A review of the New Zealand stick insects: new genera and synonymy, keys, and a catalogue

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A review of the New Zealand stick insects: new genera and synonymy, keys, and a catalogue

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Abstract

This catalogue lists all genera and species of stick insects recorded or described from New Zealand. Genera are listed in alphabetical order within established subfamilies and tribes. Some taxonomic changes are made, with major changes as follows: 2 new genera in the subfamily Pachymorphinae are erected - Niveaphasma (type species – Pachymorpha annulata Hutton 1898) and Asteliaaphasma (type species – Spinotectarchus jucundus Salmon 1991). Mimarchus tarsatus Carl 1913 is reduced to synonymy under Argosarchus horridus (White 1846), resulting in Mimarchus Carl 1913 becoming a synonym of Argosarchus Hutton 1898. Lectotypes are designated for Argosarchus schauinslandi Brunner 1907, Citharchus interruptilineatus Brunner 1907, Citharchus laeviusculus Stål 1875, Micrarchus parvulus Carl 1913, Micrarchus tarsatus Carl 1913 and Pachymorpha bouvieri Brunner 1907. Keys to adults and eggs of genera are given. The bibliography includes all references containing descriptions of species recorded or described from New Zealand.

Introduction

Whilst studying the New Zealand fauna, it became evident that a detailed catalogue was necessary in order to fully evaluate the largely endemic fauna. Salmon’s 1991 book on the subject unfortunately omits certain references to the fauna. Brock (1997) made some taxonomic changes due to omissions in Salmon (1991). Further changes are made in this work.

All genera are endemic to New Zealand and have a close affinity within the subfamilies Pachymorphinae and Phasmatinae. Apart from the genus Pachymorpha Gray 1835, which may, despite genitalia differences, be close to Micrarchus Carl 1913, the wingless New Zealand fauna are not closely related to Australian phasmsids (catalogued in Balderson et al. 1998), which include many winged species. Although Citharchus Stål 1875 includes the Australian species C. longipes Brunner 1907, it belongs to another genus. Acanthoxya Ulvarov 1944 is represented by 8 parthenogenetic species and no males have been found. Whilst unusual not to find males in a genus of several species, this is not unique in phasmsids, which often reproduce parthenogenetically.

Phasmsids are found throughout New Zealand (including outlying islands), in forests, scrublands and often in gardens (Salmon 1991). Salmon (pers. comm. 1997) believed that Argosarchus species may be extinct, however they are currently known to exist, having been found in a number of locations. Generally, most New Zealand species are quite common but, being nocturnal, may easily be overlooked.

Further Studies

Whilst Salmon’s book (1991) relies on morphological taxonomic principles, it is evident that a full evaluation of the fauna also requires genetic studies. The fauna is small enough to obtain meaningful results in a relatively short period of time. It is hoped that specialists will take up the challenge and undertake such studies, in order to clarify uncertain issues. For instance, are there 2 (or more) Argosarchus species, or only one? Is Citharchus tuberculatus a ‘form’ of C. hookeri? Are the 4 Tectarchus species from the Port Hills, Banks Peninsula, distinct species, and are Acanthoxya species correctly classified? Undescribed species, including some from mountainous areas, are currently being researched.

Treatment

Species are listed in alphabetical order within genera. Reported synonyms and variations in spelling for each species are listed in order, with a brief explanation of each record.

After details on genera (including any synonymy), references to the original description of species and type details are given, followed by any subsequent references to the same species, along with a summary of the main area(s) covered in each paper. Our research on type and non-type material and culture stocks has resulted in the necessity to make taxonomic changes. Type material has been examined, (several types deposited in Wellington by Salmon were only briefly checked and loan of material was not permitted due to the fragility of the specimens). Species described by Salmon are well illustrated in the literature, although they are in need of genetic studies as mentioned above (Further Studies). Lectotypes have been designated for 6 species in this paper.

Keys to adults and eggs of genera are provided. Species are not illustrated, as excellent figures of adults and eggs may be found in Salmon’s 1991 book on New Zealand phasmsids.

