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## Catalogue of Stick and Leaf-Insects (Insecta: Phasmida) Associated with Peninsular Malaysia and Singapore

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**Abstract:** This is the first published catalogue of Stick and Leaf-Insects recorded or described from Peninsular Malaysia and/or Singapore (93 species). Genera are listed in alphabetical order within subfamilies. Type locations, sex of types or details of syntypic series are provided, including documented present location of types where these can be determined. Thirty-nine new synonymy are recorded and 34 new lectotypes designated in this work. 14 new type species are designated for genera, where appropriate, and four species are transferred to different genera. The References section includes references containing descriptions of species recorded or described from Peninsular Malaysia and/or Singapore; full details of localities and descriptions/illustrations will be included in a forthcoming book on this fauna.

### INTRODUCTION

The taxonomy of the order Phasmida (also variably known as Phasmatodea, Phasmatoptera, Chelentoptera and others) is very understudied and includes numerous unpublished synonyms, following little serious work on the order since the publication of a monograph by Brunner von Wattenwyl and Redtenbacher (1906-1908).

Following several years' study on the phasmid fauna of Peninsular Malaysia and Singapore (which has included examination of museum and private collections, personal collecting of specimens and a detailed study of mainly published literature) a full listing of species is given, pending new descriptions (in progress). This listing includes a number of species not previously associated with Peninsular Malaysia. At this stage changes in nomenclature are mainly restricted to details of new synonymy. No unpublished new combinations are included, except for *Catantia conicipennis* (Bates), (transferred from the genus *Ascelus* Redtenbacher), *Lophophus perakensis* (Redtenbacher), (transferred from the genus *Paramyrionites* Redtenbacher), *Lophophus jolias* (Westwood), (transferred from the genus *Canindales* Stål) and *Lonchodes geniculatus* Gray, (transferred back to the genus *Lonchodes* Gray, from the genus *Stalochodes* Kirby). Lectotypes are designated from syntypic series, where these have been examined by the author. Fourteen new type species are designated for genera currently lacking a type species, which have been studied in detail.

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## MATERIALS AND METHODS

I have followed the classification of Bradley and Gaili (1977), a slightly updated version of Günther's classification (1953). Kevan (1982) made various taxonomic changes and opinions, with little or no justification.

Treatment of genera and species is in a similar format to Vickery (1983) in his Catalogue of the Phasmida of Australia. Generic and specific synonyms are listed chronologically in the appropriate places. Entries for each genus and synonym include reference to the original description, with details of the type material. Information is given in the following format:

1) Genus: New type species are designated for 14 genera, following a detailed review of worldwide type material of all or the majority of species in each genus concerned. 2) Species - with reference to the original description, followed by data on the nature of the type material (whenever possible), including type locality. Where "Malaysia" is given as the type locality, this was often referred to in the literature and/or data labels as "Malacca". Where known, Malayan States are given as e.g. [Perak]. I have also chosen to treat the state of Pulau Pinang in a similar manner. The literature references probably all relate to the island of Penang or "Prince of Wales Island", a former name for the island. It should be noted that not all museums have been personally visited by the author, and information on some species is undoubtedly still incomplete. Brunner von Wattenwyl had a tendency to exchange material with other major museums, which may have included type material. If species have been transferred to genera other than those in which they were originally placed, the original genus is included in brackets.

Several species described by Gray (1835) from "India Orientali" have been linked with Peninsular Malaysia, which is most likely the type locality for these species: Gray's "Ora Malabarensis" e.g. for *Nerocera marginata* (Gray), likewise appears to be linked with Peninsular Malaysia and reference to the Malabar Coast of India by subsequent authors should be ignored.

3) Details of lectotypes and synonyms are given. New synonyms have been designated following a detailed review of type material whenever possible and, in a few instances, from the literature. New lectotypes have been designated where necessary, where the author has examined the type material. Paralectotypes designated are from the same locality/collection except where stated otherwise.

Synonyms listed include any published changes of genera, other than the currently accepted genus. Reference is only made to the first author to adopt this name. In addition, references to descriptions of the opposite sex to the type specimen are given, where appropriate.

Museums and collections in which type material is located are abbreviated as follows. The abbreviations follow those of Arnett *et al.* (1993).

ANSP	Academy of Natural Sciences, Philadelphia, USA.
BMNH	The Natural History Museum, London, England.
ETHZ	Entomologisches Institut, Eidgenössische Technische Hochschule-Zentrum, Zurich, Switzerland.
HLHDH	Hessisches Landesmuseum Darmstadt, Darmstadt, Germany.
HNHM	Hungarian Natural History Museum, Budapest, Hungary.
ISNB	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium.
MCSN	Museo Civico di Storia Naturale "Giacomo Doria", Genoa, Italy.
MHNG	Museum d'Histoire Naturelle, Geneva, Switzerland.
MANHN	Museum National d'Histoire Naturelle, Paris, France.
MVVA	Museum of Victoria, Abbotsford, Victoria, Australia.
NHMB	Naturhistorisches Museum, Basel, Switzerland.
NHMW	Naturhistorisches Museum Wien, Wien (=Vienna), Austria.
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden.

NZSI	National Zoological Survey of India, Calcutta, India.
OXUM	University Museum, Oxford, England.
RMNH	Nationaal Natuurhistorisch Museum, Leiden, Netherlands.
RMTO	Museo Regionale di Scienze Naturali, Torino, Italy.
SMTD	Staatliches Museum für Tierkunde, Dresden, Germany.
USNM	United States National Museum of Natural History, Washington, U.S.A.
UZIU	Universitetets Zoologiska Institut, Uppsala, Sweden.
ZMAS	Zoological Museum, Academy of Science, St. Petersburg, Russia.
ZMHB	Museum für Naturkunde der Humboldt Universität zu Berlin, Berlin, Germany.
ZMFA	Museum und Institute of Zoology, Polish Academy of Science, Warszawa, Poland.
ZMUC	Zoologisk Museum, University of Copenhagen, Copenhagen, Denmark.
ZMUH	Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Hamburg, Germany.

## CATALOGUE OF SPECIES

### ANAREOLATAE Family HETERONEMIDAE subfamily LONGHODINAE

#### Genus *Carausius* Stål, 1875

Type species: *Carausius strimosis* Stål, 1875, p. 64, designated by Rehn, 1904, p. 42  
*crumengensis* (de Haan), 1842, p. 132 q, pl. 13: 1 (*Plasma* (*Bacteria*) *crumengense* - described with ♂ of *Bacteria nematodes* but specified within the text and on plate figure as *crumengense*). Holotype ♀, JAVVA: Bogor [Buitenzorg] (RMNH).

*Dixippus crumengensis* (de Haan) Stål, 1875, p. 66.

*Lonchodes crumengensis* (de Haan) Wood-Mason, 1877, p. 346.

*Plasmania crumengensis* (de Haan) Kirby, 1904, p. 324.

*nodus* (de Haan), 1842, p. 133 q, pl. 11: 3 (*Plasma* (*Bacteria*) *nodus* - ♂ marked *sumatranus* on plate 136 is not *nodus* but a quite distinct species, with which de Haan confused it in his text). Lectotype ♂, SUMATRA: Batang Singalang (RMNH), here designated. Paralectotypes 1 ♂, without locality. "Varietes" also mentioned, from JAVA and INDONESIA: Timor. 3 further specimens, one without locality.

*Lonchodes nodus* (de Haan) Westwood, 1859, p. 37.

*Dixippus nodus* (de Haan) Stål, 1875, p. 66.

*Stalochodes nodus* (de Haan) Kirby, 1904, p. 318.

*Carausius transilius* Brunner von Wattenwyl, 1907, p. 257 q. Synonym series: SUMATRA (NHMW, No. 528). SUMATRA: Indragiri (NHMB) N.SYN.

*insignis* Brunner von Wattenwyl, 1907, p. 268 q. Holotype ♀, SUMATRA: Siak (ETHZ). [Being transferred to a new genus following discovery of the ♂]

*globosus* Brunner von Wattenwyl, 1907, p. 271 q. Lectotype ♀, MALAYSIA: [Perak] (NHMW, No. 518), here designated. Paralectotype series: 1 ♂, 1 ♀ (ZMUH).

*spinosus* Brunner von Wattenwyl, 1907, p. 274 q. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 521).

*incertus* (Brunner von Wattenwyl), 1907, p. 280 q. Synonym series: 1 ♂, 1 ♀, Locality not known - listed as MALAYSIA? (NHMW, No. 537).

#### Genus *Lonchodes* Gray, 1835

Type species: *Lonchodes brevipes* Gray, designated by Kirby, 1904, p. 321.

*brevipes* Gray, 1835, p. 19 q. Holotype ♂, "ORA MALABARENSIS" (BMNH).

*Lonchodes brevipes* Gray, Westwood, 1859, p. 36 (description of ♀).

*Lonchodes pterodactylus* Gray, 1835, p. 19 q. Holotype ♀, "INDIA ORIENTALI" (BMNH). (Synonymised by Westwood, 1859, p. 36).

