

Annotated catalogue of the click-beetle tribe Senodoniini (Coleoptera: Elateridae: Dendrometrinae)

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Abstract

An annotated catalogue of the tribe Senodoniini (Coleoptera: Elateridae: Dendrometrinae) is presented. Altogether, 21 extant species are classified in genera *Senodonia* Laporte, 1838 (20 species) and *Sossor* Candèze, 1883 (one species). Genus *Parallotrius* Candèze, 1878 is placed into Dendrometrinae *incertae sedis*, and *Allotriopsis* Champion, 1896 is tentatively transferred to Elaterinae: Dicrepidiini. *Senodonia bicoloris* Vats & Chauhan, 1993 is transferred to *Arhaphes* (Elateridae: Negastrinae) as *A. bicoloris* (Vats & Chauhan, 1993) **comb. nov.** Senodoniini are distributed in the Himalayas, China and South East Asia. For each taxon we provide synonyms, information on types, type localities, distribution, and bibliography. Additionally, a list of genera earlier classified in Senodoniini but currently placed outside the group is given.

Key words: *Arhaphes*, click-beetles, Elateroidea, Dimini, diversity, Negastrinae, *Senodonia*, *Sossor*, systematics

Introduction

Senodoniini Schenkling, 1927 is a small group of Elateridae currently comprising 21 species included in two genera. They are distributed mainly in the Himalayas and South East Asia, but several species are known from China (Schimmel 1996, 2006a). The taxonomic history of Senodoniini is convoluted and its definition and position in the classification have changed frequently (e.g., Candèze 1891a, Schenkling 1927, Schimmel & Platia 1992). Senodoniini have been historically placed near Dimini due to some similarities e.g., in the head morphology and lobate tarsomeres, and the limits of both groups overlapped as several genera of the currently defined Dimini were often classified within Senodoniini (Candèze 1863, Szombathy 1910, Schenkling 1927, Miwa 1934, Fleutiaux 1936, Ôhira & Becker 1972, Jiang 1993b; see Kundrata et al. 2018b for a review on the classification of Dimini). In recent studies, this group is treated either as a subfamily (Schimmel & Platia 1992, Golbach 1994), a tribe within Diminae (Cate *et al.* 2007) or within Dendrometrinae (Dolin 2000; Costa et al. 2010; Bouchard *et al.* 2011; Kundrata & Bocak 2011; Arias-Bohart & Elgueta 2012; Kundrata et al. 2018a, b), or a subtribe within Dimini (Schimmel 2006a).

This group was first introduced as Allotriites by Candèze (1863) who placed there Asian genera *Allotrius* Laporte, 1840 (= *Senodonia* Laporte, 1838), *Hemiolimerus* Candèze, 1863 and *Penia* Laporte, 1838. Later, he added *Parallotrius* Candèze, 1878 from South America and *Morostoma* Candèze, 1879 from Madagascar (Candèze 1878, 1879, 1891a). Champion (1896) described the monotypic genus *Allotriopsis* from Central America within

Allotriini. These six genera were classified in Allotriini also by Schwarz (1907). Szombathy (1910) described the genus *Csikia* based on a single species from Taiwan and added it to Allotriini. Schenkling (1927) used the name Senodoniinae for Allotriini as the latter was older, but based on a preoccupied type genus, and removed *Morostoma* from the group. Fleutiaux (1936) synonymized *Hemiolimerus* with *Senodonia*, and added South East Asian genera *Rostricephalus* Fleutiaux, 1918 (formerly in Ludiinae) and *Sossor* Candèze, 1883 (formerly in Dicrepidiinae) to Senodoniinae. Later, Fleutiaux (1947) removed *Rostricephalus* and created a separate monogeneric subfamily for it. Kishii (1962) added into Senodoniinae the East Asian genus *Mucromorphus* Ôhira, 1962. Ôhira & Becker (1972) classified in Senodoniinae also *Dima* Charpentier, 1825 (Diminae) and the newly described *Neocsikia* Ôhira & Becker, 1972. These genera were, however, considered the members of Dimini by subsequent authors (e.g., Suzuki 1982a, Schimmel & Platia 1991, Schimmel 1996, Kunderata et al. 2018b). Schimmel & Platia (1991) redefined the subtribe Dimina and added former senodoniine genera *Penia* and *Csikia*. Schimmel & Platia (1992) provided the revision of Senodoniinae and reduced this group only to the South East Asian genera *Senodonia* and *Sossor*. They transferred *Mucromorphus* to Hemicrepidiinae (now within Dendrometrinae; Costa et al. 2010), listed diagnostic characters for Senodoniinae, and provided an identification key to all known species. Schimmel (1996) revised both Dimini and Senodoniini in a single study, indicating their close relationships. These groups, however, clearly differ in morphology of pronotum, metacoxal plates and male genitalia (Schimmel & Platia 1991, 1992; Schimmel 1996). Costa et al. (2010) and Bouchard et al. (2011) treated Senodoniini as a separate tribe within Dendrometrinae. Unfortunately, Senodoniini were not included in the recent morphology-based phylogenetic hypothesis for Elateridae (Douglas 2011). The single-gene based phylogenetic studies by Jiang et al. (2009) and Meng et al. (2017, 2018) recovered *Senodonia* in a distant position from Dimini, and questioned the position of Senodoniini in Dendrometrinae. However, no Senodoniini representative was included in the recent molecular phylogenetic hypotheses for Elateridae based on combined nuclear and mitochondrial markers (Kunderata & Bocak 2011; Kunderata et al. 2016, 2018a; Bocak et al. 2018; Douglas et al. 2018). A more comprehensive phylogenetic dataset including also *Sossor* would help us to understand the relationships between Dimini and Senodoniini as well as to test the monophyly of current Senodoniini.

