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***Primnoa* Fischer-Waldheim 1846, *Sharovia* Otte 1997, *Parahagla* Lin 1982, *Phyllophora erosifolia* Piza 1981 and *Archibrunnea* Otte 1997: naming issues resolved**

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Abstract

The preoccupied genus name of Eurasian grasshopper *Primnoa* Fischer-Waldheim 1846 (Arthropoda: Orthoptera) (*nec* Lamouroux 1812 [Cnidaria: Alcyonacea]) was replaced by its oldest synonym, *Prumna* Motschulsky 1859. The current work reviews the authorship and availability of *Primnoa* and its type species. Additionally, it generally resolves the nomenclatural issues associated with these names, one of which includes providing *Prumnini* *nom. nov.* as a replacement name for the tribe *Primnoini* *syn. nov.* Subtribe *Primnoae* becomes a new synonym of *Prumnini*. *Sharovia* Otte 1997 is synonymized with *Sharovella* Gorochov 1985 and *Archibrunnea* Otte 1997 *syn. nov.* with *Brunneus* Hong 1983. *Linahagla* *nom. nov.* is provided as a replacement name for *Parahagla* Lin 1982 and *Phyllophora pizaerosifolia* *nom. nov.* replaces *Ph. erosifolia* Piza 1981, primary homonym.

Key words

Primnoa, *Prumna*, *Eupodisma*, *Primnoae*, *Primnoini*, *Prumnini*, *Paroecanthus*, *Sharovia*, *Sharovella*, *Brunnea*, *Brunneus*, *Archibrunnea*, *Parahagla*, *Linahagla*, *erosifolia*, *pizaerosifolia*, *viridis*, preoccupied, homonym

Introduction

Search results of the Zoological Record (ZR) for *Primnoa* Fischer-Waldheim 1846 (Arthropoda: Orthoptera) revealed 2 very different genera: the red tree coral *Primnoa* Lamouroux 1812 (Cnidaria: Alcyonacea) and the Eurasian grasshopper *Primnoa* Fischer-Waldheim 1846 (Arthropoda: Orthoptera).

During the process of determining a replacement name, an intriguing combination of circumstances concerning its original description was uncovered. Prior to the first published use of *Primnoa* Fischer-Waldheim, Motschulsky used the genus name in an unpublished communication to Fischer-Waldheim (Uvarov 1940). Fischer-Waldheim (1846) subsequently published descriptions of taxa that Motschulsky only informally described, thus raising the question of authorship. *Primnoa* was one of these taxa. In addition, this genus was originally published as a synonym, thereby, requiring the determination of its availability.

The ZR was an aid in the discovery of 4 other discrepancies. These involved *Sharovia* Otte, *syn. nov.*, *Archibrunnea*, *syn. nov.*, *Parahagla* Lin, preoccupied and *Phyllophora erosifolia* Piza, primary homonym.

***Primnoa* Fischer-Waldheim, preoccupied**

The first use of *Primnoa* (Orthoptera) occurred in 1846, when Fischer-Waldheim mentioned *Primnoa viridis* Fischer-Waldheim as a synonym of *Podisma primnoa* Motschulsky (Fig. 1). Although *Primnoa* was originally described as a junior synonym, it is an available name. Uvarov (1940) subsequently adopted it as a taxon name, fulfilling Article 11.6.1 of the International Code of Zoological Nomenclature [International Commission on Zoological Nomenclature (ICZN 1999)] as an available name of a taxon originally described as a synonym:

11.6. Publication as a synonym. A name which when first published in an available work was treated as a junior synonym of a name then used as valid is not thereby made available.

11.6.1. However, if such a name published as a junior synonym had been treated before 1961 as an available name and either adopted as the name of a taxon or treated as a senior homonym, it is made available thereby but dates from its first publication as a synonym (for type species if a genus-group name see Article 67.12; for name-bearing type if a species-group name see Articles 73-75; for authorship see Article 50.7).