Unpublished work is included in the references section, but excluded from species listings. Parfitt (1975, 1980) and Buckley (1995) have completed projects on New Zealand phasmsids without yet publishing results.
Abbreviations for Depositories

AMNZ Auckland Institute and Museum, Auckland, New Zealand

BMNH Natural History Museum, London, United Kingdom

CMNZ Canterbury Museum, Christchurch, New Zealand

HLHD Hessisches Landesmuseum, Darmstadt, Germany

MNHN Museum National d'Histoire Naturelle, Paris, France

MHNG Museum d'Histoire Naturelle, Geneva, Switzerland

MONZ Museum of New Zealand, Wellington, New Zealand

NHRM Naturhistorisches Museum, Wien, Austria

UMBB Ubertsee-Museum, Bremen, Germany

ZMHB Museum fur Naturkunde der Humboldt Universität, Berlin, Germany

ZMUH Universität von Hamburg, Hamburg, Germany

Key to adult females

1 Length of cerci slightly greater than length of anal segment ........ 2
   — Length of cerci distinctly shorter than length of anal segment .... 3
   — Metatarsals of mid and hind limbs lacking a dorsal lobe .......... 4
   — Metatarsals of mid and hind limbs with a dorsal lobe .......... 5

2 Cerci bluntly pointed; two black stripes beneath head ........ 6
   — Cerci with rounded tips; no black markings beneath head ...... 7
   — Cerci extending beyond tip of anal segment .................. 8
   — Cerci do not reach the tip of the anal segment ........ 9

3 Metatarsals of mid and hind limbs with a dorsal lobe ........ 10
   — Metatarsals of mid and hind limbs without a dorsal lobe .......... 11
   — Operculum reaching to or beyond tip of anal segment .......... 12
   — Operculum reaching up to half-way along anal segment .... 13

4 Operculum reaching to or beyond tip of anal segment .......... 14
   — Operculum reaching up to half-way along anal segment .... 15

5 Head smooth or with a pair of short stout spines between the eyes .. 16
   — Head with several long, sharp spines .......... 17
   — Head smooth or at most with a few tubercles .......... 18
   — Operculum extending beyond tip of anal segment .......... 19
   — Operculum extending to, but not beyond, tip of anal segment .. 20

6 Operculum extends to, but not beyond, tip of anal segment .......... 21
   — Operculum extends to beyond tip of anal segment .......... 22

7 Cerci extend beyond tip of anal segment .................. 23
   — Cerci do not reach the tip of the anal segment ........ 24
   — Operculum with a pair of sub-apical, lateral carinae .......... 25
   — Operculum with a pair of sub-apical, lateral carinae .......... 26
   — No lateral carinae on operculum .................. 27

Key to adult males

1 Body length > 50 mm .................................................. 2
   — Body length < 50 mm ........................................... 3

2 Thorax with several long, sharp spines .......... 4
   — Thorax smooth or at most with a few tubercles .......... 5
   — Claspers each with a single tooth .......... 6
   — Claspers each with 4 to 5 teeth .......... 7

3 Claspers each with a single tooth .......... 8
   — Claspers each with 4 to 5 teeth .......... 9

4 Claspers extend into elongate tongue-like pinchers, each with a series of separate black teeth .......... 10
   — Each clasper with one or more teeth arising from a single black swelling .......... 11

5 Dorsal abdominal spines situated on anterior margin of tergites .......... 12
   — Dorsal abdominal spines situated on posterior margin of tergites .......... 13

6 Antennae reach base of fore tibiae .................................. 14
   — Antennae shorter than base of fore tibiae .......... 15

Key to eggs

1 Spine-like setae present on at least anterior dorsal region of capsule .......... 16
   — Setae completely absent ................................ 17

2 Setae numerous over entire egg capsule length up to 2.2 times width .......... 18
   — Setae restricted to anterior and dorsal regions; capsule length at least 2.5 times width .......... 19
   — Capsule 1.7 or more times longer than broad .......... 20
   — Capsule up to 1.6 times as long as broad .......... 21

3 Capsule > 2.4 times longer than broad .......... 22
   — Capsule at least 2.5 times longer than broad .......... 23

Diapheromerae, Pachymorphinae, Pachymorphini

Niveaphasma n. gen.