Genera earlier classified in Senodoniini but currently placed outside the group

***Penia* Laporte, 1838** (type species: *Elater eschscholtzi* Hope, 1831) from the Himalayas, East Palaearctic region and South East Asia was included in Senodoniini (=Allotriites) since the creation of the group by Candèze (1863) and was placed in Dimini only relatively recently (Dolin 1990, Schimmel & Platia 1991). Although its placement in Dimini was accepted by most experts in the field (e.g. Schimmel 1996, Cate *et al.* 2007, Bouchard et al. 2011, Kunderata et al. 2018b), some authors classify *Penia* in Senodoniini but without any supporting evidence (Thapa 2000, Mukhopadhyay & Chakraborty 2003, Chakraborty & Chakrabarti 2006).

***Morostoma* Candèze, 1879** (type species: *M. palpale* Candèze, 1879) from Madagascar was placed in Senodoniini (=Allotriites) by Candèze (1879, 1891a) and Schwarz (1907). It was removed from the group by Schenkling (1927) and later placed in Athoini (=Dendrometrinae) (Dolin 1975). Dolin (2000) transferred this genus to his newly erected subfamily Morostomatinae which is sister to Dendrometrinae + Cardiophorinae + Negastrinae in DNA-based studies by Kunderata et al. (2016, 2018a).

***Parallotrius* Candèze, 1878** (type species: *Hypodesis pallipes* Philippi, 1861) from Chile was included in Senodoniini (=Allotriites) since its description (Candèze 1878, Schwarz 1907, Schenkling 1927, Blackwelder 1944) until the revision of the group by Schimmel & Platia (1992) and Schimmel (1996). Although Golbach (1994) and Arias-Bohart & Elgueta (2012) did not follow the above mentioned revisionary studies and placed *Parallotrius* in Senodoniini, we prefer to keep this genus tentatively in Dendrometrinae *incertae sedis* as its systematic position is unclear.

***Allotriopsis* Champion, 1896** (type species: *A. nasalis* Champion, 1896) from Guatemala was also originally described in Senodoniini (=Allotriites) and classified there until the revision of the group by Schimmel & Platia (1992) and Schimmel (1996). However, no alternative placement for *Allotriopsis* has been proposed to date. Champion (1896) placed this genus into Senodoniini based on the presence of lobate tarsomeres I–IV but mentioned that it is similar to Dicrepidiini in the form of head. Several morphological characters of *Allotriopsis*, such as subtriangular frons, shape of frontal carinae and antennal insertions, very long antennae with short antennomeres II and III, and transverse pronotum with long and acute hind angles, indicate that this genus might indeed belong to Elaterinae: Dicrepidiini (Casari 2008). Champion (1896) distinguished *Allotriopsis* from Dicrepidiini by its deeply excavate frons, narrowed metacoxal plates, and strongly lobed tarsomere IV, however all these character states might be also present in Dicrepidiini (e.g., *Blauta* LeConte, 1853 shares with *Allotriopsis* the tarsomeres I–IV ventrally with lobes and the narrowed metacoxal plates; see Casari 2005, 2008). Based on the above mentioned evidence, we place *Allotriopsis* tentatively to Elaterinae: Dicrepidiini. The position of this genus should be however revisited by future studies.

