

RESEARCH ARTICLE

## Annotated key to weevils of the world. Part 4. Subfamilies *Eirrhiniinae*, *Dryophthorinae* and *Cossoninae* (*Curculionidae*)

A.A. Legalov<sup>1,2</sup>

<sup>1</sup>*Institute of Systematics and Ecology of Animals, Siberian Branch, Russian Academy of Sciences, Frunze Street, 11, Novosibirsk 630091, Russia*

<sup>2</sup>*Tomsk State University, Lenina Prospekt 36, Tomsk, 634050, Russia*

Corresponding author E-mail: fossilweevils@gmail.com

**Received: 19.03.2020. Accepted 26.04.2020**

Taxonomic entities included in the present key are: new tribe *Sipalomimini* Legalov, trib. n. (type genus *Sipalomimus* Voss, 1958), subtribe *Echinocnemina* Legalov, subtrib. n. (type genus *Echinocnemus* Schoenherr, 1843) of the tribe *Eirrhiniini*, subtribes *Crepidotina* Legalov, subtrib. n. (type genus *Crepidotus* Schoenherr, 1838) and *Laogenina* Legalov, subtrib. n. (type genus *Laogenia* Pascoe, 1874) of the tribe *Litosomini*, *Geochina* Legalov, subtrib. n. (type genus *Geochus* Broun, 1882) of the tribe *Phrynixini* Kuschel, 1964, *Alaocybites dubatolovi* Legalov, sp. n. from Khabarovskii Krai are described. The systematic positions of *Storeini* Lacordaire, 1863, placem. n. and *Dorytomini* Bedel, 1886, placem. n. are changed. Changes of status for *Sitophila* Csiki, 1936, stat. n., *Diocalandrina* Zimmerman, 1993, stat. n., *Stenoscelidina* Wollaston, 1877, stat. n., *Choerorhinina* Folwaczny, 1973, stat. n. and *Sphenocorynina* Lacordaire, 1865, stat. n. are made. Statuses of *Dorytomini* Bedel, 1886, stat. res., *Rhyncholina* Gistel, 1856, stat. res., *Onycholipini* Wollaston, 1873, stat. res. and *Himatinini* Konishi, 1962, stat. res. are recovered. New synonyms, *Aphyllurini* Voss, 1955, syn. n. to *Pseudomimina* Voss, 1939 and *Proecini* Voss, 1956, syn. n. to *Cossonini* Schoenherr, 1825 are established. A keys to the tribes and subtribes of *Eirrhiniinae*, *Dryophthorinae* and *Cossoninae* are provided. Systematic lists of tribes and subtribes of Entiminae are given.

**Keywords:** Insecta; Coleoptera; Curculionoidea; New taxa; New statuses; Check lists; Keys

### Introduction

In the fourth part of world weevils, (for the first, second and third parts, see Legalov, 2018a, 2018b, 2018c), a key to the supertribes of the subfamilies *Eirrhiniinae*, *Dryophthorinae* and *Cossoninae*, addenda to the subfamily *Molytinae*, descriptions of new taxa and lists of tribes and subtribes are given.

### Materials and Methods

The Curculionoidea species used for this study are deposited in the Hungarian Natural History Museum (Hungary: Budapest), Institut Royal des Sciences Naturelles de Belgique (Belgium: Brussels), Institute of Systematics and Ecology of Animals (Russia: Novosibirsk), Museum für Tierkunde, Senckenberg Naturhistorische Sammlungen Dresden (Germany: Dresden), Museum National d'Histoire Naturelle (France: Paris), Natural History Museum (United Kingdom: London), Zoological Institute of Russian Academy of Sciences (Russia: St. Petersburg), Zoological Museum of Moscow State University (Russia: Moscow), etc. Type of *Aphyllura brenskei* Reitter, 1884 (Figure 37) was photographed of by Tamás Németh (Hungarian Natural History Museum) and specimen of *Onycholips bifurcatus* Wollaston, 1861 (Figures 28–29) was photographed of by Dmitry Telnov (Natural History Museum, London). Those groups marked with † are extinct taxa. General publications are given after each subfamily.