Type species.—Pachymorpha annulata Hutton, here designated.

Niveaphasma is erected for a species recorded from the far south and far north of South Island (Southland, Otago and Nelson pro-
vinces), from sea level up to 1360 m, although part of the range may not be accurate (undescribed taxa are being researched). The
undescribed species which Salmon (1991) mistakenly included in
his notes on Miracar harsatus Carl, is excluded pending further
investigation. The tongue-like claspers of the male suggest Niveaphasma
is most closely allied to Micracerus. Dorsal abdominal spines are
situated on the posterior margin of tergites in Niveaphasma, but on the anterior margin in Micracerus. Females are distinguished by the
shorter cerci in Micracerus.

Diagnosis.—Female: Body stout, length 49 to 56 mm, wingless,
median segment (first abdominal segment) completely fused with
metathorax. Head with pair of short stout spines between eyes. An-
tennae slightly shorter to slightly longer than fore femora. Whole body lightly granulated, thoracic spines absent or rudimentary.
Abdomen with pair of small to large spines on posterior margin of
tergites 5 to 8, fifth segment commonly with expanded lateral
lobes. Operculum boat-shaped, reaching approximately half-length of anal segment. End of anal segment truncated or slightly rounded.
Cerci short, reaching just beyond tip of anal segment. Male short,
length ca 40 mm, as for female except slenderer and less granulated,
spines often rudimentary. Claspers extended into stout tongue-like
pinchers which extend well beyond abdomen, each clasper with a
series of several black teeth along inner margin. Cerci elongate, of
similar length to claspers. Eggellongate, cylindrical, finely pitted and
often lightly rugose, sometimes with a rudimentary keel; capitulum
elongate-conical.
Etymology.—From the Latin niveus (snowy), plus the stem word for the order Phasmatida. The intended meaning (‘stick insects of the snow’) alludes to the fact that many populations occur in alpine habitats where they must contend with regular snow cover.

Diapheromeridae, Pachymorphinae, Hemipachymorphini

Pachymorphinae new genus

Type species.—*Spinotectarctus jucundus* Salmon, here designated.

*Spinotectarctus* is represented by two little-known species found in forest on North Island (collected up to 900 m above sea level). The genus is distinguished from the closely related *Spinotectarctus* Salmon by its more elongate female form. Eggs are also more elongate in *Spinotectarctus*, with setae restricted to anterior and dorsal regions of the capsule, unlike *Spinotectarctus*, where setae are numerous over the entire egg. *Spinotectarctus* may be a sister-genus of *Niveaphasma*, with which it shares similar (though more slender) adult morphology, and also eggs (although setae are absent in *Niveaphasma*). However, males and/or genetic data would be required to confirm such a relationship.

Diagnosis.—Only females known. Body slender (64 to 88 mm), wingless, median section completely fused with metathorax. Head with pair of short spines between eyes. Antenna slightly shorter than fore femora. Whole body lightly granulated, sometimes with a few tubercles present. Fifth abdomen segment sometimes with small lateral lobes. Operculum boat-shaped, reaching to tip of anal segment. End of anal segment slightly rounded or with a short median notch. Cerci short, reaching just beyond tip of anal segment. Egg elongate, cylindrical, finely pitted and lightly rugose with rudimentary keel, anterior and dorsal regions with numerous minute spine-like setae; capitulum elongate-conical.

Etymology.—From the plant genus *Astelia* (Lilacae) and the stem word for the order Phasmatida. *Asteliaphasma* species are so far known only from *Astelia* species and the *Astelia*-like *Freycinetia banksii* (Pandanaceae).

**CATALOGUE OF SPECIES**

*Diapheromeridae, Pachymorphinae, Pachymorphini*

**Micrarchus** Carl 1913

Type species.—*Micrarchus parvulus* Carl by monotypy.

*Micrarchus*; Salmon 1991: 88 (Synonym of *Pachymorpha* Gray 1835; incorrectly listing Kaup as author of the genus *Micrarchus*).