***Csikia* Szombathy, 1910** (type species: *C. dimatoides* Szombathy, 1910) from East and South East Asia had been classified in Senodoniini (=Allotriites) since its description by Szombathy (1910) and was transferred to Dimini only relatively recently (Dolin 1990, Schimmel & Platia 1991). Its placement in Dimini has been generally accepted (e.g., Schimmel 1996, Cate *et al.* 2007, Kundrata *et al.* 2018b).

***Rostricephalus* Fleutiaux, 1918** (type species: *R. vitalisi* Fleutiaux, 1918) from East and South East Asia was placed in Ludiinae by Schenkling (1927) but later transferred to Senodoniinae by Fleutiaux (1936). The same author later put *Rostricephalus* to his newly erected subfamily Rostricephalinae (Fleutiaux 1947). Gurjeva (1974) classified it as a tribe within Oxynopterinae, which was followed by e.g., Suzuki (1999). Stibick (1979) transferred it to Pityobiinae, which was followed by e.g., Cate *et al.* (2007). However, this subfamily was recently reduced to contain only *Pityobius* LeConte, 1853 and tentatively also *Tibionema* Solier, 1851 (Kundrata *et al.* 2016), and so the placement of *Rostricephalus* remains uncertain.

***Mucromorphus* Ôhira, 1962** (type species: *Athous montanus* Miwa, 1934; =*M. miwai* Kishii, 1962) from East Asia was originally described in Athoinae (=Dendrometrinae) (Ôhira 1962) but then transferred to Senodoniinae (Kishii 1962, 1987). This was not followed by Dolin (1975) who kept it in Athoinae. Later, Schimmel & Platia (1992) transferred *Mucromorphus* to Hemicropodiinae (=Dendrometrinae) which was accepted by subsequent authors (e.g., Schimmel 1996, Cate *et al.* 2007).

***Neocsikia* Ôhira & Becker, 1972** (type species: *N. nepalensis* Ôhira & Becker, 1972) from the Himalayas was originally described in Senodoniinae (Ôhira & Becker 1972) which was

followed by Thapa (2000) and Chakraborty & Chakrabarti (2006). However, *Neocsikia* belongs to Dimini (Suzuki 1982a, Schimmel & Platia 1991, Schimmel 1996, Cate *et al.* 2007, Kundrata *et al.* 2018b).

***Dima* Charpentier, 1825** (type species: *D. elateroides* Charpentier, 1825) from Europe, the Himalayas, East and South East Asia was classified in Senodoniini by Ôhira & Becker (1972), Thapa (2000) and Chakraborty & Chakrabarti (2006), however it belongs to a separate tribe Dimini (see Kundrata *et al.* 2018b for a review).

***Parapenia* Suzuki, 1982** (type species: *P. nigroapicalis* Suzuki, 1982) from the Himalayas, China and South East Asia was classified in Dimini since its description (Suzuki 1982b, Schimmel & Platia 1991, Schimmel 1996, Cate *et al.* 2007, Kundrata *et al.* 2018b) but some authors placed it in Senodoniini (Jiang 1993b, Chakraborty & Chakrabarti 2006).

***Brancuccia* Schimmel & Platia, 1991** (type species: *B. atramentaria* Schimmel & Platia, 1991), and ***Paracsikia* Schimmel & Platia, 1991** (type species: *P. nigerrima* Schimmel & Platia, 1991) from the Himalayas, East Palaearctic region and South East Asia were members of Dimini since their descriptions (Schimmel & Platia 1991, Schimmel 1996, Cate *et al.* 2007, Kundrata *et al.* 2018b) and only Chakraborty & Chakrabarti (2006) placed them into their Senodoniinae.

Material and methods

This study is based primarily on detailed literature examination but both type and non-type Senodoniini from the Museum National d'Histoire Naturelle, Paris, France (MNHN), the Naturhistorisches Museum Wien, Austria (NHMW), Národní muzeum, Praha, Czech Republic (NMPC), and the Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (SDEI) was also examined. Material from other museum collections was examined by the authors either via the institute webpages or from photographs, or checked by the respective curators. The concept and limits of Senodoniini follow Schimmel & Platia (1992), and the placement of Senodoniini as a separate tribe within Dendrometrinae follows Costa *et al.* (2010) and Bouchard *et al.* (2011). We follow the general style used by Kubackova & Kundrata (2017) and Kundrata *et al.* (2018b), i.e., for each taxon within Senodoniini we provide all synonyms, information on the type series and type depositories, type localities, distribution, and relevant bibliography. Additional information and original geographic names are put in square brackets. We report here "Sikkim: Darjeeling" as "West Bengal" (since Darjeeling was historically a part of Sikkim but currently belongs to West Bengal). We follow Sánchez-Ruiz (1996) and Bouchard *et al.* (2011) in using Dendrometrinae instead of Denticollinae. The following collection acronyms are used:

BMNH	Natural History Museum, London, The United Kingdom
FRID	Forest Research Institute, Dehradun, Uttarakhand, India
IARI	Indian Agricultural Research Institute, Pusa National Collections, Division of Entomology, New Delhi
MSNG	Museo Civico di Storia Naturale, Genoa, Italy
MFNB	Museum für Naturkunde Berlin, Leibniz-Institut für Evolutions- und Biodiversitätsforschung, Berlin, Germany
MNHN	Museum National d'Histoire Naturelle, Paris, France
NHMB	Naturhistorisches Museum, Basel, Switzerland
PCCW	collection of P.C. Cate, Vienna, Austria

PCGP	collection of G. Platia, Gatteo, Italy
PCOS	collection of O. Šauša, Bratislava, Slovakia
PCRS	collection of R. Schimmel, Vinningen, Germany
PCSR	collection of S. Riese, Genoa, Italy
RBINS	Royal Belgian Institute of Natural Sciences, Brussels, Belgium
RMNH	Naturalis Biodiversity Center, Leiden, The Netherlands
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany

Tribe Senodoniini Schenkling, 1927

Senodoniinae Schenkling, 1927: 417, Fleutiaux (1936), Wu (1937), Jagemann (1943), Van Zwaluwenburg (1959), Schimmel & Platia (1992), Golbach (1994), Chakraborty & Chakrabarti (2006).

Senodoniini: Liu (1932), Dolin (1975, 1982), Kishii (1987), Jiang (1993a, b), Kishii & Jiang (1996), Jiang & Wang (1999), Kishii (1999), Dolin (2000), Cate *et al.* (2007), Costa *et al.* (2010), Bouchard *et al.* (2011), Arias-Bohart & Elgueta (2012), Kundera & Bocak (2011), Kundera *et al.* (2018a, b).

Senodoniina: Blackwelder (1944), Stibick (1979), Schimmel & Platia (1991), Schimmel (2006a).

Sendoninae: Ôhira (1966, 1978), Mukhopadhyay & Chakraborty (2003) [unavailable name, incorrect subsequent spelling (ICZN 1999, Art. 33.3)].

Sendoniinae: Ôhira (1971), Ôhira & Becker (1972), Ôhira (1973), Thapa (2000) [unavailable name, incorrect subsequent spelling (ICZN 1999, Art. 33.3)].

Senodoninae: Miwa (1928, 1931a, b, 1934), Kishii (1962), Chakraborty & Chakrabarti (2006) [unavailable name, incorrect stem formation (ICZN 1999)].

Senodonini: Kishii (1987), Casari (2008) [unavailable name, incorrect stem formation (ICZN 1999)].

Sonodoniinae: Fleutiaux (1941) [unavailable name, incorrect subsequent spelling (ICZN 1999, Art. 33.3)].

Type genus: *Senodonia* Laporte, 1838.

= *Allotriites* Candèze, 1863: 225 [permanently invalid (ICZN 1999; Art. 39): based on preoccupied type genus], Candèze (1865, 1878, 1879, 1888, 1891a, b, 1893, 1895).

= *Allotriini*: Champion (1896), Schwarz (1906, 1907), Heyne & Taschenberg (1905), Szombathy (1910), Hyslop (1917).

= *Allotriina*: Jakobson (1913).

= *Allotrini*: Fleutiaux (1910) [unavailable name, incorrect stem formation (ICZN 1999)].

Type genus: *Allotrius* Laporte, 1840 [preoccupied by *Allotrius* Temminck, 1835 (Aves)].

Genus *Senodonia* Laporte, 1838

Senodonia Laporte, 1838: 12.

Sendonia: Ôhira (1971: 210), Mukhopadhyay & Chakraborty (2003) [unavailable name, incorrect subsequent spelling (ICZN 1999, Art. 33.3)].

Type species. *Senodonia quadricollis* Laporte, 1838; by monotypy.

= *Allotrius* Laporte, 1840: 231 [preoccupied by *Allotrius* Temminck, 1835 (Aves)].

Type species. *Allotrius quadricollis* Laporte, 1838; by monotypy.

= *Hemiolimerus* Candèze, 1863: 227; synonymized by Fleutiaux (1936: 284).

Type species. *Hemiolimerus emodi* Candèze, 1863; by monotypy.

= *Orientis* Vats & Kashyap, 1992: 252; synonymized by Cate *et al.* (2007: 186).

Type species. *Orientis montanus* Vats & Kashyap, 1992; by monotypy.