*Pisomera pterodactylum* (Gray) Brunner von Wattenwyl, 1907, p. 288.

*Lonchodes sumatranus* (de Haan), 1842, p. 133 q only [of *Plasma* (*Bacteria*) *nodus*].

pl. 13: 6. (*Phasma* (*Bacteria*) *sumatranum*). Holotype ♀, SUMATRA: Bangang Singalang (RMNH), (listed as a synonym of *Lonchodes uniformis* Westwood by Brunner von Wattenwyl, 1907, p. 288).  
*Dixippus sumatranus* (de Haan) Kirby, 1896, p. 458.  
*Lonchodes uniformis* (Westwood), 1848, p. 79 ♂, pl. 39: 3 (*Phasma* (*Lonchodes*) *uniforme*). Holotype ♂, MALAYSIA: [Pulau Pinang "Prince of Wales Island"?] (OXUM, No. 571). N.SYN.

*Lonchodes uniformis* Westwood, 1859, p. 37.  
*Dixippus uniformis* (Westwood) Stål, 1875, p. 66.  
*Prisonera uniforme* Brunner von Wattenwyl, 1907, p. 288.  
[*Lonchodes jejuna* (Brunner von Wattenwyl), 1907, p. 278 ♂♀ (*Dixippus*). BORNEO (NHMW), SUMATRA: Indragiri (NHMB), (listed by Günther, 1935a, p. 125 as a synonym of *Lonchodes uniformis* Westwood - erroneous synonymy).  
*Caranusoides unicolor* (Brunner von Wattenwyl), 1907, p. 279 ♂♀ (*Dixippus*). Lectotype ♂, MALAYSIA: [Perak] here designated. Paratype series 8 ♂♂, 12 ♀♀ (NHMW, No. 533), (listed by Günther, 1935a, p. 125 as a synonym of *Lonchodes uniformis* Westwood).  
*Prisonera gestroi* Brunner von Wattenwyl, 1907, p. 289 ♂♀. Lectotype ♀, SUMATRA: Mentawai, Sipora, Serihai (MCSN), here designated. Paratype: 1 ♂, (synonymised by Günther, 1932, p. 382).  
*geniculatus* Gray, 1835, p. 19 ♂. Holotype ♂, "INDIA ORIENTALIS" (MVMA), [here transferred from the genus *Stenochodes* Kirby, which now becomes a synonym of *Lonchodes* Gray, as *geniculatus* was the type species for the genus].

*Stenochodes geniculatus* (Gray) Kirby, 1904a, p. 372.  
*Phasma* (*Bacteria*) *geniculatus* Westwood, 1848, p. 80, pl. 39: 4. Holotype ♂ MALAYSIA: [Pulau Pinang] (OXUM, No. 562) (synonymised by Westwood, 1859: 37, after nothing the likely synonymy in his original description).  
*Lonchodes thoracicum* (Brunner von Wattenwyl), 1907, p. 289 ♀ (*Prisonera*). Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 561) (synonymised by Seow-Choen, Brock & Seow-En, 1994a, p. 12) [note - Günther 1932, p. 376 incorrectly referred to *L. thoracicum* as a synonym of *Lonchodes hoesi* Kirby].

#### Genus *Menexenus* Stål, 1875

Type species: *Menexenus laevis* (Westwood) [*Phasma* (*Acanthodes*) *laevis*], 1848, p. 80, by monotypy (Stål, 1875, p. 73).  
New species description (in progress).

Genus *Prisonera* Gray, 1835 (= *Sthenoboa* Stål, 1875)

Type species: *Prisonera spiraculis* Gray, 1835, p. 15, designated by Kirby, 1904, p. 323.  
*malaya* (Stål) 1875, p. 68 ♀ (*Sthenoboa*). Holotype ♀, MALAYSIA (NHRS).  
*Prisonera malaya* (Stål) Seow-Choen, Brock & Seow-En, 1994, p. 59. (description of ♂).  
*ternicoides* (Brunner von Wattenwyl), 1907, p. 248 ♂ (*Sthenoboa*). Lectotype ♂, MALAYSIA: [Perak] (NHMW, No. 466), here designated. Paratype series 9 ♂♂ JAWA (MHNG), 1 ♂ (NHMW, No. 466) [Paratypes are clearly a different species].  
*repudias* (Brunner von Wattenwyl), 1907, p. 249 ♀ (*Sthenoboa*). Holotype ♀, MALAYSIA: [Kelantan] (NHMW, No. 469).  
*Galactia aptera* Redtenbacher, 1908, p. 492 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 947) N.SYN.

#### Subfamily HETERONEMINAE

Genus *Bactria* Kirby, 1896

Type species: *Bactria trophimus* (Westwood) [*Bacteria trophimus*], 1859, p. 30, by original designation of Kirby, 1896, p. 463.

*halleyi* Kirby, 1904a, p. 429 ♂. Holotype ♂, SINGAPORE (BMNH), [unlikely to belong to this African genus, although males are similar. Only known from the type specimen and possibly extinct].

#### Subfamily NECROSCINAE

Genus *Acacus* Brunner von Wattenwyl, 1907

Type species: *Acacus sarawaci* (Westwood) [*Bacteria sarawaci*], here designated. *sarawaci* (Westwood), 1859, p. 31 ♂♀, pl. 25: 1-2 (*Bacteria sarawaci*) [Lectotype ♀, SARAWAK (OXUM, No. 563), here designated. Paratype series: 1 ♂, 1 ♀ (OXUM), 1 ♂ (BMNH)].  
*Stenochodes sarawaci* (Westwood) Kirby, 1904, p. 317.  
*Bactria shtickensis* Wood-Mason, 1877, p. 343 ♂♀. Syntype series: 1 ♂, 1 ♀ SUMATRA: Singkep ["Sinkleb" Island (NZSI)]. (Synonymised by Günther, 1938, p. 127).  
*Stenochodes shtickensis* (Wood-Mason) Kirby, 1904, p. 317.

Genus *Anarchodes* Redtenbacher, 1908

Type species: *Anarchodes byzantii* Redtenbacher, here designated.  
*byzantii* Redtenbacher, 1908, p. 493 ♂. Holotype ♂, BORNEO (NHMW, 980).

Genus *Asceles* Redtenbacher, 1908

Type species: *Asceles malaccae* (Saussure) [*Necroscia malaccae*], here designated.  
*malaccae* (Saussure), 1868, p. 69 ♀ (*Necroscia*). Holotype ♀, MALAYSIA (MHNG).  
*brachialis* Redtenbacher, 1908, p. 498 ♀. Lectotype ♀, SUMATRA (NHMW, No. 966), here designated. Paratype series 1 ♀, West JAWA (MNHN).  
*wildii* Redtenbacher, 1908, p. 498 ♀. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 958).  
*larinda* (Westwood) 1859, p. 140 ♀ [not ♂ as stated], pl. 27: 3 (*Necroscia*). Holotype ♀, SARAWAK (OXUM, No. 635).  
*Asceles iniquitatis* Redtenbacher, 1908, p. 498 ♂♀. Lectotype ♀ SABAH: Kina-Balu, here designated. Paratype series: 2 ♂♂, 1 ♀ SABAH: Kina-Balu, 1 ♂ BORNEO: Labuan, 1 ♂, BRUNEL, 1 ♀, MALAYSIA: [Perak] (NHMW, No. 960). N.SYN. [Kina-Balu and Labuan were the only localities given by Redtenbacher, although all specimens appear to be part of his [type] series. The ♂ from Labuan is a *Sostia* species and, therefore, misidentified].  
*glaber* Günther, 1938, p. 135 ♂♀. Syntype series: 3 ♂♂, 2 ♀♀ BURMA: Tavoy, 1 ♂ "NEW GUINEA: Andai" [likely to be an incorrect data label], 2 ♀♀ MALAYSIA: [Perak] (NZSI).

New species descriptions (in progress).

Genus *Catvrisa* Stål, 1875

Type species: *Catvrisa sangaris* (Westwood) [*Necroscia sangaris*], designated by Rehn, 1904, p. 71.  
*henus* (Westwood), 1859, p. 154 ♂, pl. 16: 3 (*Necroscia*). Holotype ♂, MALAYSIA (OXUM, No. 647).  
*Catvrisa tricolor* Redtenbacher, 1908, p. 570 ♀. Lectotype ♀, SUMATRA (NHMW, No. 1161), here designated. Paratype series: 1 ♀, BRUNEL (MHNG). N.SYN.  
*Mammossoides hemis* (Westwood) Redtenbacher, 1908, p. 513.  
*sangaris* (Westwood), 1859, p. 155 ♂♀, pl. 17: 6 & pl. 35: 5 (♂ & ♀ "var.", see below) (*Necroscia*). Lectotype ♀, MALAYSIA: Mt. Ophir [Johor] (OXUM, No. 681), here designated. Paratype series: 1 ♂, MALAYSIA: [Pulau Pinang] (ZMUC), 1 ♂, 1 ♀ "varieties" SARAWAK (OXUM, No. 681).  
*Catvrisa commutata* Redtenbacher, 1908, p. 568 ♂. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 1164) N.SYN. [Redtenbacher also included the ZMUC ♂ *Catvrisa sangaris* as this species].

nribius Westwood, 1859, p. 154 f, pl. 16: 2 (Necrosia). Holotype ♂, MALAYSIA (OXUM, No. 676). (a valid species - Kirby, 1904, p. 370, erroneously listed *C. viribus* as a synonym of *Catista hilaris* (Westwood)) from India, i.e. confirming comments by Wood-Mason, 1877, p. 350]

*Catista westermanni* (Westwood), 1859, p. 157 f, pl. 38: 3 (Necrosia). Holotype ♀, MALAYSIA: [Pulau Pinang] (ZMUC). N.SYN.

