Harvestmen (Opiliones) from the Mascarene Islands and resurrection of the family Zalmoxidae

by

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ABSTRACT

Four species of Opiliones from Mauritius and one from Réunion are listed. The genital organs of Zalmoxomma occidentalis Roewer, Hinzuanus mauriticus Roewer, Strandia ceylonensis (Karsch) and Zalmoxis austera Hirst (from New Guinea—for comparison) are illustrated for the first time. The family Zalmoxidae is removed from the synonymy of Phalangodinae and is redefined. The biantid genus Hinzuanus is also discussed and an amplified list of included species together with new combinations and new synonymies of several specific and generic names is provided. The systematics of Assamiidae and problems with systematics and nomenclature of Gagrellinae are commented on.

New synonyms:
Acrobiantes brevispinus Lawrence, 1959 & Acrobiantes minor Lawrence, 1959 = Hinzuanus pardalis (Lawrence, 1959).
Acrobiantes nigroannulatus Lawrence, 1959 = Hinzuanus gracilis (Roewer, 1949).
Biantes bicolor Pocock, 1903 = Hinzuanus flaviventris (Pocock, 1903)?.
Biantes scaber Lawrence, 1959 = Hinzuanus pauliani (Lawrence, 1959).
Hinzuanus hildebrandti Roewer, 1912, Hovabiantes immaculatus Lawrence, 1959, Hovabiantes simplicidens Lawrence, 1959 & Hovabiantes vachoni Lawrence, 1959 = Hinzuanus vittatus (Simon, 1885).
Probiantes mauriticus Roewer, 1949 = Hinzuanus mauriticus Roewer, 1927.

New combinations:

New lectotype designation for Hinzuanus hildebrandti Roewer, 1912 (ZMB 3793).

The fauna of the Mascarene Islands is very poorly known. Ten species have been described or listed (seven from Mauritius and three from Réunion), but since none were classified on the basis of genital morphology, their affinities remained more or less obscure. It was therefore of interest for me to find, in the undetermined material of the Natal Museum, a jar labelled ‘Opiliones from Mauritius and Réunion’. It contained only six samples with scarcely legible labels: five from Mauritius and one from Réunion. The material proved to belong to the following four species.

Zalmoxomma occidentalis Roewer, 1949

Compared (by myself) with the type-series (SMF R II/6033/158—Mauritius—2 ♂). Species described in Phalangodidae-Phalangodinae, but its genital morphology (Figs 1–4) indicates that it should belong to a different family.

Hinzuanius mauriticus Roewer, 1927

Probiantes mauriticus Roewer, 1949, syn. n.

My material was compared with the holotype of H. mauriticus (SMF R II/85/8—Mauritius—♂) and found to be conspecific. The holotype and additional material (SMF R II/6031/33—Mauritius: ‘La Ponce’—about 45 ad. specimens) were in turn compared with the holotype of Probiantes mauriticus Roewer (SMF R II/1564/20—Mauritius—♀)—which also belongs to the same species.

**Maccabeesa lawrencei** Roewer, 1936


The material has been compared with what has been found of the type-series (SMF R II/6036/45—Mauritius: Maccabees—4 ♀) and is clearly conspecific with it.

**Strandia ceylonensis** (Karsch, 1891)


These are the first records of the species from Réunion, previously it was known from Ceylon and Mauritius only. It was probably introduced to the Mascarene
Islands. The Natal Museum specimens agree well with a comparative series from Ceylon (Peradenia, C. F. Roewer det.—SMF R 1/132—19 ad.).

GENERAL REMARKS

The Phalangodinae (or even Phalangodidae) constitute a small group of Holarctic genera (Martens 1986 & pers. comm.), all previously included taxa from other regions need revision and regrouping in a more natural system. Some subfamilies have already been removed (Mello-Leitão 1938) from Roewer’s (ie. 1923 1949a b), very broad concept of the family and are now universally accepted as separate families (Biantidae, Podoctidae). The penis structure of Zalmoxomma occidentalis does not correspond with the basic plan and function principle presented by Martens (1986) for either Phalangodidae or any other family. The genus and species must therefore belong elsewhere. Some morphological characters have led me to the conclusion that this taxon could be related to Zalmoxis Söresen with numerous nominal species from the islands of South-East Asia, Oceania and the continent of Australia. A comparison with Zalmoxis austera Hirst from New Guinea confirmed my deduction. Zalmoxis was given separate family status by Söresen (1886) ['Zalmoxioidae'], but this was synonymised under Phalangodidae Simon, 1879 by Roewer (1912 1923) and has not been used since. The name is, however, available and is here resurrected.