### Results and Discussion

#### Subfamily *Eirrhiniinae* Schoenherr, 1825

Lacordaire, 1863, 1865; Bedel, 1886; Champion, 1906–1909; Reitter, 1913; Sharp, 1916, 1917a, 1917b; Hubenthal, 1917; Hustache, 1925; Zumpt, 1929; Klima, 1934; Kuschel, 1951, 1990, 1995; Voss, 1952; Morimoto, 1962; van den Berg, 1968; O'Brien, 1970; Korotyaev, 1976; Osella, 1977; O'Brien, Wibmer, 1982; Dieckmann, 1983; Wibmer, O'Brien, 1986; Zherikhin, Egorov, 1991; O'Brien, Askevold, 1992, 1995; Thompson, 1992, 2005, 2006; Zimmerman, 1993; Askevold et al., 1994; O'Brien et al., 1994; Caldara, O'Brien, 1998; Alonso-Zarazaga, Lyal, 1999; Morimoto, Kojima, 1999, 2006; Anderson, 2002v; Grebennikov, 2010; Bouchard et al., 2011; Oberprieler, 2014; Oberprieler et al., 2014; Legalov, 2015; Legalov, Poinar, 2015; Alonso-Zarazaga et al., 2017; Caldara et al., 2017; Morrone, Hlaváč, 2017; etc.

#### Key to tribes of *Eirrhiniinae*

1. Eyes absent. Tarsi with 4 subequal tarsomeres.....2  
— Eyes absent or reduced. Tarsi with 5 tarsomeres (4th tarsomere very small).....3



**Figures 1-10.** Eriirhininae: 1 - *Perieges bardus* Boheman, 1842, rostrum and head, dorsally; 2 - *Himasthlophallus flagellifer* Egorov et Zherikhin, 1991, elytra, laterally; 3 - *Aonychys luctuosus* Pascoe, 1872, prothorax, laterally; 4 - *Ocladius holomelas* Fairmaire, 1877, prothorax, laterally; 5 - *Alaocybites dubatolovi* sp. n., holotype, body, dorsally; 6 - *A. dubatolovi* sp. n., aedeagus, dorsally; 7 - *A. dubatolovi* sp. n., holotype, tegmen, dorsally; 8 - *Picia sinuatocollis* (Faust, 1885), head and rostrum, laterally; 9 - *A. dubatolovi* sp. n., holotype, body, laterally; 10 - *A. dubatolovi* sp. n., holotype, fore-body, in front.

2. Mesocoxal cavities connated. Head and rostrum dorsally tapering towards the antennal attachment. ....	Myrtonymini
— Mesocoxal cavities separated. Head dorsally tapering to rostrum base. Rostrum subparallel, widened toward apex. ....	Raymondionymini
3. Rostrum reduced (Figures 1) .....	4
— Rostrum long (Figure 2). ....	5
4. 3rd tarsomere bilobed. Scales not forming a continuous cover. Forehead flat. Styles of ovipositor weakly sclerotized, without dentate sclerite. ....	Cryptolaryngini
— 3rd tarsomere narrow, not bilobed. Scales forming a continuous cover. Forehead depressed. Styles of ovipositor strongly sclerotized, on apex with dentate sclerite. ....	Periegini
5. Prosternum with ventral channel. ....	6
— Prosternum without ventral channel. ....	14
6. Mesosternum without ventral channel. ....	7
— Mesosternum with ventral channel. ....	9
7. Procoxal cavities separated. ....	Arthrostenini
— Procoxal cavities contiguous. ....	8