*Catista pallifrons* Redtenbacher, 1908, p. 570 g. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 1152) N.SYN.

*conticipennis* (Bates), 1865, p. 358 g (Necrosia). Holotype ♀, SUMATRA (OXUM, No. 638). Here transferred from the genus *Asclis* Redtenbacher]

*Trigonophasma conticipennis* (Bates) Kirby, 1904, p. 372.

*Asclis conticipennis* (Bates) Redtenbacher, 1908, p. 496.

*Catista maculata* Kirby, 1904a, p. 435 g. Holotype ♀, MALAYSIA: [Pulau Pinang] (BMNH). (synonymised by Braeg, 1993, p. 32).

*Asclis acutigibbosus* Redtenbacher, 1908, p. 496 f. Lectotype ♀, SABAH: Kina-Balu. Paralectotype series: 2 ♂♂, BORNEO, 1 ♂ SABAH: Kina-Balu (NHMW, No. 950). (synonymised by Braeg, 1993, p. 32).

*charissima* Redtenbacher, 1908, p. 568 g. Lectotype ♀, MALAYSIA: [Perak] (NHMW, No. 1150), here designated. Paralectotype 1 ♀.

*coerulescens* Redtenbacher, 1908, p. 570 g. Lectotype ♀, MALAYSIA: [Perak] (NHMW, No. 1151), here designated. Paralectotype series: 2 ♀♀.

[*Catista coerulescens* Redtenbacher - Hennemann, 1995. Description of ♂ and redescription of ♀, misidentification, relates to *Catista viribus* Westwood].

Genus *Centrophasma* Redtenbacher, 1908  
*Centrophasma spinosum* (Saussure) [Lopphus spinosus], here designated. spinozum (Saussure), 1868, p. 68 d (Lopphus spinosus). Holotype ♂, MALAYSIA (MHNG).

*Candatus spinosus* (Saussure) Kirby, 1904, p. 367.

*infemale* Redtenbacher, 1908, p. 489 g. Holotype ♂, MALAYSIA (NHMW, No. 941).

Genus *Diacanthoidea* Redtenbacher, 1908  
Typespecies: *Diacanthoidea diacanthos* (de Haan) [Phasma (Necrosia) diacanthos], here designated. diacanthos (de Haan), 1842, p. 119 g (Phasma (Necrosia)). Holotype ♀, BORNEO: Pontanak (RMNH). (Note - not figured on plate 15 as stated by de Haan).

*Necrosia diacanthos* (de Haan) Westwood, 1859, p. 128, pl. 19: 5 & 6, (description of ♂).

*Agonidaisida diacanthos* (de Haan) Kirby, 1904, p. 373.

*Agonidaisida malaccensis* Kirby, 1904, p. 373. (Note - new name given by Kirby for *diacanthos* figured by Westwood, 1859, p. 128, 181, pl. 19: 5-6). N.SYN.

*Diacanthoidea submarginata* Redtenbacher, 1908, p. 532 g. Syn-type series: 2 ♂♂ SUMATRA: Iles de Sonde (MHNG); MALAYSIA: [Perak, Pulau Pinang] (NHMW, No. 1057) (ZMUC) - not traced. N.SYN.

Genus *Diardia* Redtenbacher, 1908  
Type species: *Diardia diardi* (de Haan) [Phasma (Cidaxerax) diardi], here designated. diardi (de Haan), 1842, p. 131 f, pl. 12: 6 (Phasma (Cidaxerax)). Holotype ♂, BORNEO: Pontanak (RMNH).

*Phithosoma diardi* (de Haan) Westwood, 1859, p. 76.

*Candatus diardi* (de Haan) Kirby, 1904, p. 367.

*Diardia diardi* (de Haan) Redtenbacher, 1908, p. 485. (description of ♂).

*Diardia signata* Redtenbacher, 1908, p. 485 f. Syn-type series: 1 ♂, SUMATRA: Si-Rambé (MCSN). SABAH: Kina-Balu (NHMW, No. 937, ZMAS). N.SYN.

*Diardia semilobata* Redtenbacher, 1908, p. 486 f. Lectotype ♂, MALAYSIA: [Perak].

here designated. Paralectotype series: 1 ♂, 2 ♀♀ (NHMW, No. 927). N.SYN. [see *Diesbachia tamyris* (Westwood) for details of 2 ♀♀ Paralectotypes]

*Diesbachia tamyris* (Westwood), 1859, p. 110 f, pl. 38: 2 (Cyplocrantha). Holotype ♂, MALAYSIA: [Pulau Pinang] (ZMUC).

*Sasibia tamyris* (Westwood) Kirby, 1904, p. 369.

*Diardia granicollis* Redtenbacher, 1908, p. 487 g. Holotype ♀, SUMATRA: Sibulangit (NHMW, No. 930). N.SYN.

Genus *Diesbachia* Redtenbacher, 1908  
Type species: *Diesbachia tamyris* (Westwood) [Cyplocrantha tamyris], here designated. tamyris (Westwood), 1859, p. 110 f, pl. 38: 2 (Cyplocrantha). Holotype ♂, MALAYSIA: [Pulau Pinang] (ZMUC).

*Sasibia tamyris* (Westwood) Kirby, 1904, p. 369.

[*Diardia semilobata* Redtenbacher, 1908, p. 486 f. 2 ♀♀ Paralectotypes misidentified MALAYSIA: [Perak] (NHMW, No. 927)]

Genus *Gargantioidea* Redtenbacher, 1908  
Type species: *Gargantioidea gargantia* (Westwood) [Necrosia gargantia], here designated. gargantia (Westwood), 1859, p. 130 g, (♂ stated in error) pl. 29: 3 (Necrosia). Holotype ♀, SARAWAK (OXUM, No. 639).

*Arminioidea gargantia* (Westwood) Brunner von Wattenwyl, 1893, p. 84.

*Gargantioidea gargantia* (Westwood) Redtenbacher, 1908, p. 502. (description of ♂).

*Necrosia phlaetusa* Westwood, 1859, p. 137 f, pl. 38: 4. Holotype ♂, SARAWAK (OXUM, No. 637). (synonymised by Kirby, 1904, p. 378. *Necrosia gargantia* had been listed as a synonym of *Necrosia phlaetusa* by Wood-Mason, 1877, p. 349).

*trimpialis* Redtenbacher, 1908, p. 502 g, pl. 26: 1. Syn-type series: 1 ♀, SUMATRA: Glen Beroi, Benden Langkat (ZMHB). MALAYSIA: [Perak]. JAYA (NHMW, No. 978).

*ressellata* Redtenbacher, 1908, p. 502 g. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 977).

Genus *Lopaphus* Westwood, 1859  
Type species: *Lopaphus brachypterus* (de Haan) [Phasma brachypterrum], designated by Kirby, 1904, p. 360.

*brachypterus* (de Haan), 1842, p. 125 g, pl. 13: 2 (Phasma brachypterrum). Holotype ♀, SUMATRA Bahang Singalang (RMNH).

*Candatus brachypterus* (de Haan) Redtenbacher, 1908, p. 540.

*Candatus jolas* (Westwood) Redtenbacher, 1908, p. 539 (spelling mistake).

*Candatus spinosus* Stål, 1875, p. 87 g. MALAYSIA (NHMW - not traced). (synonymised by Wood-Mason, 1877, p. 347).

*perakensis* (Redtenbacher), 1908, p. 478 f. (Paranyonides). Lectotype ♀, MALAYSIA: [Perak] (NHMW, No. 907), here designated. Paralectotype series: 9 ♂♂, 5 ♀♀. [here transferred from the genus *Paranyonides* Redtenbacher]

New species descriptions (in progress)  
Genus *Loxopsis* Westwood, 1859  
Type species: *Loxopsis conocephalum* (de Haan) [Phasma conocephalum], by monotypy (Westwood, 1859, p. 117).

New species description (in progress).  
Type species: *Marmessoides marmessus* (Westwood) [Necrosia marmessus], by original

designation (Brunner von Waterbury, 1893, p. 86).  
*rosae* (Fabricius) 1793, p. 16 [sex not recorded] (*Mantis*). Holotype ♂, "INDIA ORIENTALI" (ZMUC).