Fischer-Waldheim plainly indicated that Motschulsky described *Primnoa viridis* as a new species (Fig. 1); however, he did not specify to whom the original description of *Primnoa* belonged. Uvarov (1940) gave credit to Fischer-Waldheim for the authorship when he synonymized *Prumna* Motschulsky with *Primnoa* Fischer-Waldheim. According to Article 50.7 of the code (ICZN 1999), this is the correct interpretation of authorship:

50.7. Authorship of names first published as junior synonyms. If a scientific name (taken, for example, from a label or manuscript) was first published in the synonymy of an available name and became available before 1961 through the provisions of Article 11.6, its author is the person who published it as a synonym, even if some other originator is cited, and is not the person who subsequently adopted it as a valid name [Art. 11.6].

The type species name for *Primnoa* is *viridis* Fischer-Waldheim 1846, by monotypy. It is the only specific name in the binomen with *Primnoa* Fischer-Waldheim during the first use of the genus name (Fig. 1).

Genus *Primnoa* Lamouroux (Alcyonacea)

In 1812, Lamouroux described the red tree coral *Primnoa* (Cnidaria: Alcyonacea). As pointed out by Ito (2003), the coral *Primnoa* Lamouroux 1812 (Cnidaria: Alcyonacea) and grasshopper *Primnoa* Fischer-Waldheim 1846 (Arthropoda: Orthoptera) are homonyms.

Genus *Prumna* Motschulsky (Orthoptera), name given priority

In 1859, Motschulsky described *Prumna* for *Primnoa viridis* Fischer-Waldheim. Uvarov (1940) subsequently synonymized *Prumna* with *Primnoa* Fischer-Waldheim. Since *viridis* is the type species name for *Prumna* and *Primnoa*, these genera are objective synonyms. *Prumna* is the oldest available name among the synonyms of *Primnoa*; therefore, *Prumna* Motschulsky 1859 was used as the replacement name for *Primnoa* Fischer-Waldheim 1846 (Ito 2003).

Synonym *Eupodisma* Scudder

Scudder (1897) described the subgenus *Podisma* (*Eupodisma*) for the species *primnoa* Motschulsky 1846. Kirby (1910) correctly listed *Eupodisma* as a synonym of *Prumna* Motschulsky. The species name *Primnoa viridis* is a synonym of *primnoa*; therefore, *Eupodisma* is a junior synonym of *Prumna*.

Species *Podisma primnoa* Motschulsky, correct authorship

The original description of *primnoa* was provided in 1846 by Motschulsky (in Fischer-Waldheim) (Fig. 1). Since there is no known publication of *primnoa* that predates the work of Fischer-Waldheim (1846), I am in agreement with previous authors (e.g., Kirby 1910, Mishchenko 1952, Bei-Bienko & Mishchenko 1963, Ito 2003), who have considered this work to be the original description. In addition, Fischer-Waldheim is usually credited for the original description of *primnoa*. However, Fischer-Waldheim clearly indicated that Motschulsky is the author of the binomial name and its description by writing "Motsch." in the heading of *Podisma primnoa*, thereby making Motschulsky (1846) the author of the original description. This authorship is in accordance with Article 50.1.1 of the code (ICZN 1999):

Article 50. Authors of names and nomenclatural acts.

50.1. Identity of Authors. The author of a name or nomenclatural act is the person who first publishes it [Arts 8, 11] in a way that satisfies the criteria of availability [Arts 10 to 20] (but for certain names published in synonymy see Article 50.7). If a work is by more than one person but it is clear from the contents that only one of these is responsible for the name or act, then that person is the author; otherwise the author of the work is deemed to be the author of the name or act. If the author, or the person who publishes the work, cannot be determined from the contents, then the name or act is deemed to be anonymous (See Article 14 of the availability of anonymous names and nomenclatural acts).

50.1.1. However, if it is clear from the contents that some person other than an author of the work is alone responsible both for the name or act and of satisfying the criteria of availability other than actual publication, then that other person is the author of the name or act. If the identity of that other person is not explicit in the work itself, then the author is deemed to be the person who publishes the work.

The species *primnoa* Motschulsky has had at least 5 different placements. Stål (1876, 1880) listed *primnoa* within *Pezotettix* (*Melanoplus*). Scudder (1897) described a new subgenus, *Podisma* (*Eupodisma*), for *primnoa*. Jacobson (1905) placed it in *Podisma* (*Prumna*). Kirby (1910) listed it within *Prumna*. Uvarov (1940) synonymized *Prumna* Motschulsky with *Primnoa* Fischer-Waldheim, which moved *primnoa* back to *Primnoa*. With *Prumna* as the valid name for *Primnoa*, it is presently considered *Prumna primnoa* (Motschulsky 1846).

