argiades hellotia MÉNÉTRIÉS

Y & W: 168; S & H: 173. — Hokkaido, Honshu, Shikoku and Kyushu, widely distributed and common. Polyvoltine, on the wings from April to November.

Tongeia fischeri EVERS MANN

Y & W: 160; S & H: 175. — Local in Honshu (absent from north-east), Shikoku, Kyushu and Cushima Island. Trivoltine, May to September, but could have up to five annual broods in some areas.

Lampides boeticus LINNAEUS

Y & W: 161; S & H: 176. — A migrant recorded all over the country and established permanently probably only in some warmer parts of south-west Japan. Polyvoltine.

Nacaduba kurava septentrionalis SHIROZO

Y & W: 162; S & H: 177 — A migrant common in Amami Islands and

recorded regularly in South Kyushu and South-west Shikoku. There is a possibility that some colonies in Kyushu are permanent, although the fact that this polyvoltine species is on wings in Amami Islands from March to

November, while in the warmest parts of Kyushu only appears from June to November does not suggest it. It certainly could produce a few broods during Summer in both Kyushu and Shikoku.

Zizina otis emelina DE L'ORZA

Y & W: 163; S & H: 168. — South of Central Honshu, Shikoku and Kyushu. Polyvoltine, probably up to five annual broods in warmer south-west areas from April to November. In Honshu possibly only trivoltine.

Celastrina argiolus ladonides DE L'ORZA

Y & W: 164; S & H: 169. — Common and widespread: Hokkaido, Honshu, Shikoku and Kyushu. Possibly up to four annual broods in Kyushu from March to October, bivoltine in Hokkaido from May to September.

Celastrina sugitanii MATSUMURA

Y & W: 165; S & H: 170. — Hokkaido, Honshu, Shikoku and Kyushu, but absent in some parts of each island. Monovoltine, April to May.

Celastrina puspa umenonis MATSUMURA

Y & W: 166; S & H: 171. — Honshu, Shikoku and Kyushu, mainly in warmer south and south-west areas along the Pacific coast. Polyvoltine.

Celastrina albocaerulea sauteri FRUHSTORFER

Y & W: 167; S & H: 172. — Honshu, (mainly south-western parts), Shikoku and Kyushu. Bivoltine or trivoltine, on the wing from April to November.

Celastrina dilecta MOORE

Y & W: 210. — Confined to Kyushu, rare in Kirishima Mts. and Ichibusa Mts., where discovered quite recently. Known to be on the wing in July.

Vacciniina optilete daisetsuzana MATSUMURA

Y & W: 169. — Confined to Central Hokkaido: in Daisetsu Mts. mostly at altitudes of over 1300 m, although recorded as low as 800 m. Monovoltine, July to August.

Niphandia fusca shijima FRUHSTORFER

Y & W: 170; S & H: 79. — West and Central Honshu, Shikoku, Kyushu and Cushima Island. Monovoltine, July to August.

Curetis acuta paracuta NICEVILLE

Y & W: 171; S & H: 158. — Honshu (ex. colder north-eastern parts), Shikoku, Kyushu and Isushima Island (ssp. *tsushimana* FRUHSTORFER); common in warmer south-western areas. Mostly bivoltine, June to October.

Euchrysops cnejus FABRICIUS

Y & W: 211; S & H: 178. — A migrant found in Kyushu, Tsushima and Amami Islands south of Kyushu.

Pithecops fulgens tsushimana SHIROZU & URATA.

Restricted to northern part of Tsushima Island; polyvoltine from May to October.

HESPERIIDAE

Pyrgus maculatus BREMER & GREY

Y & W: 172; S & H: 80. — In plains of Hokkaido, Honshu (in south-western half only in mountains), Shikoku (local in mountains). Mono-voltine in May and June in Hokkaido, in southern Japan bivoltine from April to May and in July and August.

Erynnis mountanus BREMER

Y & W: 173; S & H: 81. — Widespread: Hokkaido, Honshu, Shikoku and Kyushu mainly in lowlands and at lower altitudes in mountains. Single-brooded from April to June.

Daimio tethys MÉNÉTRIÉS

Y & W: 174; S & H: 82. — Widespread: S. W. Hokkaido, Honshu, Shikoku and Kyushu. Bivoltine from May to August. — *D. tethys tethys* MÉNÉTRIÉS (Y & W: 174 a, b) confined to northern parts of the country, *D. tethys daiseni* RILEY (Y & W: 174 c, d; S & H: 82) distributed in southern parts of Honshu, Shikoku and Kyushu.

Badamia exclamationis FABRICIUS

Y & W: 175. — A migrant recorded on a few occasions in Japan since 1935; resident in Yayeyama group of Ryukyu Islands.

Chospes benjaminii japonica MURRAY

Y & W: 176; S & H: 83. — Kyushu including some off-shore islands, Shikoku and Honshu, becoming rare northward. Bivoltine from April to August.