*Plusia roseana* (Fabricius) Lichtenstein, 1802, p. 14.  
*Platygramma rufifasci* Gray, 1835, p. 37 [sex not stated]. Holotype ♂, SUMATRA (BMNH), synonymised by Kirby, 1904, p. 371.

*Plusia (Nectrosia) rufifasci* (Gray) de Haan, 1842, p. 121.

*Nectrosia maritimus* Westwood, 1859, p. 149 ♂♀, pl. 19: 1 & 2. Lectotype ♂, MALAYSIA, here designated (OXUM, No. 645). Paracotype series: 1 ♀, MALAYSIA (OXUM, No. 645), 1 ♂, 1 ♀, SUMATRA, 1 ♂ [No locality], 1 ♂ ["Sing" on data label = Singapore? Appears to be part of type series, but not specified from this locality by Westwood] (BMNH). (Synonymised by Kirby, 1904, p. 371). [also mentioned from SARAWAK, Westwood's "variety" (see p. 150 and pl. 29: 4), which he stated would be known as *Ple. eurypalpis* if found to be a distinct species, a synonym of *Marmessoides quadriguttatum* (Burmeister)]

*Marmessoides maritimus* (Westwood) Rehn, 1904, p. 73.  
*corydon* (Westwood), 1859, p. 146 ♂, pl. 34: 1 (*Nectrosia*). Holotype ♂, MALAYSIA: Pulau Pinang (ZMUC).

*Marmessoides corydon* (Westwood) Rehn, 1904, p. 73 (description of ♀).

*Marmessoides perakensis* Redtenbacher, 1908, p. 514 ♂. Lectotype ♂, MALAYSIA: [Perak] (NHMW, No. 1001), here designated. Paracotype: 1 ♂, N.SYN.  
*Nectrosia filipes* Redtenbacher, 1908, p. 559 ♂. Lectotype ♂, MALAYSIA: [Perak] (NHMW, No. 1126), here designated. Paracotype series: 3 ♂♂. N.SYN.  
[likely to belong to another genus - research in progress]

#### Genus *Nectrosia* Audinet-Serville, 1838

Type species: *Nectrosia roseipennis* Audinet-Serville, designated by Kirby, 1904, p. 374.  
*marginita* (Gray), 1835, p. 23 ♀ (*Plusia marginita*). Holotype ♀, "ORA MALABARIENSIS" (BMNH).

*Arianaoides marginita* (Gray) Redtenbacher, 1908, p. 525.  
*punctata* (Gray), 1835, p. 37 ♂ (*Platygramma*). Holotype ♂, "INDIA ORIENTALI" (BMNH). [Nectrosia punctata (Gray) Westwood, 1859, p. 142 (description of ♀ - misidentification, see *Nectrosia westwoodi* below)].

*Arianaoides punctata* (Gray) Redtenbacher, 1908, p. 528. (description of ♀).  
*Arianaoides tenera* (Redtenbacher), 1908, p. 528 ♂♀. Synonym series: 1 ♂, SUMATRA: Medan (ZMH), MALAYSIA: [Perak], JAVA (NHMW, No. 1045) N.SYN.  
[*Nectrosia biserialis* Redtenbacher, 1908, p. 528 ♂♀ (*Arianaoides*). JAVA, SUMATRA: Is. Engano (NHMW, No. 1046, MCSN, ISNB). (synonymised by Günther, 1935, p. 13 - erroneous synonymy)]

*Nectrosia chloë* Günther, 1935, p. 20 ♂. Holotype ♂, BORNEO: Rajah River (NHRS). N.SYN. [There are several specimens in RMNH collection labelled by Günther as *Nectrosia tenera chloë*]

*affinis* (Gray), 1835, p. 37 ♂ (*Platygramma*). Holotype ♂, INDIA (BMNH).  
*Arianaoides affinis* (Gray) Redtenbacher, 1908, p. 525. (description of ♀).  
*Arianaoides pallida* Redtenbacher, 1908, p. 524 ♂♀. Synonym series: 1 ♂, 1 ♀, SABAH: Kina-Balu (NHMW, No. 1030) (MNHN). (synonymised by Günther, 1935, p. 13).  
*Arianaoides confusa* Redtenbacher, 1908, p. 528 ♂. Holotype ♂, SINGAPORE (NHMW, No. 1037). N.SYN.

*Arianaoides fragilis* Redtenbacher, 1908, p. 528 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 1049). N.SYN.  
*Arianaoides dispersa* Redtenbacher, 1908, p. 528 ♂♀. Synonym series: 1 ♂, 1 ♀, SUMATRA: Palembang, 4 ♂♂, MALAYSIA: [Perak], 3 ♂♂, 1 ♀, Kuala Kangsar [Perak] All syntypes? (ZMUH). N.SYN.

*annulipes* (Gray), 1835, p. 37 ♀ (*Platygramma*). Holotype ♀, "INDIA ORIENTALI" (BMNH).  
*Plusia annulipes* (Gray) de Haan, 1842, p. 118.

*Nectrosia annulipes* (Gray) Westwood, 1859, p. 150. (description of ♂).  
*Arianaoides annulipes* (Gray) Redtenbacher, 1908, p. 527.

*Nectrosia pictipes* Bates, 1855, p. 352 ♀. Holotype ♀, CAMBODIA: Chantaboun (OXUM, No. 652). N.SYN.  
*Arianaoides pictipes* (Bates) Redtenbacher, 1908, p. 524.  
*Arianaoides pictipes* (Bates) Redtenbacher, 1908, p. 524.

*Arianaoides roseipennis* (Serville) Redtenbacher, 1908, p. 526.

*Plusia pristinum* Burmeister, 1838, p. 586 ♀. Lectotype ♀, BORNEO (ZMH), here designated. Paracotype ♀: JAVA (not traced). (synonymised by Redtenbacher, 1908, p. 526 - see below for change of name).  
*Nectrosia burmeisteri* Westwood, 1859, p. 151. (New name for Burmeister's species, as a *Plusia pristinum* had already been described by Audinet-Serville, 1838, p. 272).  
*Arianaoides comera* Redtenbacher, 1908, p. 525 ♀. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 1032). N.SYN.

*westwoodi* Kirby, 1904, p. 376. (New name for *Nectrosia punctata* ♀ figured by Westwood - see below).  
*Nectrosia punctata* (Gray) Westwood, 1859, p. 142 ♀ only, pl. 29: 5. SINGAPORE (BMNH).

*Arianaoides liturata* (Redtenbacher), 1908, p. 527 ♂♀. Lectotype ♂, MALAYSIA: [Perak], here designated. Paracotype: 1 ♀ (NHMW, No. 1048). N.SYN.  
*Sphyliodes biserialis* Redtenbacher, 1908, p. 548 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 1101). N.SYN.

*inflata* (Redtenbacher), 1908, p. 526 ♂♀ (*Arianaoides*). Synonym series: 2 ♂♂, 1 ♀, SUMATRA: Palembang, 1 ♀, SUMATRA: Deli (ZMUH), MALAYSIA, SUMATRA: Is. Nias (NHMW, No. 1039).

#### Genus *Nectrosoides* Karry, 1923

Type species: *Nectrosoides lampetia* (Westwood) [Nectrosia lampetia], 1859, p. 137, designated by Karry, 1923, p. 241.  
*extesa* (Redtenbacher), 1908, p. 519 ♂ (*Arianaoides*). Holotype ♂, MALAYSIA (NHMW, No. 1027).

Genus *Neodides* Uvarov, 1940 (= *Neodes* Sahl, 1875)  
Type species: *Neodides simyra* (Westwood) [*Ceroxylus simyra*], 1859, p. 105, by indication (Sahl, 1875, p. 59).  
*magnistralis* (Redtenbacher), 1908, p. 505 ♀ (*Neodes*). Lectotype ♀, SUMATRA: Indragiri (NHMW, No. 985) here designated. Paracotype ♀ (NHMB).

Genus *Orthonecrosia* Kirby, 1904  
Type species: *Orthonecrosia filum* (Westwood) [*Plusia (Nectrosia) filum*], by original designation of Kirby, 1904, p. 374.  
*filum* (Westwood), 1848, p. 79 ♂, pl. 39: 2 (*Plusia (Nectrosia)*). Holotype ♂, MALAYSIA: Pulau Pinang (OXUM, No. 671).

*Philabozona filum* Westwood, 1859, p. 77.  
*Ocellia filum* (Westwood) Redtenbacher, 1908, p. 554. (description of ♀).  
*Arianaoides ophiditerma* Griffith, 1897, p. 307 ♂♀. Lectotype ♂, MALAYSIA: [Perak], here designated. Paracotype: 1 ♀ (RMTO). (synonymised by Redtenbacher, 1908, p. 554).  
*Ocellia trifasciata* Redtenbacher, 1908, p. 554 ♀. MALAYSIA: Pulau Pinang (ETHZ). N.SYN.