8. Eyes reduced. Scutellum absent. Antennal scrobes in anterior part invisible from above. Prosternum without postocular lobes. Tegmen with well-developed tegminal plate. ....Himasthlophallini  
 —Eyes normal. Scutellum distinct. Antennal scrobes in anterior part invisible or visible from above. Prosternum with postocular lobes. Tegmen with reduced tegminal plate. ....9  
 9. Body covered with semierect setae. Antennal scrobes in anterior part invisible from above. ....Storeini  
 —Body covered by dense varnish-like coating over scales. Antennal scrobes in anterior part visible from above. ....Bagoiini (part)  
 10. Postocular lobes weak (Figure 3). ....11  
 —Postocular lobes stark (Figure 4). ....12  
 11. Femora without teeth. 5th tarsomere well developed, much longer than weak widened 3rd tarsomere. ....Tadiiini  
 —Femora with teeth. 5th tarsomere absent. 3rd tarsomere very **wide**. ....Aonychusini  
 12. Femora without teeth. Body spherical. Scutellum **absent**. ....Ocladiiini  
 —Femora with teeth. Body with distinct humeri, not spherical. Scutellum **present**. ....13  
 13. **Metasternum long, 2.5 times as long as metacoxae. Femora with long teeth**. ....Paleocryptorhynchini  
 —Metasternum shortened, not or slightly wider than metacoxae. Femora with small teeth. ....Desmidophorini  
 14. 3rd tarsomere narrow, not bilobed. Body covered by dense varnish-like coating over scales. Antennal scrobes in anterior part seen from above. Tegmen with reduced tegminal plate. ....Bagoiini (part)  
 —3rd tarsomere usually wide, bilobed. Body naked or covered simple scales. Antennal scrobes in anterior part not seen from or **visible only in place on antennal attachment**. ....15  
 15. Flagellum with six flagellomeres. Precoxal part of prosternum short. ....Tanysphyrini  
 —Flagellum with seven flagellomeres. Precoxal part of prosternum elongate. ....16  
 16. Eyes rounded. 9th elytral stria short, fused with 10th stria at level of metacoxa. Femora with tooth. Tegmen with reduced tegminal plate. ....Dorytomini  
 —Eyes transverse-oval, if rounded than ventrite 5 without anal setae. 9th elytral stria long, not fused with 10th stria at level of metacoxa. Tegmen with well-developed tegminal plate. (Eirrhiniini). ....17  
 17. Antennal scrobes directed under base of rostrum (Figure 8), if directed to eye than covered with scales, 9th and 10th elytral **striae** not reaching base of elytra. ....Echinocnemina  
 —Antennal scrobes naked, directed to eye. 9th and 10th elytral striae reaching base of elytra. ....Eirrhiniina

### Systematic list of tribes Eirrhiniinae

Tribe **Eirrhiniini** Schoenherr, 1825

Subtribe **Eirrhiniina** Schoenherr, 1825

=Notarini Zumpt, 1929

=Notodermina Voss, 1952

Subtribe **Echinocnemina** Legalov, **subtrib. n.**

urn:lsid:zoobank.org:act:B5BB889E-B9F3-4F52-BEB3-9A58F0AF0593

**Type genus** *Echinocnemus* Schoenherr, 1843

**Diagnosis.** Body black, covered with dense scales. Rostrum long, curved. Mandible not large. Antennal scrobes directed under base of rostrum or sometimes directed to eye, covered with scales or naked. Eyes transverse-oval, not protruding from contour of head. Forehead weakly narrower than rostrum base. Antennae inserted in apical third. Scape long. Club compact. Pronotum bell-shaped, coarsely punctate. Prosternum with postocular lobes. Scutellum distinct. Elytra quite wide. Humeri weakly smoothed. Elytral striae distinct. 9th and 10th elytral striae not reaching base of elytra. 9th elytral stria long, not fused with 10th stria at level of metacoxa. Interstriae wide, flattened. Procoxal cavities contiguous. Metepisternum quite narrow. Ventrite 5 with anal setae. Pygidium covered by elytra. Procoxae conical. Femora clavate, without teeth. Tibiae narrow, uncinata. Tarsi long. 1st and 2nd tarsomeres wide-conical. 3rd tarsomere bilobed. Claws free.

**Comparison:** The new subtribe differs from the subtribe Eirrhiniina in the 9th and 10th elytral striae not reaching base of elytra, antennal scrobes directed under base of rostrum and covered with scale.

**Composition:** The genera *Echinocnemus* Schoenherr, 1843, *Icaris* Tournier, 1874, *Bagoopsis* Faust, 1881, *Jekelia* Tournier, 1874, *Picia* Tournier, 1895 and *Picianus* Zumpt, 1929 concern to the new subtribe.