Bibasis aquilina chrysaeglia BUTLER

Y & W: 117; S & H: 84. — Hokkaido, Honshu, Shikoku, Kyushu and Cushima Island. Common in Hokkaido, becoming less frequent and limited to mountains southward. Monovoltine in July and August.

Leptalina unicolor BREMER & GREY

Y & W: 178; S & H: 196. — Rather local in Hokkaido, Honshu, Shikoku and Kyushu. Bivoltine from April to July in south, monovoltine in northern parts of Japan.

Carterocephalus palaemon satakei MATSUMURA

Y & W: 179; S & H: 183. — Local and rare in mountains of Central Honshu at altitudes of about 2000 m from July to August, monovoltine. Ssp. *akaishianus* FUJIOKA described from S. Alps.

Carterocephalus sylvicola issaikii MATSUMURA

Y & W: 180; S & H: 184. — Confined to Hokkaido, local. Monovoltine, on the wing from July to August.

Thymelicus leoninus BUTLER

Y & W: 181; S & H: 181. — Hokkaido, North-east and Central Honshu, mountains of Kyushu. Monovoltine in July and August.

Thymelicus sylvaticus BREMER

Y & W: 182; S & H: 182. — Rare in Hokkaido, Honshu widespread at low altitudes in Shikoku and Kyushu. Monovoltine in June and July, until August in Hokkaido.

Isoteinon lamprospilus C & R. FELDER

Y & W: 183; S & H: 185. — Honshu, Shikoku, Kyushu and Cushima Island, common in warmer areas. Monovoltine in June and July.

Aeromachus inachus MÉNÉTRIÉS

Y & W: 184; S & H: 193. — Confined to Honshu and Cushima Island. Bivoltine from June to September in warmer areas, monovoltine in July and August in mountains and other colder areas.

Ochlodes venata herculea BUTLER

Y & W: 195; S & H: 187. — Widespread and common in Hokkaido, becoming less frequent and restricted to mountains southward Honshu, where does not occur under 500 m. Monovoltine in June and July.

Ochlodes ochracea rikuchina BUTLER

Y & W: 186; S & H: 188. — Hokkaido, Honshu, Shikoku and Kyushu, bivoltine from May to September.

Hesperia florinda BUTLER

Y & W: 187; S & H: 195. — Confined to Honshu, mainly in mountains in the central part. Monovoltine in July and August.

Potanthus flavus MURRAY

Y & W: 188; S & H: 186. — Hokkaido, Honshu, Shikoku, Kyushu and some off-shore islands, common and bivoltine from June to September in warmer areas, monovoltine from July to August in the north.

Thoessa varia MURRAY

Y & W: 189; S & H: 194. — Common and widespread: Hokkaido, Honshu, Shikoku, Kyushu. Monovoltine in June and July in colder areas, bivoltine from May to August in south-west of the country.

Polytremis pellucida MURRAY

Y & W: 190; S & H: 190. — Common in Hokkaido and Honshu, becoming less frequent and restricted to mountains in Shikoku and Kyushu. Monovoltine in the north from July to August, bivoltine from June to October in warmer areas.

Pelopidas mathias oberthuri EVANS

Y & W: 191; S & H: 191. — Honshu, Shikoku and Kyushu. Trivoltine from May to October in warm south-west areas, becoming rare in the North.

Pelopidas jansonis BUTLER

Y & W: 192; S & H: 192. — Honshu, Shikoku, Kyushu. Bivoltine from May to August.

Parnara guttata BREMER & GREY

Y & W: 193; S & H: 189. — Hokkaido, Honshu, Shikoku, Kyushu and some off-shore islands. Polyvoltine from May to October.

Notocrypta curvifascia C. & R. FELDER

Y & W: 194; S & H: 87. — Confined to Kyushu and some off-shore islands, not at altitudes over 800 m. Three to four broods from April to October.

Hasora chromus inermis ELWES & EDWARDS

Y & W: 214; S & H: 85 — Confined to some of Amami Islands south of Kyushu.

Parnara naso bada MOORE

Y & W: 215. — Confined to some of Amami Islands south of Kyushu.

Udaspes folus CRAMER

Y & W: 216; S & H: 86. — Confined to a few of Amami Islands.

Tagiades trebellius martinus PLOETZ

S & H: 180. — Confined to a few of Ryukyu Islands.