Synonym *Primnoa viridis* Fischer-Waldheim, correct authorship

Although most authors credit Motschulsky (1859) for the original description of *viridis* (e.g., Kirby 1910, Mishchenko 1952, Bei-Bienko & Mishchenko 1963, Ito 2003), the first use of the name was in 1846 when Fischer-Waldheim mentioned it as a synonym. Fischer-Waldheim explicitly conveyed that Motschulsky was responsible for the name *Primnoa viridis* Fischer-Waldheim and its description (Fig. 1). Nevertheless, according to Article 50.7 of the code (ICZN 1999), Fischer-Waldheim (1846) is the author of *viridis* because he published its first use as a synonym. Motschulsky (1859) adopted *viridis* as the name of a taxon, subsequent to its original description as a synonym, which satisfies the availability of *viridis* according to Article 11.6. Since *Primnoa viridis* and *Podisma primnoa* Motschulsky were described within the same work, the date of publication failed to determine their priority. Fortunately, the order of appearance within a work and minimization of instability can aid in determining the priority of synonymous taxa published within the same publication. These remedies were compatible. Since *Podisma primnoa* Motschulsky preceded *viridis* on the page of their first use, the former remains the valid name of the two. Kirby (1910), Mishchenko (1952) and Bei-Bienko and Mishchenko (1963) also recognized the synonymy between *viridis* and *primnoa*. This synonymy remains.

New Combinations

There are 25 species in the genus *Prumna* Motschulsky. Two have new combinations: *Prumna ningana* (Ren & Zhang 1996) *comb. nov.* and *Prumna orientalis* (Storozhenko 1983) *comb. nov.* Three of the species that Ito (2003) provided new combinations for were considered valid by Otte (1995). However, subsequent to this 4th volume of the Orthoptera Species File, Storozhenko (1998) synonymized *Primnoa koreana* Storozhenko 1991 with *Primnoa halrasana* Lee & Lee 1984 and synonymized *Primnoa assimilis* Mishchenko 1951 and *Primnoa robusta* Mishchenko 1951 with *Primnoa tristis* Mishchenko 1951. Additionally, *Prumna primnoa* Fischer-Waldheim is a recently revived combination.

New Name *Prumnini* Mayer

Rehn & Randall (1963) proposed Primnoae as a subtribe of Podismini for *Pachypodisma* Dovnar-Zapolskii, *Primnoa* Fischer-Waldheim and *Prumnacris* Rehn & Rehn. Vickery (1987) did not recognize the Group Primnoae. More recently, Otte (1995) did not distinguish these genera from other Podismine grasshoppers. Vickery (1997) used Primnoini as a tribe of Melanoplinae. However, a molecular phylogenetic study of the origins and taxonomic relationships of North American Melanoplinae did not find evidence to support the use of the Group Primnoae (Litzenberger & Chapco 2003). Nevertheless, Primnoini is currently accepted as a separate tribe (Skareas and Hsiung 1999). Here I follow the classification of Vickery (1997); the tribe Primnoini is included in the

subfamily Melanoplinae. *Primnoa* *syn. nov.* and *Primnoini* *syn. nov.* are family-group names based on the preoccupied genus *Primnoa* Fischer-Waldheim, therefore are replaced by tribe Prumnini *nom. nov.* based on *Prumna* Motschulsky 1859.

Four Additional Invalid Names

Preoccupied *Sharovia* Otte

Both *Sharovella* Gorochov 1985 and *Sharovia* Otte 1997 were provided as replacement names for *Paroecanthus* Sharov 1968, preoccupied (*nec* Saussure 1859). *Sharovia* Otte *syn. nov.* is preoccupied (*nec* Sinitshenkova 1977, Dictyoneurida = Palaeodictyoptera). *Sharovella* Gorochov 1985 is the valid name for *Sharovia* Otte 1997 *syn. nov.*

Preoccupied *Parahagla* Lin

Parahagla was described by Sharov (1968). To honor Lin, here *Linhagla* is the new name for *Parahagla* Lin 1982, preoccupied.