Genus *Paramnecrosia* Redtenbacher, 1908  
Type species: *Paramnecrosia opercularis* Redtenbacher, here designated.  
*opercularis* Redtenbacher, 1908, p. 557 ♂♀. Synonym series: 4 ♂♂, 7 ♀♀ BORNEO: Labuan,

SABAH: Kina-Balu BRUNEL, JAVA, SUMATRA: Mt. Batak (NHMW, No. 1123). NEW GUINEA: Stephensort (a likely misidentification) (FNHM - lost in fire).

Genus *Parasiptolidea* Redtenbacher, 1908

Type species: *Parasiptolidea acuta* Redtenbacher, 1908, p. 480, designated by Vickery, 1983, p. 9.

Genus *Phaenopharos* Kirby, 1904

Type species: *Phaenopharos struthionensis* (Westwood) [*Lampyrus struthionensis*], by original designation (Kirby, 1904, p. 433).  
*struthionensis* (Westwood), 1859, p. 101 q, pl. 34:3 (*Lampyrus*). Lectotype ♂, SINGAPORE (BMNH), here designated. Paratype ♂, No. locality (BMNH).  
*Caridites rex* Brunner von Wattenwyl, in litt. (in Redtenbacher, 1908, p. 530) [*Chersas struthionensis* (Westwood) Redtenbacher, 1908, p. 530. (Brief supposed description of ♂ - the figure on pl. 26: 2 is clearly of another species from Sumatra).] *Diaridia presians* Redtenbacher, 1908, p. 487 ♂. Lectotype ♂, SUMATRA: Deli (NHMW, No. 992), here designated. Paratype series: MALAYSIA: Pulau Pinang (NHMB) N.SYN.

Genus *Scotoneca* Kary, 1923

Type species: *Scotoneca osmyllis* (Westwood) [*Nectrosia osmyllis*], 1859, p. 135, by original designation (Kary, 1923, p. 241).  
*microptera* (Redtenbacher), 1908, p. 520 ♂ (*Arumoides*). Holotype ♂, MALAYSIA: Kuala Kangsar [Perak] (NHMW, No. 1034).

Genus *Sipylolidea* Brunner von Wattenwyl, 1893

Type species: *Sipylolidea sipylus* (Westwood) [*Nectrosia sipylus*], by original designation (Brunner von Wattenwyl, 1893, p. 86).  
*sortida* (de Haan), 1842, p. 120 g (*Phasma* [*Nectrosia*] *sortidum*). Holotype ♀, SUMATRA: Batang Singalang (BMNH).  
*sipylus* (Westwood), 1859, p. 138 d♀, pl. 18: 4 (*Nectrosia*). Lectotype ♀, JAVA (BMNH), here designated. Paratype series: 1 ♀ INDIA: Assam (OXUM, No. 660); 1 ♂ and probably 4 ♀♀ not marked "co-type" [INDIA: Silhet (BMNH)]. Inco - Paratypes from India may represent a different species - It is clear that Westwood was referring to several specimens and various specimens from India in OXUM could be additional to the labelled type series e.g. a ♂ from Silhet is marked "sipylus, var." by Westwood [*Nectrosia samso* Westwood, 1859, p. 132, pl. 10: 6 CHINA (BMNH) was listed by Redtenbacher, p. 544, as a synonym. If the species are synonymous, *N. samso* would take priority. I am not satisfied that *S. sipylus* is identical to *N. samso*].  
*menepiolentus* (Westwood), 1859, p. 141 ♂, pl. 19: 4 (*Nectrosia*). Holotype ♂, SINGAPORE (OXUM, No. 667).

*Arumoides frata* Redtenbacher, 1908, p. 523 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 1009). (Synonymised by Seow-Choen, Brock & Seow-Eh, 1994b, p. 10).  
*Sipylolidea bistriolata* Redtenbacher, 1908, p. 547 ♂ synonym only from MALAYSIA: Pulau Pinang], not ♀ from SRI LANKA. (NHMW, No. 1095, includes ♂ only from Pulau Pinang, not all ♀♀ as stated). - misidentification!  
*Sipylolidea subtilis* Redtenbacher, 1908, p. 547 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 1098). (Synonymised by Seow-Choen, Brock & Seow-Eh, 1994b, p. 10).  
*Sipylolidea caritica* Redtenbacher, 1908, p. 547 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 1099). N.SYN.  
*Sipylolidea bivitt* Redtenbacher, 1908, p. 549, ♀. SINGAPORE (FNHM - lost in fire). N.SYN.

*magua* Redtenbacher, 1908, p. 549 ♀. Holotype ♀, MALAYSIA: [Perak] (ZMHF).

Genus *Sostiba* Stål 1875

Type species: *Sostiba nigripinna* Stål, designated by Rehn, 1904, p. 71.  
*curripes* (Westwood), 1848, p. 79 q, pl. 39: 1 (*Phasma* [*Nectrosia*]). Holotype ♀, MALAYSIA: Pulau Pinang] (OXUM, No. 657).  
*Sostiba curripes* (Westwood) Stål, 1875, p. 87.  
*Nectrosia asopus* Westwood, 1859, p. 129 ♂, pl. 16: 5. Holotype ♂, MALAYSIA (OXUM, No. 656). N.SYN.  
*esacus* (Westwood), 1859, p. 132 q, pl. 16: 4 (*Nectrosia*). Holotype ♀, SINGAPORE (OXUM, No. 662).

*Sostiba esacus* (Westwood) Redtenbacher, 1908, p. 537. (description of ♂).  
*Sostiba fulvifera* Redtenbacher, 1908, p. 536 ♂. Lectotype ♂, MALAYSIA: Kuala Kangsar, [Perak], here designated. Paratype ♂, 1 ♂ (NHMW, No. 10669). N.SYN.  
*nigripinna* Stål, 1875, p. 87 q. MALAYSIA (NHRS - not traced).  
*Sostiba peninsularis* Kirby, 1904, p. 434 q. Holotype ♀, MALAYSIA: [Pulau Pinang] (BMNH). N.SYN.  
[*Sostiba curripes* (Westwood) Günther, 1943, p. 161 - erroneous synonym of *S. peninsularis*].  
*Prandianthia aeneicollis* Redtenbacher, 1908, p. 506 ♂. Holotype ♂, MALAYSIA: [Perak] (NHMW, No. 989). N.SYN.  
[*Marnessoides flavomarginata* Redtenbacher, 1908, p. 512 ♂ INDIA: Darjeeling (MNHN) synonymised by Günther, 1938, p. 133 - erroneous synonym of *P. aeneicollis*].  
*Sostiba mitchell* Redtenbacher, 1908, p. 535 q. SUMATRA: Indragiri (NHMB). N.SYN.  
*solida* Redtenbacher, 1908, p. 536 q. Holotype ♀, MALAYSIA (MNHN).  
*muzeza* Redtenbacher, 1908, p. 536 d♀. Lectotype ♀, BRUNEL (NHMW, No. 975), here designated. Paratype series: BORNEO (ZMHB - not traced). 1 ♀ [paratype ♂?] North BORNEO (ISNB).

Tagasoidae Redtenbacher, 1908

Type species: *Tagasoides tagas* (Westwood) [*Nectrosia tagas*], here designated.  
*tagas* (Westwood), 1859, p. 152 q (not ♂ as stated), pl. 18: 1 (*Nectrosia*). Holotype ♀, "INDIA ORIENTALIS" (OXUM, No. 675).  
*Calistia tagas* (Westwood) Kirby, 1904, p. 370.  
*Tagasoides tagas* (Westwood) Redtenbacher, 1908, p. 565. (description of ♂).  
*nigrofasciata* Redtenbacher, 1908, p. 565 ♂, pl. 27: 7. Lectotype ♂, BORNEO (NHMW, No. 1147), here designated. Paratype ♂, 1 ♂, SUMATRA: Deli (ZMUH).  
*Euryneura fasciata* Dohrn, 1910, p. 413 q. Synonym? ♀, BORNEO (ZMFA - possibly not main specimen described). (listed as synonym of *B. schneideri* by Günther, 1943, p. 165).  
*Balanoschneideri* Werner, 1918, p. 267 q. Holotype ♀, SUMATRA: Mt. Batak (MHNG). (synonymised by Brock, 1990, p. 14).

Trachythorax Redtenbacher, 1908

Type species: *Trachythorax mactricollis* (Westwood) [*Phasma* (*Nectrosia*) *mactricollis*], 1848, p. 77, here designated.  
*astrospiniatus* (Brunner von Wattenwyl), 1893, p. 85 d♀, pl. 3: 27 (*Calistia astrospiniata*). Synonym series: BURMA: Bhamo, Meant, [Tanasserim] 1 ♂ 1 ♀ (MCSN). SUMATRA (NHMW, No. 991). [not a synonym of *Trachythorax mactricollis* (Westwood) as stated by Rehn, 1904, p. 72].