Literatur

- BANG-HAAS, O. (1930): Novitates Macrolepidoterologicae. Bd. V. Faunenverzeichnisse der Jahre 1758 bis 1930. — Dresden-Blasewitz.
- DAVENPORT, D. (1941): The Butterflies of the Satyrid Genus *Coenonympha*. — Bull. Mus. comp. Zool. Harvard, 87, p. 1—38.
- ELIOT, J. N. (1969): An Analysis of the Eurasian and Australian Neptini (Lepidoptera: Nymphalidae). — Bull. Br. Mus. nat. Hist. (Ent.), London, Suppl. 15, p. 1—155.
- GABRIEL, A. G. (1943): A Revision of the Genus *Ixias* Hübner. — Proc. R. ent. Soc., London, (Ser. B), 12, p. 55—70.
- HIGGINS, L. G. (1941): An illustrated Catalogue of the Palearctic Melitaea. — Trans. R. ent. Soc. London, 91, p. 175—365.
- (1955): A Descriptive Catalogue of the Genus *Mellicta* Billberg (Lepidoptera: Nymphalidae) and its Species, with supplementary Notes on the Genera *Melitaea* and *Euphydryas*. — Trans. R. ent. Soc., London, 106, p. 1—131.
- HIURA, I. (1962): Collection Records of Satyrid Butterflies in Japan. — Bull. Osaka Mus. nat. Hist., (no.) 15, p. 29—63.
- JONG, R. DE (1972): Systematics and Geographic History of the Genus *Pyrgus* in the Palaearctic Region (Lepidoptera, Hesperiiidae). — Tijdschr. Ent., Leiden, 115 (Afl. 1), p. 1—121.
- KOSTROWICKI, A. S. (1965): Regionalizacja zoogeograficzna palearktyki w oparciu o faune motyli tzw. wiekszych. — Prace geogr., Warszawa, 51, p. 1—98.
- (1969): Geography of the Palearctic Papilionoidea. (Lepidoptera.) — Krakow.
- KURENTZOV, A. I. (1970): The Butterflies of the Far East USSR. — Leningrad.
- LEECH, J. H. (1892—94): Butterflies from China, Japan and Korea. — London.
- NEKRUTENKO, Y. P. (1968). Phylogeny and Geographical Distribution of the Genus *Gonepteryx* (Lepidoptera, Pieridae) — Kiev.
- NICULESCU, E. V. (1964). Etude morphologique sur le genre *Nekutaea* F. (Lep. Nymphalidae). — Bull. Soc. ent. Mulh., Mulhouse, (1964), p. 1—16.

- SEITZ, A. (1907—9): *Macrolepidoptera of the World*. Vol. 1, Palearctic Butterflies. — Stuttgart.
- (1929—31): *Macrolepidoptera of the World*. Vol. 1, Supplement 1: Palearctic Butterflies. — Stuttgart.
- SEOK, D. M. (1939): A synonymic List of Butterflies of Korea. — Seoul.
- SHIROZU, T. (1952): New or little known Butterflies from the North-Eastern Asia, with some synonymic Notes. I—II. — *Sieboldia*, Fukuoka, 1, p. 11—37, 149—159.
- (1957): Two new Subspecies of *Erebia nipponica* Janson from Honshu, Japan. — *Sieboldia*, Fukuoka, 2, p. 39—40.
- SHIROZU, T. & HARA, A. (1969): *Early Stages of Japanese Butterflies in Colour*. (2 vols.) — Osaka.
- SHIROZU, T. & SIBATANI, A. (1943): On the Japanese Lycaenid Species of the Genera *Plebejus* Klug and *Lycaeides*, Huebner. — *Trans. Kansai ent. Soc.*, 13, p. 25—35.
- SHIROZU, T. & YAMAMOTO, H. (1956): A Generic Revision and the Phylogeny of the Tribe Theclini. — *Sieboldia*, Fukuoka, 4, p. 329—421.
- STAUDINGER, O. & REBEL, H. (1901): *Catalog der Lepidopteren der palae-arctischen Faunengebietet*. — Berlin.
- TABUCHI, Y. (1959): *The Alpine Butterflies of Japan. Their Life History in Honshu*. — Tokyo.
- TITE, G. E. (1963): A synonymic List of the Genus *Nacaduba* and Allied Genera. *Lepidoptera: Lycaenidae*. — *Bull. Br. Mus. nat. Hist. Eng.*, London, 13, p. 69—116.
- VERITY, R. (1911): *Rhopalocera Palearctica. Papilionidae et Pieridae*.
- VERITY, R. (1940): Revision of the *athalia*-group of the Genus *Melitaea* Fabricius, 1807 (*Lep., Nymphalidae*). — *Trans. R. ent. Soc., London*, 89, 591—706.
- WARREN, B. C. S. (1936): *Monograph of the Genus Erebia*. — London.
- (1961): The Androconial Scales and their Bearing on the Question of Speciation in the Genus *Pieris*. (*Lepidoptera*). — *Entomol. Ts. Arg.*, Lund. 82, p. 121—148.
- YOKOYAMA, M. & WAKABAISHI, M. (1969): *Coloured Illustrations of the Butterflies of Japan*. — Osaka.

Anschrift des Verfassers:

DR. OTAKAR KUDRNA, Department of Zoology, Cambridge, England

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Atalanta](#)

Jahr/Year: 1974-

Band/Volume: [5](#)

Autor(en)/Author(s): Kudrna Otakar

Artikel/Article: [An annotated List of Japanese Butterflies 92-120](#)