Zalmoxidae Söresen, 1886

Type-genus: Zalmoxis Söresen, 1886 [type-species: Zalmoxis robusta Söresen, 1886—Fiji Is., designated by Roewer (1923)—first species mentioned].

The family is redefined as follows: First two areae of scutum fused, without dividing transversal furrow. Eye tubercle low, broader than long, unarmed or with small denticles. Stigmata visible. Tarsi III and IV with smooth claws, without scopula or other structures. Tibia IV of ♂ incrassate and strongly armed. Penis structure: Stylus protected and led by two dorsal conductors; ventral plate with a single subterminal apophysis. Conductors at rest located along penis axis thus making its tip; subterminal apophysis hidden between conductors and ventral plate. When expanded conductors form a nearly right angle with penis axis and subterminal apophysis clearly visible protruding from ventral plate. Stylus remains hidden between conductors and is probably exposed just before copulation—possibly through some action of its basal hooked appendices. Structure and function of penis similar to the family Triaenonychidae (at least in the case of its South African genera) but the triaenonychid penis is muscular while the zalmoxid one is hydraulic.

The following nominal genera share these characteristics (the genital morphology is known only in Zalmoxis and Zalmoxomma) and are considered to belong here: Acrozalmoxis Roewer (New Guinea), Bogania Forster (New South Wales), Papuastus Roewer (New Guinea), Zalmoxis Söresen (Java, Celebes, Philippines, Mariana Is., Caroline Is., Marshall Is., Bismarck Archip., New Guinea, Duan and Mulgrave Is. in Torres Strait, North and East Queensland, New South Wales, New
Caledonia, Fiji Is.) and Zalmoxomma Roewer (Mauritius). Several other genera have been synonymised with Zalmoxis by Goodnight & Goodnight (1957).


The systematic position of the following other genera previously included in Phalangodinae is obscure: Biconibunus Roewer (Singapore), Bunofagea Lawrence (Madagascar), Buparellus Roewer (Burma, Thailand), Bupares Thorell (Burma, Thailand, Malay), Gjellerupia Roewer (New Guinea), Heterobabrius Roewer (Malaya, Singapore), Istithaeus Roewer (Borneo), Johorella Roewer (Malaya), Kondosus Roewer (Borneo), Metatithaeus Suzuki (Borneo), Metazalmoxis Roewer (Seychelles), Parazalmoxis Roewer (Kenya), Peltamma Roewer (Sumatra), Remyus Roewer (Madagascar), Seblatus Roewer (Sumatra), Spalicus Roewer (New South Wales), Sterrhosoma Thorell (Sumatra), Tithaeomma Roewer (Burma), Tithaeus Thorell (Burma, Thailand, Malaya), Tithaeus Thorell (Burma, Thailand, Malaya, Singapore, Sumatra, Krakatau, Java, Borneo, Sarawak, Timor) and Zalmoxide Roewer (New Guinea).

The following African 'Phalangodinae' genera belong in a new family still to be described: Aburiplus Roewer (Ghana), Conomma Loman (Guinea-Bissau, Ghana, Togo, Cameroon, Fernando Poo, Principe I., Annobón I., Zaire, Angola, Tanzania), Metaconomma Kauri (Zaire), Microconomma Roewer (Cameroon), Micronimba Roewer (Ivory Coast), Nimbadus Roewer (Ivory Coast), Opconomma Roewer (Sao Tomé Is.), Opconommula Roewer (Cameroon), Proconomma Roewer (Zaire), Pyramidops Loman (Togo, Cameroon, Fernando Poo, Gabon, Zaire) and Tonkouinatus Roewer (Ivory Coast). The position of Kwangonia Kauri from Zaire and Tetebius Roewer from Mozambique is uncertain, but they may belong in a group close to the Assamiidae.

Biantidae—Hinzuanius

There has been confusion regarding the status of some African, especially Malagasy and other insulan genera and species of Biantidae. The oldest available name in this group is Hinzuanius Karsch, 1880 to which are assigned the following species (according to their revised types):

H. insulanus Karsch, 1880 (type-species)—Comoro Is. [holotype: 'Hinzuanius insulanus Karsch, Type, Anjouani, Hildebrdt.', ZMB 2551—δ],
H. bicolor (Pocock, 1903)—Sokotra [syntype: 'Biantidius bicolor (Poc.). ex Typus. Sokotra', SMF R II/7399/35—δ]. Described in Biantes, transferred to Hinzuanius by Roewer (1912), but later removed; probably = H. flaviventris (Pocock, 1903),
H. comorensis (Roewer, 1949), comb. n.—Comoro Is. [syntypes: 'Biantica comorensis Rwr. Komoren: La Grille', SMF R II/1565/21—2♂, 3♀],
H. gracilis (Roewer, 1949), comb. n.—Madagascar [syntypes: 'Biantula gracilis Rwr. Madagaskar: Marie', SMF R II/1563/19—1♂, 2♀] (syn.: Acrobiantes nigroannulatus Lawrence, 1959, syn. n.),
H. madagassis (Roewer, 1949), comb. n.—Madagascar [syntypes: 'Biantica madagassis' Rwr. Madagaskar: Bai Antongil', SMF R II/1562/18—5 ♂, 2 ♀, 1 j],