Tribe **Storeini** Lacordaire, 1863, **placem. n.**

**Remarks.** This tribe is similar to the tribe Dorytomini but differs in the prosternum with ventral channel and full 9th elytral stria. The 5th ventrite with anal setae and antennal scrobes directed towards the eyes is diagnostic characters of the subfamily Eirrhiniinae. The genera *Emplesis* Pascoe, 1870-194, *Melanterius* Erichson, 1842, *Neomelanterius* Lea, 1899 and *Storeus* Schoenherr, 1843 with distinct anal setae on the 5th ventrite belong to this tribe.

Tribe **Dorytomini** Bedel, 1886, **placem. n.**

**Remarks.** The 5th ventrite with anal setae and antennal scrobes directed towards the eyes suggest that the tribe belongs to the subfamily Eirrhiniinae.

Tribe **Tanysphyrini** Gistel, 1856

=Stenopelmini LeConte, 1876

=Lissorhoptrinae Boving et Craighead, 1931

†Tribe **Paleocryptorhynchini** Legalov et Poinar, 2015

Tribe **Arthrostenini** Reitter, 1913

Tribe **Himasthlophallini** Zherikhin, 1991

Tribe **Bagoiini** C. G. Thomson, 1859

=Hydronomides Lacordaire, 1863

=Pseudobagoiini Sharp, 1916

Tribe **Tadiiini** Zimmerman, 1993

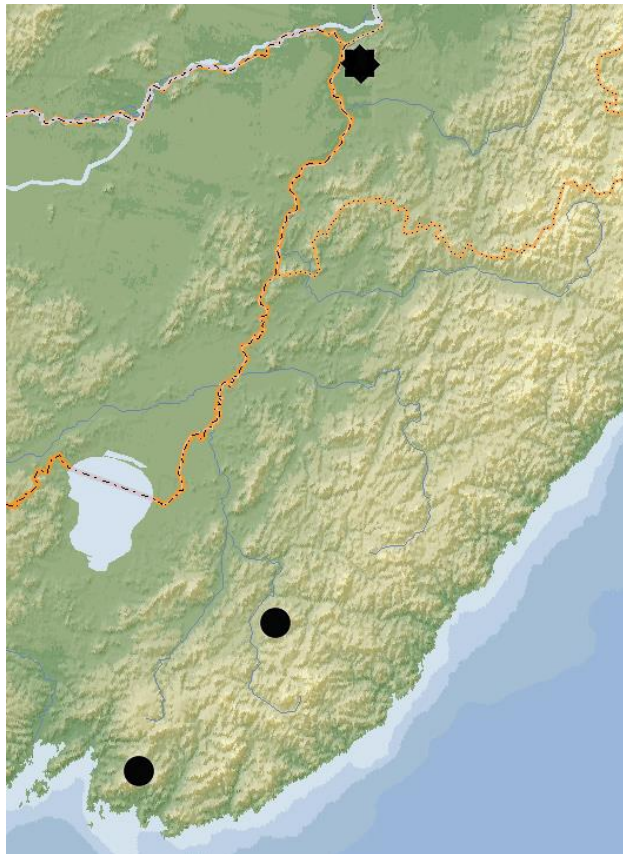
Tribe **Aonychusini** Zimmerman, 1999  
 Tribe **Cryptolaryngini** Schalkwyk, 1966  
 Tribe **Periegini** Legalov, 2003  
 Tribe **Ocladiini** Lacordaire, 1865  
 Tribe **Desmidophorini** Morimoto, 1962  
 Tribe **Myrtonymini** Kusche, 1990  
 Tribe **Raymondionymini** Reitter, 1913  
 Genus **Alaocybites** Gilbert, 1956

***Alaocybites dubatolovi*** Legalov, **sp. n.**

urn:lsid:zoobank.org:act:34E074D9-E5E9-4C81-832F-6B3B1745D37F

Figures. 5-7 and 9-10.