Literature. Laporte (1838): original description; Germar (1839): taxonomic note; Laporte (1840): catalogue; Lacordaire (1857): catalogue; Candèze (1863): catalogue, species description; Gemminger & Harold (1869): catalogue; Fairmaire (1888): species description; Candèze (1888): species description; Candèze (1891a): catalogue; Candèze (1891b): species description; Candèze (1894): remark; Schwarz (1901): species description; Fleutiaux (1903): distributional note; Schwarz (1906, 1907): catalogue; Heyne & Taschenberg (1905): catalogue; Jakobson (1913): catalogue; Fleutiaux (1918a): remark, distributional note; Fleutiaux (1918b): distributional note; Hyslop (1921): remark; Fleutiaux (1924): remark, distributional note; Schenkling (1927): catalogue; Miwa (1928): distributional note; Miwa (1931a): remark, distributional note; Miwa (1931b): catalogue; Liu (1932): catalogue; Fleutiaux (1936): species description, remark, distributional note; Wu (1937): catalogue; Jagemann (1943): variety description; Ôhira (1971) remark; Dolin (1975): wing venation; Dolin (1982): remark; Dolin (1990): remark; Schimmel & Platia (1992): revision, species descriptions; Vats & Kashyap (1992): species description; Jiang (1993a, b): catalogue; Vats & Chauhan (1993): species description; Garg & Saini (1996): species description; Kishii & Jiang (1996): distributional note; Schimmel (1996): catalogue, species description; Jiang & Wang (1999): catalogue; Suzuki (1999): catalogue; Dolin (2000): description of larva; Thapa (2000): catalogue; Jiang (2001): distributional note; Hua (2002): catalogue; Mukhopadhyay & Chakraborty (2003): catalogue; Jiang & Wang (2004): distributional note; Chakraborty & Chakrabarti (2006): catalogue; Schimmel (2006a): species descriptions; Schimmel (2006b): remark; Cate (2007): taxonomic note; Cate *et al.* (2007): catalogue; Liu *et al.* (2007): distributional note; Jiang *et al.* (2009): molecular phylogeny; Lawrence & Arias (2009): remark on larva; Meng *et al.* (2017): molecular phylogeny.

***Senodonia bengalensis* Schimmel, 2006**

Senodonia bengalensis Schimmel, 2006a: 125.

Type depository. Holotype, male (PCRS).

Type locality. India: West Bengal, Singalila [Shingalila] National Park, Tonglu, 3070 m.

Distribution. India (West Bengal).

Literature. Schimmel (2006a): original description.

***Senodonia birmanica* Schimmel & Platia, 1992**

Senodonia birmanica Schimmel & Platia, 1992: 238.

Type depositories. Holotype, male (BMNH); 4 paratypes, sex undetermined (BMNH, PCRS).

Type locality. Myanmar: Mandalay, Mogok, Ruby Mines [Birma: Ruby Mes].

Distribution. Myanmar.

Literature. Schimmel & Platia (1992): original description; Schimmel (1996): catalogue.

***Senodonia brancuccii* Schimmel & Platia, 1992**

Senodonia brancuccii Schimmel & Platia, 1992: 240.

Type depositories. Holotype, male (NHMB); 34 paratypes, sex undetermined (BMNH, MFNB, NHMB, PCCW, PCGP, PCRS, RBINS, SDEI, SMNS).

Type locality. Nepal: Province No. 1, Arun valley, between Arunthan and Chichila, 1300–1950 m.

Distribution. Bhutan, India (Sikkim, Uttarakhand, West Bengal), Nepal.

Literature. Schimmel & Platia (1992): original description; Schimmel (1996): catalogue; Schimmel (2006a): comparison with other species; Chakraborty & Chakrabarti (2006): catalogue; Cate *et al.* (2007): catalogue.

***Senodonia carinensis* (Candèze, 1891)**

Hemiolimerus gestroi var. *carinensis* Candèze, 1891b: 785.

Senodonia carinensis: Schimmel & Platia (1992: 243).

Type depositories. Lectotype, male (MSNG); 10 paralectotypes, sex undetermined (MSNG, MFNB, RBINS, SDEI). Described from "nombreux exemplaires [many specimens]" (Candèze 1891b).

Type locality. Myanmar: Karen Hills [Carin Cheba], 900–1100 m.

Distribution. Myanmar.

Literature. Candèze (1891b): original description; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue; Schimmel (2006a): comparison with other species.

***Senodonia emodi* (Candèze, 1863)**

Hemiolimerus emodi Candèze, 1863: 227.

Senodonia emodi: Schimmel & Platia (1992: 243).

Type depository. Syntype, male (BMNH). Other type material unknown.

Type locality. Himalaya.