H. mauriticus Roewer, 1927—Mauritius (see above),

H. parvulus Hirst, 1911—Seychelles [syntype: 'Biantes parvulus' (Hirst), ex Typ. Seychellen: Praslin', SMF R I/256—♀],

H. vittatus (Simon, 1885), comb. n.—Madagascar [syntype: 'Acrobiantes vittatus' (Sim.). Madagaskar: Nossi Bé. Typ. Simon ded.'], SMF R I/982—♀] (syn.: Hinzuanius hildebrandti Roewer, 1912, syn. n., Hovabiantes immaculatus Lawrence, 1959, syn. n., Hovabiantes simplicidens Lawrence, 1959, syn. n., Hovabiantes vachoni Lawrence, 1959, syn. n.). [The type-specimens of hildebrandti have been examined: 'Hinzuanius hildebrandti W. Soer.* Madagaskar Hildebrandt' 'Hinzuanius hildebrandti Roewer, 1912—1 ♂, 1 ♀ Syntypen. NW Madagaskar, Hildebrandt leg.', ZMB 3795—♂ (lectotype), ♀ (paralectotype); also numerous series from SMF det. by Roewer.]

There are some further species from Madagascar, which should also be placed here, but whose types were not studied (names in original combinations):

Acrobiantes littoralis Lawrence, 1959,

Biantes milloti Fage, 1946,

Acrobiantes pardalis Lawrence, 1959 (syn.: Acrobiantes brevispinus Lawrence, 1959, syn. n., Acrobiantes minor Lawrence, 1959, syn. n.),

Hovabiantes pauliani Lawrence, 1959 (syn.: Biantes scaber Lawrence, 1959, syn. n.),

Biantes tenebrosus Lawrence, 1959.

As a result of my study some generic names must fall into the synonymy of Hinzuanius:

Acrobiantes Roewer, 1915 (type-species Biantes vittatus Simon, 1885), syn. n.,

Biantica Roewer, 1949 (type-species Biantica comorensis Roewer, 1949), syn. n.,

Biantula Roewer, 1949 (type-species Biantula gracilis Roewer, 1949), syn. n.,

Biantidius Roewer, 1949 (type-species Biantes bicolor Pocock, 1903), syn. n.,

Hovabiantes Lawrence, 1959 (type-species Biantica comorensis Roewer, 1949)—objective synonym of Biantica; syn. n.

An unsolved problem is the mutual relation between the genera Hinzuanius and Biantes Simon, 1885 (with several species from South-East Asia; type-species Biantes longimanus Simon, 1885)—they probably belong together.

Assamiidae

The systematic position of the genus Maccabeesa Roewer will only be resolved when a male of its single species is available. It was originally placed in the Erecinae, but all the Assamiidae require redefinition, because the previous division into 18 subfamilies (Roewer 1935, Kauri 1985) is artificial and does not reflect natural relationships. My revisionary work on African members of the family has
revealed that there are two distinct groups (maybe at family level), which do not correspond with the existing subfamilies. The revision is, however, far from complete.

Gagrellinae

The hitherto existing system of the Gagrellinae-Leiobuninae complex is highly unsatisfactory and badly needs thorough examination. Criteria used for the separation of genera are inadequate and the main characters often variable, e.g. the number of noduli on the femora of legs. The structure of the genital organs is still used only for species characterisation and not for delimitation of higher taxa. Moreover there are some nomenclatural problems in the Gagrellinae, one being of crucial importance: the genus Gagrella Stoliczka, 1869, the largest in the subfamily, has no type-species, because the two originally included species (G. atrata Stoliczka and G. signata Stoliczka) were carelessly removed to other genera (Melanopa Thorell and Crassicippus Roewer respectively) by Roewer (1910) and his proposal to designate G. feae Thorell, as ‘Typus’ (1923: 952) is invalid.

Under these circumstances I leave Strandia ceylonensis where it has been previously placed not intending to make any revision of Gagrellinae, though I am aware, that the differences between the genera Strandia Roewer, 1910 and Crassicippus Roewer, 1910 are probably non-existent using Roewer's diagnoses.

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