**Etymology.** In honor of the entomologist Vladimir Viktorovich Dubatolov (Novosibirsk).



**Figure 11.** Distribution of species of the genus *Alaocybites* from Russia: *A. dubatolovi* - octagon and *A. egorovi* - circle.

**Description.** Body length (without rostrum) 2.2-2.6 mm. Rostrum length 0.6-0.7 mm.

Body brown with sparse, light curved pale hairs. Head tapering to rostrum base. Mandible small. Rostrum long, almost straight, subparallel, widened to apex, 1.2 times as long as pronotum, 3.4 times as long as wide at apex, 2.8 times as long as wide in middle, 3.6 times as long as wide at base. Antennal scrobes directed under eyes, visible in place of antennal attachment. Eyes absent. Forehead flat, narrower than rostrum at base, punctate. Temples long. Vertex convex, finely punctate. Antennae long, inserted at apical third of rostrum. 1st antennomere (scape) long, 5.4 times as long as wide, not reaching forehead. 2nd antennomere long-conical, 2.2 times as long as wide, 0.3 times as long as and 0.8 times as narrow as 1st antennomere. 3rd-8th antennomeres conical. 3rd antennomere subequal in length and wide, 0.4 times as long as and 0.8 times as narrow as 2nd antennomere. 4th antennomere subequal to 3rd antennomere. 5th antennomere 0.6 times as long as wide, 0.8 times as long as and 1.2 times as wide as 4th antennomere. 6th antennomere subequal to 5th antennomere. 7th antennomere 0.7 times as long as wide, little longer and wider than 6th antennomere. 8th antennomere 0.6 times as long as wide, 0.9 times as long as and 1.2 times as wide as 7th antennomere. Club compact, 1.7 times as long as wide, 0.6 times as long as funicle. Pronotum almost bell-shaped, 1.1 times as long as wide at apex, 0.9 times as long as wide in middle, 1.0 times as long as wide at base, without lateral carina. Sides slightly rounded in middle. Disk weakly convex, densely punctate. Intervals between points smaller than diameter of points. Scutellum absent. Elytra 2.5 times as long as wide at base, 1.6 times as long as wide in middle, 2.5 times as long as wide at apical fourth, 2.8 times as long as wide as pronotum. Humeri absent. Elytral striae distinct and deep with large rounded points. Elytral intervals convex, punctate, 1.7-2.4 times as wide as striae, with row of semierect hairs. Procoxal portion of prosternum slightly elongated, 1.1 times as long as procoxal cavities, 1.9 times as long as postcoxal portion; postcoxal portion 0.6 times as long as procoxal cavities. Procoxal cavities contiguous. Mesocoxal cavities narrowly separated. Metaventricle flattened, punctate. Abdomen flattened. 1st and 2nd ventrites fused, subequal in length. Suture between them almost absent. 3rd ventrite 0.3 times as long as length of 2nd ventrite. 4th ventrite equal to 3rd ventrite. 5th ventrite 2.0 times as long as length of 4th ventrite, with anal setae. Procoxae large, spherical. Metacoxae wide-transverse. Femora thickened, lacking teeth. Tibiae almost straight, widened to base, with small uncus. Tarsi long, narrow, with 4 subequal tarsomere. Claws free.

**Material examined.** Holotype, adult male, ISEA, Krabarovskii Krai, Khekhtsir Mt. Range, 940 m, 7.IX.2010, V.V. Dubatolov. Paratypes, male and female, ISEA, idem.

**Comparison.** The new species is very similar to *Alaocybites egorovi* Grebennikov, 2010 from Primorskii Krai (Figure 11), but differs in the slender pronotum and densely punctate elytral interstriae.

**Distribution.** Russia: Russian Far East (Khabarovskii Krai) (Figure 11).

Subfamily **Dryophthorinae** Schoenherr, 1825

Lacordaire, 1865; Kolbe, 1899; Champion, 1906-1909; Bovie, 1908; Heller, 1926; Csiki, 1936; Voss, 1940, 1958; Morimoto, 1962, 1978, 1985; Vaurie, 1970a, 1970b, 1971; O'Brien, Wibmer, 1982; Wibmer, O'Brien, 1986; Zherikhin, Egorov, 1991; Zimmerman, 1993; Kuschel, 1995; Alonso-Zarazaga, Lyal, 1999; Zherikhin, 2000; Anderson, 2002a, 2002d; Morrone, Cuevas, 2002; Nazarenko, Perkovsky, 2009; Bouchard et al., 2011; Anderson, Marvaldi, 2014; Legalov, 2015, 2016b; Alonso-Zarazaga et al. 2017; Davis, Engel, 2006, 2009; Morrone, Hlaváč, 2017; Grebennikov, 2018a, 2018b, 2018c; etc.