*Micrarchus*; Zompro and Brock [in press]. Revised status.

**Micrarchus hystericus** (Westwood) 1859: 16. pl. 1: 4 (*Pachymorpha hystericus*).

Holotype ♀, New Zealand (BMNH).

Pachymorpha *hystericus* Westwood; Hutton 1899: 52 (Returned to *Pachymorpha*; Tepper 1902: 279 (Catalog); Kirby 1904: 342 (Catalog); Brunner 1907: 214 (Redescription); Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 88 (Taxonomy [distribution extended to ‘Australia and Papua New Guinea’ but considered unlikely, as no material has been traced during extensive studies on the Australian phasmands]; male; egg; figs).

Bacillus *hystericus* (Westwood); Hutton 1881: 75 (Transfer to Bacillus; Catalog).

**Micrarchus hystericus** [sic] (Westwood); Bandsma and Brandt 1963: 21. pl. 44 (photo of mating pair).

**Micrarchus hystricus** (Westwood); Zompro and Brock [in press] (Transfer to *Micrarchus*).


*Micrarchus parvulus* Carl; Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 88 (Synonym of *Pachymorpha hystericus*; egg; figs).

**Niveaphasma** Jewell & Brock new genus

Type species.—*Pachymorpha annulata* Hutton, by original designation.


*Pachymorpha annulata* Hutton; Salmon 1899: 53 (Taxonomy); Tepper 1902: 279 (Catalog); Kirby 1904: 342 (Catalog); Wise 1977: 51 (Catalog of NZ species); Nicholls et al. 1998: 30 (Type data).

*Mimarchus annulatus* (Hutton); Salmon 1991: 96 (Transferred to *Mimarchus*; male; egg; figs); Brock 1997: 21 (Taxonomy).


[3 further ♀ in NHM without labels are not regarded as part of the type series. Note: it is probable that specimens from Invercargill belong to an undescribed species (in progress)].

**Pachymorpha bouvieri** Brunner; Wise 1977: 51 (Catalog of NZ species); Brock 1997: 22 (Synonym of *Mimarchus annulatus*); Brock 1998: 19 (Type data; as synonym of *Mimarchus annulatus*).

*Diapheromeridae, Pachymorphinae, Hemipachymorphini*

**Asteliaphasma** Jewell & Brock new genus

Type species.—*Spinotectarctus jucundus* Salmon, by original designation.


*Spinotectarchus* Salmon 1954

**Type species.** — *Tectarchus diversus* Salmon, by original designation.


*Tectarchus* Salmon 1991: 100.


*Pachymorpha huttoni* Brunner; Wise 1977: 51 (Catalog of NZ species); Brock 1997: 21 (Transfer to *Tectarchus*); Brock 1998: 33 (Type data).


*Pachymorpha finitima* Brunner; Wise 1977: 51 (Catalog of NZ species); Brock 1997: 21 (Synonym of *Tectarchus huttoni*); Brock 1998: 28 (Type data).

*Tectarchus diversus* Salmon 1954: 163, pl. 7: 1-2, pl. 8: 1, 2, 4, 8, pl. 9: 1, 5. Holotype♀, New Zealand, Johnston’s Hill, Karori, Wellington, 3.vi.1944, J.T. Salmon (MONZ). Paratypes: ♀♀ and ♂♂ as follows: Akatarawa Saddle; Balloon Saddle, Mt. Arthur Tableland; Days Bay; Johnston’s Hill, Karori, Wellington; Kennedy’s Bush, Banks Peninsula; Leslie Valley; Mt. Ross, Wairarapa; Miramar Reserve, Wellington; Orongongoro; Parematia; Picton; Silverstream, South Karori; Wilton’s Bush, Wellington (MONZ); Upper Maitai, Nelson (coll. G. Ramsay)). (Synonymized by Brock, 1997).

*Tectarchus diversus* Salmon; Salmon 1991: 100 (Taxonomy; egg: figs); Wise 1977: 51 (Catalog of NZ species); Brock 1997: 21 (Synonym of *Tectarchus huttoni*).