Trigonophasma Kirby, 1904

Type species: *Trigonophasma ribescens* (Saunders) [*Nectrosia ribescens*], by original designation (Kirby, 1904a, p. 436).  
*ribescens* (Saunders), 1868, p. 68 q (*Nectrosia*). Holotype ♀, MALAYSIA (MHNG) (description

of ♂, 1869: 136).  
*Marrissoides rubescens* (Saussure) Redtenbacher, 1908, p. 511. [Described from Malaysia, but I have only seen specimens from BORNEO, where this species is likely to be restricted]

Family PHASMATIDAE Subfamily PHASMATINAE

Genus *Baculum* Saussure, 1861

Type species: *Baculum ramosum* (Saussure) [*Baculum* (*Baculum*) *ramosum*], 1861, p. 127, by monotypy.  
*hematodes* (de Haan), 1842, p. 132 ♂, pl. 11: 6 (*Phasma* (*Bacteria*)). Lectotype ♂, JAVA, Bogor [Buitenzorg] (RMNH), here designated. Paralectotypes: 2 ♂♂, also 3 ♂♂ of a smaller "variety", possibly a distinct species.  
*Lonchodes hematodes* (de Haan), Westwood, 1859, p. 42, pl. 5: 7.  
*Cuniculina hematodes* (de Haan), Brunner von Wattenwyl, 1907, p. 206. (description of ♀)  
*Baculum vulgus* (Wood-Mason), 1872a, p. 487 ♀. (*Lonchodes*). Holotype ♀, MALAYSIA: [Perak] (NZS), (synonymised by Seow-Choen, Brock & Seow-Eh, 1994b, p. 10).  
*Hemignis vulgus* (Wood-Mason), Kirby, 1904, p. 323.  
*Baculum insuetum* (Brunner von Wattenwyl), 1907, p. 202 ♀ (*Cuniculina insuetula*). Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 347), NSYN.  
*Baculum malaccensis* (Brunner von Wattenwyl), 1907, p. 204 ♀ (*Cuniculina*). Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 362), NSYN.  
*Baculum electum* (Brunner von Wattenwyl), 1907, p. 205 ♀ (*Cuniculina electa*). Syntype series: 1 ♀ SUMATRA: Assahan, 1 ♀ SUMATRA: Sak (ETHZ, NSYN).  
*serripidum* (Brunner von Wattenwyl), 1907, p. 190 ♂♀, pl. 7: 3 (*Ciliannus*). Syntype series: JAVA, MALAYSIA: [Pulau Pinang], BORNEO (NHMW, No. 315), HNHM - lost in fire) 1 ♀ JAVA (ANSP).

Genus *Erringtonia* Brunner von Wattenwyl, 1907

Type species: *Erringtonia malaccensis* Brunner von Wattenwyl, by monotypy.  
*malaccensis* Brunner von Wattenwyl, 1907, p. 212 ♀, pl. 9: 2. MALAYSIA (MNHN - not traced).

Genus *Eurycnema* Audinet-Serville, 1838

Type species: *Eurycnema versifibra* (Audinet-Serville) [*Cyphocrania* (*Eurycnema*) *versifibra*], designated by Kirby, 1904, p. 391.  
*versifibra* (Audinet-Serville), 1838, p. 235 ♀ (*Cyphocrania* (*Eurycnema*)). Holotype ♀, Locality not known - labelled "Bres" [BRAZIL], clearly in error (OXUM, No. 630).  
*Eurycnema versifaciter* (Serville), 1838, p. 235 ♀ (*Cyphocrania* (*Eurycnema*)). Locality not known (Compte Dejean collection - ex. OXUM, specimen not traced). NSYN.  
*Cyphocrania herculeana* Charpentier, 1845, pl. 1 ♀ (& text description). Holotype ♀?, JAVA (ZMHB) - specimen not in full agreement with figure). (synonymised by Westwood, 1859, p. 107).  
*Eurycnema herculeana* (Charpentier) Bruun, 1898, p. 147.  
*Cyphocrania hamitschi* Sharp, 1898, p. 89 ♀, pl. 9: 39. JAVA? (see Hantsch, 1902, p. 381a; same species referred to later by Sharp (personal correspondence) as *Cyphocrania herculeana*). [Brock (in progress) discusses the treatment of *Eurycnema* species e.g. Vickerly (1983) listed the Asian species above as synonyms of *Eurycnema goliath* Gray].

Genus *Nearchus* Redtenbacher, 1908

Type species: *Nearchus gruberi* Redtenbacher, here designated.  
*gruberi* Redtenbacher, 1908, p. 448 ♀. Holotype ♀, MALAYSIA: [Perak] (NHMW, No. 857).

Genus *Pharmacia* Stål, 1877

Type species: *Pharmacia ponderosa* Stål, 1877, p. 40, designated by Kirby, 1904, p. 359.

*serripipes* (Gray), 1835, p. 42 ♂ (*Cladocerus*). Holotype ♂, "Malabar" (BMNH).

*Philalosoma serripipes* (Gray) Westwood, 1859, p. 75.

*Pharmania serripipes* (Gray) Kirby, 1896, p. 450. (description of ♀ from BORNEO) - misidentification, subsequently described as *Pharmania kirbyi* (Brunner von Wattenwyl) [*Phobeticus kirbyi*], 1907, p. 185]

*Phasma* (*Bacteria*) *acanthopus* Burmeister, 1838, p. 565 ♀. Holotype ♀, SINGAPORE (ZMHB). (synonymised by Kirby, 1904, p. 359).

*Phasma* (*Cladocerus*) *acanthopus* (Burmeister) de Haan, 1842, p. 131.

*Philalosoma acanthopus* (Burmeister) Westwood, 1859, p. 190.

*Pharmania acanthopus* (Burmeister) Redtenbacher, 1908, p. 454.

*trichus* (Westwood), 1859, p. 75 ♂, pl. 37: 3 (*Philalosoma*). Holotype ♂, MALAYSIA (OXUM, drawer 47).

*Trachoides trichus* (Westwood) Kirby, 1904, p. 359.

*pinnipes* Redtenbacher, 1908, p. 452 ♂. MALAYSIA: [Selangor] (MNHN - not traced).

Genus *Trachoides* Brunner von Wattenwyl, 1893

Type species: *Trachoides canthori* (Westwood) [*Philalosoma canthori*], designated by Rehn, 1904, p. 70.

*canthori* (Westwood), 1859, p. 74 ♂♀, pl. 37: 1-38: 1 (*Philalosoma*). Lectotype ♂, MALAYSIA, here designated. Paralectotype 1 ♀, (OXUM, No. 621).

*Pharmania canthori* (Westwood) Redtenbacher, 1908, p. 450.

ARCOLATAE

Family RACILLIDAE Subfamily HETEROPTERYGINAE

Genus *Datames* Stål, 1875

Type species: *Datames oleus* (Westwood) [*Acanthiderus oleus*], designated by Rehn, 1904, p. 89.

*monholti* (Bates), 1865, p. 342 ♀ (*Acanthiderus*). Holotype ♀ (nymph), CAMBODIA: Chantabon (OXUM, No. 498).

*Datames oleus* (Westwood), 1859, p. 53 ♀ nymph, pl. 26: 4 (*Acanthiderus*). Holotype ♀, JAVA (BMNH).

*Acanthiderus ginnidus* Bates, 1865, p. 343 ♀. Holotype ♀, INDONESIA: Is. of Gilolo (Moluccas) (OXUM, No. 497). (synonymised by Günther, 1934, p. 76).

*Datames aequalis* Rehn, 1904, p. 89 ♀. Holotype ♀, INDONESIA: Obi Island. [Moluccas] (USNN). (synonymised by Günther, 1934, p. 76).

*Datames mitratus* Redtenbacher, 1906, p. 50 ♂♀, pl. 1: 16. Lectotype ♀, MALAYSIA: [Perak] (NHMW, No. 46), here designated. Paralectotype series: 1 ♀, INDONESIA: N. Celebes (ZMHB). (synonymised by Günther, 1934, p. 76) [♂ not traced].

*Datames cylindripes* Redtenbacher, 1906, p. 51 ♀. Lectotype ♀, JAVA (MNHN), here designated. Paralectotype series (number not known): ♀, (ZMAS). Locality not known [HNHM - destroyed in fire] (synonymised by Günther, 1934, p. 76).

*Datames orientinus* Redtenbacher, 1906, p. 51 ♂♀. Lectotype ♀, MALAYSIA: (NHMW, No. 49), here designated. Paralectotype series: 1 ♂, 1 ♀ SUMATRA: Mentawai, Sipora, Seritau, 1 ♂ Mentawai, Si Oban (MCSN). 1 ♀, SUMATRA: Mt. Batak (NHMW, No. 49). (synonymised by Günther, 1934, p. 76).

*Dares fulvica* Werner, 1934, p. 1 ♀. Holotype ♀, SUMATRA: Medan (NHMW, No. 56). (synonymised by Günther, 1934, p. 76).

Genus *Haaniella* Kirby, 1904

Type species: *Haaniella muelleri* (de Haan) [*Phasma* (*Heteropteryx*) *muelleri*], by original designation (Kirby, 1904a, p. 444).  
*muelleri* (de Haan), 1842, p. 108 ♂♀, pl. 11: 4 & 5 (*Phasma* (*Heteropteryx*)). Lectotype ♂, SUMATRA: Batang Singalang, here designated. Paralectotypes 1 ♂ 1 ♀ (nymph).