### Key to tribes and subtribes of Dryophthorinae

1. Procoxal cavities contiguous. ....	2
— Procoxal cavities separated. ....	5
2. Antennae non geniculate. Tarsal claws fused at base. ....	Cryptodermatini
— Antennae geniculate. Tarsal claws free. ....	3
3. Metepisternum concealed by elytra. ....	Stromboscerini
— Metepisternum exposed. ....	4
4. Pygidium concealed by elytra. ....	Orthognathini
— Pygidium exposed. ....	Sipalomimini
5. Metepisternum concealed by elytra. Tarsi with distinct five tarsomeres (Figure 14). ....	Dryophthorini
— Metepisternum exposed. Tarsi with very small 4th tarsomere (Figure 15). ....	6
6. Metepisternum tapered at apex (Figure 12). Metepimeron concealed by elytra. ....	Rhinostomini
— Metepisternum parallel or widened at apex (Figures 13, 16, 17, 18 and 23). Metepimeron exposed. ....	7
7. Tarsal claws fused at base. ....	Oxyopisthini
— Tarsal claws free. ....	8
8. Tibiae attached to femora without brackets (Figure 20). (Litosomini). ....	9
— Tibiae attached to femora with brackets (Figure 19). ....	14
9. 3rd tarsomere bilobed (Figure 22). ....	10
— 3rd tarsomere not bilobed (Figure 21). ....	13
10. Suture between 1st and 2nd ventrite distinct. Pygidium with sulcus. ....	Sitophila
— Suture between 1st and 2nd ventrite indistinct. Pygidium without sulcus. ....	11
11. Metafemora extending significantly beyond apex of abdomen. Scape much shorter than flagellum. Body elongated. ....	Laogenina
— Metafemora not reaching apex of abdomen or slightly reaching apex of abdomen. ....	12
12. Antennal club oval. Body elongated. ....	Diocalandrina
— Antennal club truncate (Figure 24). Body more or less wide, sometimes flattened. ....	Crepidotina
13. Protibia with large mucro (Figure 25). Rostrum shorter than pronotum. ....	Polytina
— Protibia with small mucro (Figure 26). Rostrum much longer than pronotum. ....	Litosomina
14. Metepisternum wide, subparallel, not narrowed to metacoxa (Figure 13). ....	15
— Metepisternum quite narrow, not subparallel: narrowed to metacoxa (Figure 18) or narrowed to metacoxa but widened before metepimeron (Figure 17) (Sphenophorini). ....	16
15. Metepimeron wider than 1st ventrite. Body oval. ....	Rhynchophorini
— Metepimeron narrower than 1st ventrite. Body elongated. Mandibles divaricate. ....	Ommatolampini
16. Apex of mesepimeron pointed (Figure 17). ....	Sphenocorynina
— Apex of mesepimeron located almost in line with the edge of metepisternum (Figure 16). ....	Sphenophorina