Distribution. Bhutan, India (Sikkim, West Bengal), Nepal.

Literature. Candèze (1863): original description; Gemminger & Harold (1869): catalogue; Candèze (1888): comparison with other species; Candèze (1891a): catalogue; Schwarz (1901): comparison with other species; Schwarz (1907): catalogue; Jakobson (1913): catalogue; Schenkling (1927): catalogue; Miwa (1928): distributional note; Miwa (1931a): distributional note; Ôhira (1971): remark; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue; Suzuki (1999): catalogue, distributional note; Mukhopadhyay & Chakraborty (2003): catalogue; Chakraborty & Chakrabarti (2006): catalogue; Cate *et al.* (2007): catalogue.

***Senodonia fengshuiana* Schimmel, 2006**

Senodonia fengshuiana Schimmel, 2006a: 125.

Type depository. Holotype, female (PCRS); paratype, female (PCRS).

Type locality. China: Fujian, Fengshui-Guan.

Distribution. China (Fujian).

Literature. Schimmel (2006a): original description.

***Senodonia flagellaris* (Garg & Saini, 1996)**

Orientis flagellaris Garg & Saini, 1996: 91.

Senodonia flagellaris: Cate *et al.* (2007: 186).

Type depository. Holotype, male (IARI); 2 paratypes, females (IARI).

Type locality. India: West Bengal, Tiger Hills (Darjeeling), 2600 m.

Distribution. India (West Bengal).

Literature. Garg & Saini (1996): original description; Cate *et al.* (2007): catalogue.

Remark. This species is similar to *S. emodi* from the same region in the size and coloration of body, relative size of antennae, shape and surface of pronotum, and the shape of aedeagus. Further study is needed to clarify if these are conspecific.

***Senodonia flava* Schimmel & Platia, 1992**

Senodonia flava Schimmel & Platia, 1992: 244.

Type depository. Holotype, male (MFNB).

Type locality. Vietnam: Lang Son, Mt. Mau Son [Tonkin, Montes Manson], 2300 m.

Distribution. Vietnam.

Literature. Schimmel & Platia (1992): original description; Schimmel (1996): catalogue.

***Senodonia gestroi* (Candèze, 1888)**

Hemiolimerus gestroi Candèze, 1888: 685.

Senodonia gestroi: Schimmel & Platia (1992: 246).

Type depositories. Lectotype, male (MSNG); 5 paralectotypes, sex undetermined (2 in MSNG, 3 in RBINS). Described from "un demi douzaine d'exemplaires [a half dozen specimens]" (Candèze 1888).

Type locality. Myanmar [Haute Birmanie]: Kachin, Teinzó, Bhamó.

Distribution. Myanmar.

Literature. Candèze (1888): original description; Candèze (1891a): catalogue; Candèze (1891b): note; Schwarz (1901): comparison with other species; Schwarz (1907): catalogue; Schenkling (1927): catalogue; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue.

***Senodonia hiekei* Schimmel & Platia, 1992**

Senodonia hiekei Schimmel & Platia, 1992: 246.

Type depositories. Holotype, male (MFNB); 2 paratypes, sex undetermined (MFNB, PCRS).

Type locality. China: Guangdong, Chaozhou [Canton, Shiu-Chow].

Distribution. China (Guangdong).

Literature. Schimmel & Platia (1992): original description; Schimmel (1996): catalogue; Cate *et al.* (2007): catalogue.

***Senodonia incondita* (Schwarz, 1901)**

Hemiolimerus inconditus Schwarz, 1901: 330.

Senodonia incondita (Schwarz, 1901): Schimmel & Platia (1992: 248).

Type depositories. Lectotype, male (SDEI); 2 paralectotypes, sex undetermined (SDEI).

Type locality. Indonesia: Northern Sumatra, Tebing Tinggi [Tingi-Tebi].

Distribution. Indonesia (Sumatra), Malaysia (Pahang, Borneo: Sabah).

Literature. Schwarz (1901): original description; Schwarz (1907): catalogue; Schenkling (1927): catalogue; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue.

***Senodonia jeanvoinei* Fleutiaux, 1936**

Senodonia jeanvoinei Fleutiaux, 1936: 286.

Type depository. Holotype, sex undetermined (MNHN). Other type material unknown.

Type locality. Vietnam: Lao Cai, Sa Pa [Tonkin: Chapa].

Distribution. Vietnam.

Literature. Fleutiaux (1936): original description; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue.

***Senodonia kucerae* Schimmel, 2006**

Senodonia kucerae Schimmel, 2006a: 127.

Type depository. Holotype, male (PCRS).