1 nymph (sex not known) 2 ♀♀ "varieties" (RMNH).  
*Heteropteryx rosenbergii* Kaup, 1871, p. 35 ♀, pl. 2: 2. JAVA (FLDHD). (listed as a synonym of *Hannella muelleri* by Günther, 1944, p. 72).  
*Hannella rosenbergii* (Kaup) Kirby, 1904, p. 397.  
*Hannella eritrigioniae* (Redtenbacher), 1906, p. 169 ♀ (*Heteropteryx*). Holotype ♀, MALAYSIA (MNHN). (synonymised by Günther, 1944, p. 72; i.e. listed as a subspecies of *H. muelleri* in my view without justification for subspecies status)  
*Hannella eritrigioniae monoguinia* Günther, 1930, p. 737 ♀♀, figs. 4 & 5. Holotype ♀, NEW GUINEA, Sahelberg. Paratype: 1 ♂ (ZMUIH). (synonymised by Günther, 1935, p. 124 - data label probably incorrect).  
*Hannella muelleri simplex* Günther, 1944, p. 72 ♀. Holotype ♀, SUMATRA: Tebing-Tinggi (RMNH). (treated as a subspecies).  
*Leocrates glaber* Redtenbacher, 1906, p. 167 ♀. Holotype ♀, SUMATRA (MHNG). NSYN.  
*Heteropteryx glaber* (Redtenbacher) Karny, 1923, p. 234.

Genus *Heteropteryx* Gray, 1835

Type species: *Heteropteryx dilatata* (Parkinson) [*Plasma dilatatum*], by monotypy (Gray, 1835, p. 32).  
*dilatata* (Parkinson), 1798, p. 190 ♀. pl. 18: 2-5 (*Plasma dilatatum*) ASIA ("Levean Museum" - not traced).

*Heteropteryx dilatata* (Parkinson) Gray, 1835, p. 2.  
*Diaperodes dilatata* (Parkinson) Burmeister, 1838, p. 574.  
*Leocrates dilatata* (Parkinson) Redtenbacher, 1906, p. 166. (description of ♂).  
*Plasma* (*Euryanthera*) *gryacis* Westwood, 1848, p. 16 ♂, pl. 7: 3. Holotype ♂, MALAYSIA: [Palau Phang] ["Prince of Wales Island" (OXUM, No. 526)]. (synonymised by Kirby, 1904, p. 397).  
*Cyphocarinia gryacis* (Westwood), 1859, p. 111.  
*Heteropteryx hopei* Westwood, 1864, p. 16 ♀. Holotype ♀, Locality not known (OXUM, No. 488 - spirit collection). synonymised by Westwood, 1874, p. 173).  
*Heteropteryx castelanii* Westwood, 1874, p. 174 ♀ nymph. pl. 32: 3. Holotype ♂, Tringany (OXUM, No. 527). (synonymised by Günther, 1935a, p. 124).  
*Hannella* (?) *castelanii* (Westwood) Kirby, 1904, p. 398.  
*Leocrates castelanii* (Westwood) Redtenbacher, 1906, p. 167.  
*Heteropteryx rollandi* Lucas, 1882, p. 32 ♀. MALAYSIA (MNHN - not traced). (synonymised by Kirby, 1904, p. 397).

Genus *Platyspectrum* Rehn and Rehn, 1938

(= *Platymorpha* Redtenbacher, 1906 and *Platyphasma* Uvarov, 1940)

Type species: *Platyspectrum cochinchinensis* (Redtenbacher) [*Platymorpha cochinchinensis*], 1906, p. 46, by original designation (Rehn & Rehn, 1938, p. 46).  
*bengalensis* (Redtenbacher), 1906, p. 47 ♀ (*Platymorpha*). Lectotype ♀, Bengkalis ["Bengalen" according to Redtenbacher] (NHMW, No. 45). Paralectotype series: 1 ♀, JAVA, 2 ♀♀, Bengkalis (MNHN).

Family PSEUDOPHASMATIDAE subfamily ASCHIPHASMATINAE

Genus *Abrosoema* Redtenbacher, 1906

= Genus *Proscelus* Uvarov, 1940 (= *Festisculus* Redtenbacher, 1908)  
Type species: *Abrosoema reblusum* (Westwood) [*Aschipsusna reblusum*], 1859, p. 93, here designated.  
*Festinatium Brock & Seow-Choen*, 1995, p. (New name for *Proscelus modestus*)  
*Proscelus modestus* (Redtenbacher), 1908, p. 481 ♀. (*Festisculus*), Holotype ♀, MALAYSIA: [Peak] (NHMW, No. 909).

[*Abrosoema villosum* Redtenbacher, 1908, p. 85 ♂ paratype only from MALAYSIA: [Peak], not ♀♀ from INDIA - misidentification (NHMW, No. 85). Note - ♀♀ in (MNHN).  
*gibberum* Brock & Seow-Choen, 1995, p. 25 ♀♀. Holotype ♂, Paratype series: 1 ♂, 1 ♀, MALAYSIA: Tanah Rata, [Pahang] (BMNH).

Genus *Aschipsusna* Westwood, 1830

Type species: *Aschipsusna annulipes* Westwood, by monotypy (Westwood, 1830, p. 442).  
*annulipes* Westwood, 1830, p. 442 ♀. Holotype ♀, JAVA (BMNH).  
*Plasma* (*Aschipsusna*) *annulipes* (Westwood) de Haan, 1842, p. 114.  
*Aschipsusna annulipes* Westwood, 1859, p. 92, pl. 15: 2. (description of ♂).  
*Perlimorphus heteroglyphicus* Gray, 1835, p. 21 ♂. Holotype ♂, JAVA (MVMA). (synonymised by Westwood, 1859, p. 92).  
*Perlimorphus heteroglyphica* (Gray) Audinet-Serville, 1838, p. 276.

Genus *Pinnispinus* Brock, 1995

Type species: *Pinnispinus harmati* Brock, by original designation.  
*harmati* Brock, 1995, p. 30. ♀. Holotype ♀, MALAYSIA: Tanah Rata, [Pahang] (BMNH).  
Paratype series: 5 ♂♂, 5 ♀♀. (BMNH), 2 ♂♂, 1 ♀ (coll. P.D. Brock).

Genus *Preshistus* Kirby, 1896

Type species: *Preshistus pelus* (Gray) [*Perlimorphus pelus*], by original designation (Kirby, 1896, p. 475).  
*pelus* (Gray), 1835, p. 22 ♀. (*Pelamorphus*). Holotype ♀, "ORA MALABARIENSIS" (BMNH).  
*Aschipsusna pelus* (Gray) de Haan, 1842, p. 115.  
*Aschipsusna pelus* (Gray) Westwood, 1859, p. 96.  
*Preshistus pelus* (Gray) Redtenbacher, 1906, p. 79. (description of ♂).  
*Preshistus ridleyi* Kirby, 1904, p. 419. (new name for *Aschipsusna pelus* of de Haan, 1842, p. 115 (not of Gray) may include a series of specimens from MALAYSIA (including SINGAPORE), JAVA, SUMATRA (BMNH, RMNH), NSYN.  
*fiaticornis* (de Haan), 1842, p. 114 ♀♀ (*Plasma* (*Aschipsusna*) *fiaticornis*). Lectotype ♀, here designated. Paratype: 1 ♂ BORNEO: Pontanak (RMNH).  
*Aschipsusna fiaticornis* (de Haan) Westwood, 1859, p. 95.  
*pliosipes* (de Haan), 1842, p. 115 ♂. (*Plasma* (*Aschipsusna*)). Lectotype ♂ BORNEO: Pontanak (RMNH), here designated. Paratype: 1 ♂ BORNEO: Doosen.  
*Aschipsusna pliosipes* (de Haan) Westwood, 1859, p. 95.  
*Aschipsusna infimum* Carpenter, 1845, pl. 41 ♀ (not ♂). Holotype ♀, JAVA (ZMHF - only specimen in the collection). (synonymised by Redtenbacher, 1906, p. 82).  
*Aschipsusna infimum* (Carpenter) Westwood, 1859, p. 98.  
*Ascelus horni* Redtenbacher, 1908, p. 496 ♀. Holotype ♀, MALAYSIA (NHMW, No. 949) (synonymised by Braeg, 1993, p. 41).  
*eryx* (Westwood), 1859, p. 97 ♂, pl. 19: 3 (*Aschipsusna*). Holotype ♂, MALAYSIA (OXUM, No. 504).  
*Aschipsusna eryx* Redtenbacher, 1906, p. 77.