*Tectarchus ovobesus* Salmon; Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 106 (Taxonomy; egg: figs).

*salebrosus* (Hutton) 1899: 52 (*Pachymorpha salebrosa*). Holotype♀, New Zealand: Dunedin (CMNZ), (new name for *Pachymorpha hystricola*; Hutton 1899: 162 [not of Westwood 1859]). **New combination** (on basis of comparison of genitalia).

*Pachymorpha salebrosa* Hutton; Tepper 1902: 279 (Catalog); Kirby 1904: 342 (Catalog); Brunner 1907: 215 (Redescription); Wise 1977: 51 (Catalog of NZ species); Nicholls et al. 1998: 30 (Type data).

*Mimarchus salebrosus* (Hutton); Salmon 1991: 94 (Transfer to *Mimarchus*; male; egg: figs).


*Tectarchus tuberculatus* Salmon; Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 94 (Synonym of *Mimarchus salebrosus*).


*Tectarchus semilobatus* Salmon; Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 108 (Taxonomy; egg: figs).

**Spinotectarchus** Salmon 1991

**Type species.** — *Pachymorpha acornuta* Hutton, by original designation.

*Spinotectarchus* Salmon 1991: 36, 111.

*acornatus* (Hutton) 1899: 52 (*Pachymorpha acornuta*). Holotype♀, New Zealand: Great Barrier Island (CMNZ – in alcohol).

*Pachymorpha acornata* Hutton; Tepper 1902: 279 (Catalog); Kirby 1904: 342; Brunner 1907: 214 (Redescription); Wise, 1977: 51 (Catalog of NZ species); Nicholls et al. 1998: 30 (Type data – syntype ♂ mentioned. Hutton stated ‘male unknown’, but did refer to a nymph ‘probably belonging to this species’).

*Spinotectarchus acornatus* (Hutton); Salmon 1991: 111 (Transfer to *Spinotectarchus*; egg: figs).

**Phasmatidae, Phasmatae, Acanthosyfini**

*Acanthoxyla* Uvarov 1944

**Type species.** — *Acanthoderus prasinus* Westwood, by indication.

*Acanthoxyla* Uvarov 1944: 95 (New name for the preoccupied *Macracantha* Kirby).


*fasciata* (Hutton) 1899: 58 (*Acanthoderus*). Holotype♀ nymph, New Zealand: Great Barrier Island (CMNZ – in alcohol).

Revised status.

*Acanthoderus fasciatus* Hutton; Brunner 1907: 239 (Redescription); Günther 1931: 756 (Synonym of *Macracantha prasinus*); Salmon 1955c: 1153 (Synonym of *Acanthoxyla sutera*); Wise 1977: 50 (Catalog of NZ species; as synonym of *Acanthoxyla sutera*); Nicholls et al. 1998: 30 (Type data; listed as ♀). *Macracantha fasciatus* (Hutton); Kirby 1904: 340 (Transfer to *Macracantha*).

*Acanthoxyla fasciatus* (Hutton); Uvarov 1944: 94 (Transfer to *Acanthoxyla*); Salmon 1991: 69 (As synonym of *Acanthoxyla sutera*).

geisovii (Kaup), 1866: 578 (Bacillus). Holotype ♀ nymph, New Zealand (HLDH).

Bacillus geisovii Kaup: Hutton 1881: 75 (Catalog); Zompro 2001: 134, fig. 7 (Type data).

[Citarchus geisovii: Hutton 1898: 165 (Transfer to Citarchus. Refers to ♂ – see Hutton (1899); specimen misidentified and given new name of Acanthoderus suteri).]

Acanthoderus geisovii (Kaup): Hutton 1899: 57 (Returned to Acanthoderus); Tepper 1902: 285 (Catalog); Brunner 1907: 239 (Redescription);

Macracantha geisovii (Kaup); Kirby 1904: 340 (Transfer to Macracantha); Günther 1931: 756 (Synonym of Macracantha prasina).