New Synonym *Archibrunnea* Otte, unnecessary replacement name.

Archibrunnea *syn. nov.* replaced what was thought to be described by Hong (1983) as *Brunnea* (*nec* Dupont 1834 [Pisces], Uvarov 1939) (Otte 1997). The first 3 uses of the new genus name were spelled as *Brunneus* Hong (1983). Two of these were in the Chinese text and the 3rd was included in the index. Within the same work there were 3 subsequent uses as *Brunnea*. *Brunneus* Hong 1983 is chosen here as the valid name because it is assumed to be the one intended by the author. In addition, this is the spelling that appeared first in the text. *Brunnea* Hong 1983 is a misspelling. This fixation of the correct original spelling is in accordance with Article 24 of the code (ICZN 1999). In part, Article 24.2.3 states that when more than one spelling is used in an original description, the name that is fixed as the original spelling is established with the first author that cites the different spellings of the names, together with the selection of the correct one. *Archibrunnea* Otte 1997 is a new synonym of *Brunneus* Hong 1983.

Primary homonym *Phyllophora erosifolia* Piza

In 1924, Karny described *Phyllophora erosifolia*. Subsequently, *Phyllophora erosifolia* Piza 1981 was described and became a primary homonym. In honor of Dr. Salvador de Toledo Piza Junior, *Phyllophora pizaerosifolia* *nom. nov.* replaces *Phyllophora erosifolia* Piza 1981.

Discussion

Prior to publication, checking the Zoological Record and any other useful resources for important information concerning one's work that could affect nomenclature is strongly recommended. Recommendation 8A of the code (ICZN 1999) suggests that authors send a copy of works containing new names to the ZR. Following this recommendation could minimize the creation and maintenance of nomenclatural discrepancies. Pending the proper resolution of any significant problems that may be associated with the change (*e.g.*, availability of the ZR) — recommendation 8A should be mandatory.

An earlier draft of the current paper, submitted 14 Nov 2003, attempted to provide a replacement name for the preoccupied name

Primnoa Fischer-Waldheim. Fortunately, the July 2003 article that replaced this name was found prior to the publication of the current work, thereby avoiding the duplication of this nomenclatural change. This article became available to the Zoological Record Product on 29 Sept, causing it to appear in the update shortly after 29 Nov 2003 (Robinson pers. com.).

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Les cuisses postérieures sont très fortes, brunes, avec un anneau jaune près de la jointure. Les jambes sont bleuâtres.

Il se trouve en Sibérie, dans les steppes des Kirguises, dans le gouvernement d'Orenbourg; — en Allemagne; en France; en Suède; en Sardaigne.

2. PODISME PRUNEAU.

PODISMA primnoa MOTSCH.

Verte, (brunâtre après la mort) élytres courts tronqués; cuisses postérieures allongées, tricarlinées extérieurement.

Viridis, (*fusca post mortem*), *elytris brevibus truncatis*; *femoribus*, *posticis elongatis tricarlinatis*.

Longueur { du mâle; 9 lignes.
de la femelle; 14 $\frac{1}{2}$ lignes.

M. de MOTSCHOUJSKY ayant trouvé cette espèce au delà du Baïcal l'a proposée comme genre nouveau sous le nom de *Primnoa viridis*, parce que le mâle présente une singulière conformation de l'anüs. Les segmens derniers sont dilatés et la lame sousanale paraît comme une boule, la pointe étant rentrée.

Je crois que cette forme est produite par un accident, par l'accouplement même peut-être. L'animal ressemble au reste à un *Podisma*, dont les élytres dans les deux sexes sont raccourcis et tronqués à l'extrémité. Les cuisses postérieures sont très allongées et paraissent tricarlinées, parce que la carène supérieure est plus pâle, et paraît former un tout avec la face extérieure qui porte ces sillons anguleux mais très étroitement placés.

Patrie. Verkhne-Oudinsk. M. de MOTSCHOUJSKY.

Fig. 1. Page 248 from Fischer-Waldheim 1846 containing the original descriptions of *Primnoa* Fischer-Waldheim, *primnoa* Motschulsky and *viridis* Fischer-Waldheim.