Type locality. India: Arunachal Pradesh, Bhalukpog.

Distribution. India (Arunachal Pradesh).

Literature. Schimmel (2006a): original description.

***Senodonia laotica* Schimmel, 2006**

Senodonia laotica Schimmel, 2006a: 127.

Type depositories. Holotype, male (PCRS); 4 paratypes, 2 males, 2 females (PCOS, PCRS, PCSR).

Type locality. Laos: Bolikhamsai, from Ban Nape to Kaew Nua Pass, 600 m.

Distribution. Laos.

Literature. Schimmel (2006a): original description.

***Senodonia meghalayana* Schimmel, 2006**

Senodonia meghalayana Schimmel, 2006a: 128.

Type depository. Holotype, male (PCRS).

Type locality. India: Meghalaya, West Garo Hills Nokrek [Kokrek] National Park.

Distribution. India (Meghalaya).

Literature. Schimmel (2006a): original description.

***Senodonia montana* (Vats & Kashyap, 1992)**

Orientis montanus Vats & Kashyap, 1992: 252.

Senodonia montanus: Cate *et al.* (2007: 186) [*Senodonia* is of a feminine gender so correct spelling is *montana* (ICZN 1999, Art. 34)].

Type depositories. Holotype, male; allotype, female; paratype, male (FRID or IARI; see Vats & Kashyap 1992).

Type locality. India: Himachal Pradesh, Mandi, Kara forest.

Distribution. India (Himachal Pradesh, Uttarakhand).

Literature. Vats & Kashyap (1992): original description; Cate *et al.* (2007): catalogue.

Remarks. This species is similar in size, shape and coloration, relative size of antennae, shape and surface of pronotum, and the shape of aedeagus to *S. brancuccii*, known from the same region. Further study is needed to clarify if these species are conspecific.

***Senodonia quadricollis* (Laporte, 1838)**

Senodonia quadricollis (*Semiotus*?) Laporte, 1838: 12.

Eucamptus quadricollis: Germar (1839: 208).

Allotrius quadricollis: Laporte (1840: 232).

Senodonia quadricollis var. *sinensis* Jagemann, 1943: 100; synonymized by Cate (2007: 43).

Type depository. Unknown (Schimmel 1996).

Type locality. Indonesia: Java.

Distribution. Cambodia, China (Guangdong, Guizhou, Zhejiang), Indonesia (Java, New Guinea, Sumatra), Laos, Vietnam.

Literature. Laporte (1838): original description; Germar (1839): taxonomic note; Laporte (1840): redescription; Lacordaire (1857): catalogue, redescription; Candèze (1863): catalogue, redescription; Gemminger & Harold (1869): catalogue; Candèze (1891a): catalogue; Candèze (1894): distributional note; Heyne & Taschenberg (1905): catalogue; Schwarz (1907): catalogue; Fleutiaux (1918a, b): distributional note; Hyslop (1921): remark; Fleutiaux (1924): distributional note; Schenkling (1927): catalogue; Fleutiaux (1936): distributional note; Jagemann (1943): description of *S. quadricollis* var. *sinensis*; Schimmel & Platia (1992): revision; Jiang (1993a, b): catalogue; Kishii & Jiang (1996): distributional note; Schimmel (1996): catalogue; Jiang & Wang (1999): catalogue; Jiang (2001): distributional note; Hua (2002): catalogue; Schimmel (2006a): comparison with other species; Cate (2007): taxonomic note; Cate *et al.* (2007): catalogue; Jiang *et al.* (2009): molecular phylogeny.

***Senodonia sculpticollis* (Fairmaire, 1888)**

Allotrius sculpticollis Fairmaire, 1888: 350.

Hemiolimerus sculpticollis: Fleutiaux (1918a: 251).

Senodonia sculpticollis: Fleutiaux (1936: 286).

Type depository. Holotype, sex undetermined (RBINS).

Type locality. Vietnam [Tonkin]. Schimmel (1996) reported "Vietnam: Tonkin, Tanrum" as the type locality but based on the examination of type specimen labels the latter word is obviously a misspelling of Frm. [=Fairmaire].

Distribution. China (Guangxi), Laos, Vietnam [Fleutiaux (1918a) mentioned also specimens from India deposited in his collection but this needs to be confirmed].