Acanthoxyla geisovii (Kaup); Uvarov 1944: 94 (Transfer to Acanthoxyla; British species cited as prasina); Salmon 1955c: 1154, figs 6, 16 (Taxonomy); Salmon 1955a: 1190 (Notes - parthenogenesis); Salmon 1955b: 79 (Notes; figs); Salmon 1970: 70 (Notes); Sharrell 1971: 126, fig. (Notes); Wise 1977: 49 (Catalog of NZ species); Mantovani & Scali 1987: 141 (Egg; comparison with other Acanthoxyla species); Brock 1999: 78, 132, pl. 21b, 22a-b (Notes in Britain and New Zealand).

Acanthoxyla geisovii (Kaup) [sic]; Bandsma & Brandt 1963: 21, pl. 40, 43 (photos).

Acanthoxyla prasina (misidentification); Ragge 1965: 38, pl. 1: 1 (In Britain; egg).

Acanthoxyla prasina geisovii (Kaup); Salmon 1991: 71, figs (Subspecies of prasina).


Paratypes: ♂, New Zealand: Karori, Wellington (MONZ).

Acanthoxyla huttoni Salmon; Wise 1977: 49 (Catalog of NZ species); Brock 1999: 132.

Acanthoxyla prasina huttoni Salmon; Salmon 1991: 74 (Egg; figs).


Acanthoxyla inermis Salmon; Wise 1977: 49 (Catalog of NZ species); Brock 1987: 129, figs 3, 4C (First record in Britain; correction of misidentification as Citarchus hookeri; taxonomic notes; egg); Brock 1999: 132.

Acanthoxyla prasina inermis Salmon; Salmon 1991: 64 (Subspecies of prasina; figs).


Paratypes: ♂ ♂, New Zealand: Johnson’s Hill, Karori; Kilbirnie, Wellington; Makino; Tauwharenokau Valley; Wairarapa; Wairongomai; Wilton’s Bush (MONZ).

Acanthoxyla intermedia Salmon; Wise 1977: 50 (Catalog of NZ species); Brock 1999: 132.

Acanthoxyla prasina intermedia Salmon; Salmon 1991: 62 (Subspecies of prasina; egg; figs).

prasina (Westwood), 1859: 49, pl. 3: 2 (Acanthoderus prasinus).

Holotype ♂, New Zealand (BMNH).

Acanthoderus prasinus Westwood; Hutton 1881: 77 (Catalog);

Hutton 1899: 56 (Returned to Acanthoderus); Brunner 1907: 239 (Redescription).

Citarchus prasinus (Westwood); Hutton 1898: 164 (Transfer to Citarchus).

Macracantha prasina (Westwood) [sic]; Kirby 1904: 340 (Transfer to Macracantha).

Macracantha prasina (Westwood); Günther 1931: 756, 766 (Taxonomic notes).

Acanthoxyla prasina (Westwood); Uvarov 1944: 95 (Transfer to Acanthoxyla); Salmon 1955c: 1149, 1152 (Revision; figs); Salmon 1955a: 1190 (Notes - parthenogenesis); Salmon 1955b: 79 (Notes; figs); Salmon 1970: 70 (Notes); Sharrell 1971: 127, pl. 173 (Notes); Wise 1977: 50 (Catalog of NZ species); Jackson 1982: 50 (Sketches; notes); Brock 1987: 125 (Taxonomic notes); Bragg 1988: 11 (Rearing notes); Salmon 1991: 58 (Taxonomic notes; egg; figs); Brock 1999: 132 (Notes).


Bacillus filiformis Colenso; Hutton 1899: 59 (Synonym of Argosarchus horridus); Kirby 1904: 340 (As syn. of Argosarchus horridus).

Citarchus filiformis (Colenso); Hutton 1898: 164 (Transferred to Citarchus); Wise 1977: 50 (As syn. of Argosarchus horridus);

Wise 1977: 50 (As syn. of Argosarchus horridus); Salmon 1991: 58 (Synonym of Acanthoxyla prasina).


Bacillus atroarticulatus Colenso; Kirby 1904: 340 (As syn. of Macracantha atroarticulata).