### Systematic list of tribes and subtribes of Dryophthorinae

Tribe **Stromboscerini** Lacordaire, 1865

Tribe **Cryptodermatini** Bovie, 1908  
= Oxyrhynchides Schoenherr, 1823

Tribe **Orthognathini** Lacordaire, 1865  
= Sipalides Lacordaire, 1865

Tribe **Dryophthorini** Schoenherr, 1825

Tribe **Rhinostomini** Kuschel, 1995

Tribe **Litosomini** Lacordaire, 1865

Subtribe **Sitophila** Csiki, 1936, **stat. n.**

**Remarks.** Two genera *Sitophilus* Schoenherr, 1838 and *Tryphetus* Faust, 1894 belong to this tribe.

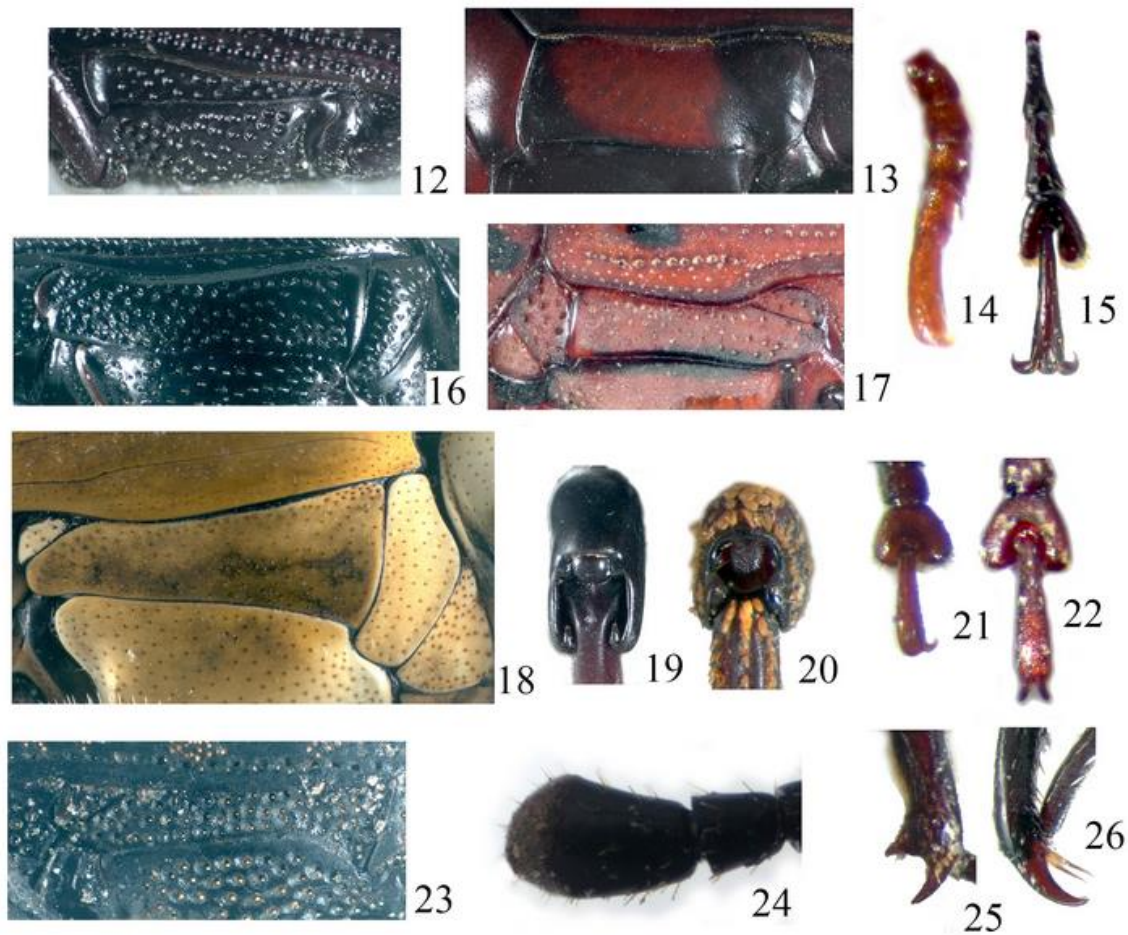
Subtribe **Diocalandrina** Zimmerman, 1993, **stat. n.**

**Remarks.** In addition to the genera *Diocalandra* Faust, 1894 and *Myocalandra* Faust, 1894 (Alonso-Zarazaga et al., 2017), Miocene *Bicalcasura* Poinar et Legalov, 2014 (Poinar, Legalov, 2014), the genera *Anogelia* Heller, 1926, *Ganae* Pascoe, 1885, *Laocalandra* Heller, 1926, *Laostates* Heller, 1926 and *Microspathe* Faust, 1899 also belong to this subtribe.