Literature. Fairmaire (1888): original description; Candèze (1891a): catalogue; Fleutiaux (1903): distributional note; Schwarz (1907): catalogue; Fleutiaux (1918a): remark, distributional note; Fleutiaux (1918b): distributional note; Fleutiaux (1924): distributional note; Schenkling (1927): catalogue; Liu (1932): catalogue; Fleutiaux (1936): distributional note; Wu (1937): catalogue; Dolin (1975): wing venation; Schimmel & Platia (1992): revision; Jiang (1993b): catalogue; Kishii & Jiang (1996): distributional note; Schimmel (1996): catalogue; Jiang & Wang (1999): catalogue; Dolin (2000): description of larva; Hua (2002): catalogue; Jiang & Wang (2004): distributional note; Cate *et al.* (2007): catalogue; Lawrence & Arias (2009): remark on larva; Meng *et al.* (2017): molecular phylogeny.

***Senodonia shingalilana* Schimmel, 2006**

Senodonia shingalilana Schimmel, 2006a: 128.

Type depository. Holotype, male (PCRS).

Type locality. India: West Bengal, Singalila [Shingalila] National Park, Shirikhola, 2600 m.

Distribution. India (West Bengal).

Literature. Schimmel (2006a): original description.

Remark. This species is morphologically very similar to *S. bengalensis*. Both species were described from Singalila National Park, and share almost identical set of characters. Minor differences between these species in the body size and shape of aedeagus might represent the intraspecific variability. Further study is needed to clarify if these species are conspecific.

***Senodonia siamensis* Schimmel, 1996**

Senodonia siamensis Schimmel, 1996: 213.

Type depositories. Holotype, male (NHMB); paratype, sex undetermined (PCRS).

Type locality. Thailand: Chiang Mai, Chiang Dao.

Distribution. Thailand.

Literature. Schimmel (1996): original description, catalogue.

Genus *Sossor* Candèze, 1883

Sossor Candèze, 1883: 208.

Type species. *Sossor hageni* Candèze, 1883; by monotypy.

Literature. Candèze (1883): original description; Schwarz (1907): catalogue; Hyslop (1921): remark; Schenkling (1927): catalogue; Fleutiaux (1936): taxonomic note; Van Zwaluwenburg (1959): taxonomic note; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue.

***Sossor hageni* Candèze, 1883**

Sossor hageni Candèze, 1883: 209.

Type depository. Holotype, male (RMNH).

Type locality. Indonesia: Northern Sumatra, Serdang, Tanjung Morawa [Tandjong Morowa].

Distribution. Indonesia (Java, Sumatra).

Literature. Candèze (1883): original description; Schwarz (1907): catalogue; Hyslop (1921): remark; Schenkling (1927): catalogue; Van Zwaluwenburg (1959): taxonomic note; Schimmel & Platia (1992): revision; Schimmel (1996): catalogue.

Species excluded here from *Senodoniini*

***Arhaphes bicoloris* (Vats & Chauhan, 1993) comb. nov.**

Senodonia bicoloris Vats & Chauhan, 1993: 39.

Type depository. Holotype, male (FRID or IARI).

Type locality. India: Uttar Pradesh, Boom (500 m. asl, Pithoragarh) [currently in Uttarakhand].

Distribution. India (Uttarakhand).

Literature. Vats & Chauhan (1993): original description; Schimmel (2006b): remark.

Remark. Morphological characters mentioned in the original description of this species strikingly differ from the general characters of *Senodoniini* (Schimmel 2006b). The small size, subparallel and almost cylindrical body, inwardly directed carinae of hind pronotal angles, strongly projecting prosternal lobe, rugose elytral interstriae, and especially the shape of aedeagus of this species are characteristic for the genus *Arhaphes* (Elateridae: Negastrinae). This genus has the lamellate tarsomeres III and IV but Vats & Chauhan (1993) reported the tarsomeres II and III with lamellae which is most probably an error. Based on the above mentioned characters we propose here to transfer *Senodonia bicoloris* to genus *Arhaphes* as *Arhaphes bicoloris* (Vats & Chauhan, 1993) **comb. nov.** This species is morphologically very similar to *A. ruficollis* (Candèze, 1892) from West Bengal and Meghalaya (Schimmel & Tarnawski 2012), including the typical habitus and bicolored body. Further study is needed to clarify if these species are conspecific.

Acknowledgements

The following colleagues are acknowledged for the photographs or information on *Senodoniini* in their care and/or access to the museum collections: M. Geiser (BMNH), Ch. König (SMNS), A. Mantilleri (MNHN), R. Poggi (MSNG), H. Schillhammer (NHMW), G. Platia (Italy), J. Hájek (NMPC), S. Blank (SDEI), and T. Németh (HNHM). This study was partially supported by the DAAD [German Academic Exchange Service] scholarship No. 57378441 (RK), the Russian Science Foundation (RSF) research project No. 14-50-00029, and the Moscow State University research project No. AAAA-A16-116021660095-7 (both AP).

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