Subfamily KORINININAE

Genus *Kalocortinus* Günther

Type species: *Kalocortinus calopteryx* Günther, 1944, by original designation [i.e. = *Kalocortinus pulchella* (de Haan)].  
*pulchella* (de Haan), 1842, p. 120, pl. 15: 5 (*Plasma* (*Necrosta*) *pulchellum*). Holotype ♂, SUMATRA: Balang Singsang (RMNH).  
*Tagesoides pulchella* (de Haan) Redtenbacher, 1908, p. 585.  
*Kalocortinus calopteryx* Günther, 1944, p. 78, fig. 5. Holotype ♂, North BORNEO. Paratype series: 1 ♀, Central BORNEO (SMITD), 1 ♂, MALAYSIA: Bukit Kudu [Salangor] (RMNH) (synonymised by Braeg, 1995, p. 46).



Family PHYLLIDAE

Genus *Phyllium* Illiger 1798

Type species: *Phyllium siccofolium* (Linnaeus) [Gyllius (*Mantis*) *siccofolius*] by monotypy (Illiger, 1798, p. 499).

*siccofolium* (Linnaeus), 1758, p. 425 ♀ (*Gyllius* (*Mantis*) *siccofolius*). Holotype ♀, "INDIES" (UZIU).

*Phasma siccofolia* (Linnaeus) Stoll, 1813, p. 21, pl. 24-26.

*Pezomus siccofolius* (Linnaeus) Thunberg, 1815, p. 286.

*Phyllium siccofolium* (Linnaeus) Gray, 1843, p. 118. (description of ♂).

*Phasma cirtifolium* Lichtenstein, 1802, p. 17.

*Phyllium brevicorne* Latreille, 1806, p. 272 ♀. (name for *Mantis siccofolia* Linnaeus from "Molluccanis").

*Mantis foliatus* Perry, 1811, pl. 4: 6 ♀.

*Phyllium goyoni* Gray, 1835, p. 31 ♀. (new name for *Mantis foliatus*).

*Phyllium woodi* Rehn and Rehn, 1934, p. 423 ♀, pl. 16:3, 17:6. Holotype ♀, PHILIPPINES: Sibuyan Island Paratype: 1 ♂, PHILIPPINES: Dapitan, Mindanao (ANSP). (possible synonym given by Klante, 1976, p. 67).

*bioculatum* Gray, 1832, p. 191 ♂, pl. 63:3. Holotype ♂. Locality not known (OXUM, No. 531).

*Phyllium bioculatum* Gray, 1843, p. 122, fig. 1. (description of ♀).

*Pulchriphyllum bioculatum* Griffini, 1898, p. 2.

*Phyllium cirtifolium* Serville, 1838, p. 291 ♂♀. "INDIA ORIENTALI", SEYCHELLES.

Possible syntypes (OXUM - drawer 14). (synonymised by Bolivar, 1895, p. 374).

*Phyllium geloni* Gray, 1843, p. 121, ♂, fig. d. from SEYCHELLES (BMNH) agrees with other taxa. A ♀ in collection is marked 'holotype' (listed as a "variety" of *P. bioculatum* by Griffini, 1898, p. 4).

*Phyllium dardanus* Westwood, 1859, p. 176 ♂, pl. 40: 5. Holotype ♂, SEYCHELLES (OXUM, No. 530). (synonymised by Redtenbacher, 1906, p. 175).

*Phyllium scythe* Gray, 1843, p. 122 ♂♀, fig. 1: 1 ♀ syntype? INDIA: Sylhet (OXUM - ♂ not traced). (synonymised by Redtenbacher, 1906, p. 175).

*pulchrifolium* Serville, 1838, p. 292 ♀. Holotype ♀, JAVA (OXUM, No. 532).

*Pulchriphyllum pulchrifolium* Griffini, 1898, p. 2, fig. 2. (description of ♂).

*Phyllium agathyrus* Gray, 1843, p. 122, fig. h ♀. Holotype ♀, SRI LANKA (BMNH).

(synonymised by Klante, 1976, p. 55).

*Phyllium magdelinai* Lucas, 1857, p. CXLVII ♀. Holotype ♀, SUMATRA (MNHN).

(synonymised by Klante, 1976, p. 55).

*giganteum* Hausleithner, 1984, p. 39 ♀. Holotype ♀, Paratype 1 ♀, MALAYSIA: Tapah Hills.

[Perak] ["Cameron Highlands"] (NHMV).

*Phyllium giganteum* Hausleithner Brock, 1994, p. 53, fig. 1 & 2. (description of ♂).

New species description (in progress).

ERRONEOUS RECORDS

*Sthenobea phyllipus* (de Haan) - mentioned by Kirby, 1904, p. 323, from Malaysia, Kirby referred to a ♀ nymph (48 mm in length) in the BMNH, probably of *Prisomeria repuliosa* (Brunner von Wattenwyl). This specimen was collected by Ridley (1900).

*Catista biguttata* (Burmeister) - mentioned by Kirby, 1904, p. 370, from Singapore and Pulau Pinang, Kirby misidentified specimens of *Catista sargentis* (Westwood), housed in BMNH as follows: Singapore, 1897 (Ridley) and "Penang Hills", 1899 (Flower).

*Catista punctulata* Redtenbacher, 1908, p. 568. A ♀ syntype from Malaysia is *Catista darsisina*, distinct from Borneo and Brunel syntypes (3 ♀♀).

*Necrosia vilina* (Audinet-Serville) - mentioned by Kirby, 1904, p. 375, from Malaysia, Kirby misidentified 2 specimens from Peninsular Malaysia in BMNH, as follows: *Necrosia murgiana* (Gray) and *Necrosia rosipennis* Serville.

*Ascelis gadama* (Westwood) - mentioned by Werner, 1934, p. 3, from Pahang. This is a likely misidentification of a species found in Java and Borneo. However, it is readily distinguished from other *Ascelis* species by the presence of 6 spines on the mesothorax.

*Canachus cire* Redtenbacher, 1908, p. 347. There is a ♀ syntype from New Caledonia in MHNG. The ♂ is erroneously referred to, in doubt, from "Singapore (?)" (NHMV, No. 704 - mis-labelled?).

*Marnessoida unicolor* Redtenbacher. Mentioned by Giglio-Tos, 1912, p. 48, found to be a misidentified ♀ of *Marnessoida rosa* (Fabricius) (RMVO).

*Phylamens coronatus* (de Haan), 1842, p. 137. Listed from Singapore (HNHM) by Redtenbacher, 1906, p. 48. Budapest material has been lost in a fire, but it is considered that this was a misidentification of, perhaps, *Dalmanes manihoti* (Bates).

TAXONOMIC NOTE ADDED IN PROOF

Whilst conducting detailed research on the genus *Centropusina* Redtenbacher (1908, p. 489), and related genera, it became clear that there are no valid differences to distinguish *Centropusina* and *Centema* Redtenbacher (1908, p. 489), which comprises several species from Sumatra, Borneo and Java). In the absence of a type species for *Centema*, I here designate *Centema hirtillus* (Westwood) [*Lophyllus hirtillus*] from Sarawak (Westwood, 1859, p. 100, pl. 28:4) as the type species for *Centema*, which may now be regarded as a NEW SYNONYM of *Centropusina*.

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Notes on the Burrows of the Water Monitor Lizard,  
*Varanus salvator*<sup>1</sup>

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**Abstract:** Seven burrows used by the Malaysian water monitor lizard *Varanus s. salvator* were studied in Timor Oil Palm Estate, Pahang, Malaysia. Burrows are located both on flat land and in river banks. Often an entrance started by sloping downwards but rose again creating a low point which was often filled with water. The average length of the studied burrows was 9.5 m and the depth ranged between 1.2 m - 2.4 m. The burrow temperatures varied between 25.0°C-27.8°C. There was seasonal variation in burrow temperature and monsoon season was slightly cooler than the dry season. The lizards utilized the burrows mainly as sleeping sites and as refuge from predators.

INTRODUCTION

Until recently varanid lizards have been very little studied but works by, among others, Bartholomew & Tucker (1964), Bennet (1973) and Auffenberg (1981) have revealed complex features of their physiology and ecology. Their social life has still not been studied thoroughly. Burrows might play an important role in varanid social life, but only a few papers have been published which deal with the shape and use of burrows.

The use of burrows has been documented in *V. varius*, *V. griseus*, *V. gouldii*, *V. eremius*, *V. panoptes rubridis*, *V. bengalensis*, *V. flavescens* and *V. komodoensis* (Shebbins & Barwick 1968; Tsellartus et al. 1991; Stanner & Mandelsohn 1987, 1991, 1994) and burrows are likely to be used by most other varanids too. The morphology of the burrows, however, has only been described for the Bengal monitor, *V. bengalensis*, and the Komodo dragon, *V. komodoensis* (Auffenberg 1981, 1983, 1994). The characteristics and use of these are similar, although the burrows of *V. komodoensis* are larger. Varanid species that make use of burrows have been observed to take refuge in them if disturbed by a predator and during night time for sleeping. Burrows used as a refuge during cool nights also help lizards to maintain a relatively high body temperature in relation to the ambient temperature (Auffenberg 1981, 1983, 1994; McNab and Auffenberg 1976; Green and King 1978; King 1980; Traeholt 1995). Some

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