Citarchus atroarticulatus (Colenso); Hutton 1889: 164 (Transfer to Citarchus); Hutton 1899: 56 (Synonym of Acanthoderus prasinus); Wise 1977: 50 (As syn. of Acanthoxyla prasina); Salmon 1991: 58 (Synonym of Acanthoxyla prasina [Also listed as syn. of Argosarchus spiniger, p. 531]).


Acanthoxyla speciosa Salmon; Wise 1977: 50 (Catalog of NZ species); Brock 1999: 132.

Acanthoxyla prasina speciosa Salmon; Salmon 1991: 67 (Subspecies of prasina; egg; figs).

suteri (Hutton) 1889: 56 (Acanthoderus), Holotype ♂, New Zealand: Morton, near Dunedin (see Salmon 1955c: 1154 – originally “Marton, near Wanganui”, but Type locality in Canterbury Museum library volume later corrected by Hutton) (CMNZ – in alcohol) (new name for Bacillus geisovii; Hutton 1898: 165 [not of Kaup]).

Acanthoderus suteri Hutton; Brunner 1907: 239 (Synonym of Acanthoderus geisovii); Günther 1931: 756 (Synonym of Macracantha prasina); Nicholls et al. 1998: 30 (Type data).

Macracantha suteri (Hutton); Kirby 1904: 340 (Transfer to Macracantha).

Acanthoxyla suteri (Hutton); Uvarov 1944: 94 (Transfer to Acanthoxyla); Salmon 1955c: 1153, figs 1, 8, 12 (Taxonomy); Wise 1977: 50 (Catalog of NZ species); Brock 1999: 132. Acanthoxyla prasina suteri (Hutton); Salmon 1991: 69 (Sub-species of prasina; egg, figs).


Argosarchus Hutton 1898

Type species.—Phasma (Acanthodorus) horridus White by subsequent designation of Kirby 1904: 340. (Kirby designated Species No. 1, which he listed as Phasma (Acanthodorus) spinger White, with horridus listed as a synonym; horridus (not spinger) was listed as one of the species by Hutton, hence it is the type species).

Argosarchus Hutton 1898: 165.


Micarchus Carl 1913: 22. Type species: Micarchus tarsatus Carl, by monotypy new synonym [examination of the lectotype of tarsatus, shows it to be a nymph of Argosarchus horridus, the type species of Argosarchus]


Horridus (White) 1846: 24, pl. 5: 3 (Phasma (Acanthodor).) Holotype [♀], New Zealand (BMNH). Acanthodorus horridus (White); Westwood 1859: 49 (Redescription); Hutton 1881: 76 (Catalog); Hudson 1892: 110, pl. 19.

Acanthodorus horridus (White); Hutton 1898: 165 (Transfer to Acanthodorus); Hutton 1899: 59 [part] [Notes. Salmon (1991: 48) regards Hutton’s Acanthodorus horridus [not of White] as horridus]; Kirby 1904: 340 (As syn. of Argosarchus spinger); Brunner 1907: 238 (Redescription); Günther 1931: 766 (Notes); Wise 1977: 50 (Catalog of NZ species); Salmon 1991: 48 (Desc. / clarification of ♀, egg, figs).

Bacillus gerhardii Kaup 1866: 577. Holotype ♀ nymph [not ♀], New Zealand [possibly nr. Invercargill, G. Müller] (HLDH). (Synonymized by Hutton 1899: 59. Bacillus gerhardii Kaup: Hutton 1881: 75 (Catalog); Hutton 1899: 59 (Synonym of Acanthodorus horridus - ♀ listed); Kirby 1904: 340 (As syn. of Acanthodorus horridus); Zompro 2001: 134, fig. 8 (Type data).

Notes on genus: The exact specific relationship is being studied by rearing specimens from different localities and checking variation within species and by comparing them with type material. So far, results indicate some geographical variation and our preliminary view is that the type of spinger is almost certainly the male of horridus, confirming Hutton’s view as first reviser (1899); hence horridus would take priority. The synonymy above follows Salmon (1991), but may have to be revised once additional studies have been made.
Type species.—*Citarchus laeviusculus* Stål, by subsequent designation of Kirby 1904: 339.

*Citarchus* Stål 1875: 34, 82.


*hookeri* (White) 1846: 24, pl. 6: 6 (*Phasmas*). Holotype ♂, New Zealand (BMNH).

*Bacillus hookeri* (White); Westwood 1859: 14 (Transfer to *Bacillus*); Hutton 1881: 74 (Catalog).

*Citarchus hookeri* (White); Stål 1875: 83 (Transfer to *Citarchus*); Hutton 1898: 163; Hutton 1899: 54 (Male); Tepper, 1902: 280 (Catalog); Kirby 1904: 339 (Catalog); Brunner 1907: 236 (Redescription); Günther 1931: 756, 765 (Notes); Salmon 1955a: 1189 (Notes — parthenogenesis); Salmon 1955b: 78 (Notes; figs); Ragge 1965: 39, pl. 1: 2 (In Britain; egg); Stringer 1969: 41 (Embryology); Stringer 1970: 85 (Taxonomy, nymphs and adults); Sharrell 1971: 121, pl. 172 (Notes); Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 82 (Taxonomy; figs); Brock 1999: 80, 132, pl. 23a-b (Notes in Britain and New Zealand).

*Citarchus laeviusculus* Stål 1875: 82. Lectotype ♂, New Zealand, Boucard (NHMW), here designated. Paralectotypes: 3 ♀, New Zealand, Boucard (NHMW). (Synonymized by Ragge 1965). [This lectotype designation will guarantee the stability of the name]

*Citarchus laeviusculus* Stål; Hutton 1898: 163; Hutton 1899: 55; Kirby 1904: 339 (Catalog); Brunner 1907: 236 (Redescription); Ragge 1965: 39 (Synonym of *Citarchus hookeri*); Harz & Kaltenbach 1976: 31 (As synonym of *Citarchus hookeri*); Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 82 (As synonym of *Citarchus hookeri*); Brock 1998: 38 (Type data; as synonym of *Citarchus hookeri*).

*Bacillus colorus* Colenso 1885: 151. Syntypes ♂, New Zealand; Pouroere, E. Coast, near Blackhead, Waipawa County, 1884, W. Scott; ♂, New Zealand: same data? (not traced — believed lost). (Synonymized by Brunner 1907).

*Citarchus colorus* (Colenso); Hutton 1898: 163 (Transfer to *Citarchus*); Hutton 1899: 55 (Taxonomy); Kirby 1904: 339 (Catalog); Brunner 1907: 237 (Synonym of *Citarchus hookeri*); Wise 1977: 51 (Catalog of NZ species); Salmon 1991: 82 (As synonym of *Citarchus hookeri*).

*Bacillus minimus* Colenso 1885: 151. Holotype ♂, New Zealand; Norsewood, Waipawa County, 1884, W. Colenso (not traced – lost?). (Synonymized by Salmon 1991).

*Bacillus minimus* Colenso; Hutton 1898: 166 (Uncertain status).

*Bacillus minimus* [sic] Colenso; Salmon 1991: 82 (Synonym of *Citarchus hookeri*).

*Argosarchus minimus* (Colenso); Kirby 1904: 341 (Transfer to *Argosarchus*); Caudell 1927: 20; Wise 1977: 50 (Catalog of NZ species).


*Citarchus reductus* Hutton; Kirby 1904: 339 (Catalog); Brunner 1907: 237 (Redescription); Günther 1931: 756, 765 (Synonym of *Citarchus hookeri*); Wise 1977: 51 (Catalog of NZ species).


*Pseudoclitarchus* Salmon 1991

Type species.—*Acanthoxyla senta* Salmon, by original designation.


*Pseudoclitarchus senta*; Salmon 1991: 77 (Transfer to *Pseudoclitarchus*; egg; figs [egg on p. 79 = duplication of *Citarchus tuberculatus*]).

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References

In order to allow a full account of the literature on New Zealand phasmids, general publications such as Miller and Cumber (on eggs) are included, although as species are generally not mentioned, they are not cited above. Minor newspaper reports are omitted.


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