Subtribe **Crepidotina** Legalov, **subtrib. n.**

urn:lsid:zoobank.org:act:B4AAD7A0-6FB9-4BF1-8C9A-356E82B1FB76

**Type genus.** *Crepidotus* Schoenherr, 1838



**Figures 12-26.** Dryophthorinae: 12 - *Rhinostomus* sp., metepisternum; 13 - *Cyrtotrachelus* sp., metepisternum; 14 - *Dryophthorus corticalis* (Paykull, 1792), tarsus; 15 - *Toxorhinus* sp., tarsus; 16 - *Sphenophorus abbreviatus* (Fabricius, 1787), metepisternum; 17 - *Sphenocorynes? conformis* Pascoe, 1887, metepisternum; 18 - *Poteriophorus* sp., metepisternum; 19 - *Cyrtotrachelus* sp., brackets; 20 - *Eugnoristus monacha* (Olivier, 1807), attachment of tibia (without brackets); 21 - *Polytus mellerborgii* (Boheman, 1838), tarsomeres 3-5; 22 - *Diocalandra frumenti* (Fabricius, 1801), tarsomeres 3-5; 23 - *Crepidotus variolosa* Klug, 1833, metepisternum; 24 - *C. variolosa*, antennal club and antennomere 8; 25 - *Polytus mellerborgii*, apex of protibia; 26 - *Toxorhinus* sp., apex of protibia.

**Diagnosis.** Body black, with light coloured scales. Rostrum long, widened near antennal attachment, curved or straight. Mandible small. Eyes transverse-oval, not protruding from contour of head, contiguous or almost contiguous dorsally. Forehead subequal, wider or narrower than rostrum base. Antennae inserted subbasally. Scape quite long, slightly shorter than flagellum, extending to frontal margin of pronotum. Club compact, truncate. Pronotum bell-shaped, quite wide, coarsely punctate. Scutellum small. Base of elytra slightly wider than base of pronotum. Elytra quite wide. Humeri weakly rounded. Elytral striae distinct. Interstriae wide, flattened. Procoxal cavities widely separated. Metepisternum quite narrow, subparallel, widened before mesepimeron. Pygidium not exposed, not sulcate. Procoxae spherical. Femora clavate. Tibiae narrow, uncinata, attached to femora without brackets. Tarsi long. 1st and 2nd tarsomeres long-conical. 3rd tarsomere very wide, bilobed. Claws free.

**Comparison.** The new subtribe differs from the subtribe Diocalandrina in the truncate antennal club and more or less wide, sometimes flattened body. It is distinguished from the subtribe Laogenina by the metafemora not reaching apex of abdomen.

**Composition.** The genera *Crepidotus* Schoenherr, 1838 and *Eugnoristus* Schoenherr, 1838, and probably *Dyspnoetus* Faust, 1894 belong to the new subtribe.

Subtribe **Laogenina** Legalov, **subtrib. n.**

urn:lsid:zoobank.org:act:4693C6DC-674B-4100-8731-EE53FF20863C

**Type genus.** *Laogenia* Pascoe, 1874

**Diagnosis.** Body black-brown, with light coloured scales. Rostrum long, widened near antennal attachment, straight or weakly curved. Mandible small. Eyes transverse-oval, not protruding from contour of head or weakly convex, almost contiguous dorsally. Forehead narrower than rostrum base. Antennae inserted subbasally. Scape quite short, much shorter than flagellum, extending frontal margin of pronotum. Club compact, oval. Pronotum bell-shaped, quite narrow, coarsely punctate. Scutellum small. Base of elytra almost subequal to base of pronotum. Elytra elongate. Humeri weakly smoothed. Elytral striae distinct. Interstriae narrow. Procoxal cavities widely separated. Metepisternum quite narrow, subparallel. Pygidium not exposed, not sulcate. Procoxae spherical. Femora clavate, sometimes with teeth. Tibiae narrow, uncinata, attached to femora without brackets. Tarsi long. 1st and 2nd tarsomeres long-conical. 3rd tarsomere wide, bilobed. Claws free.

**Comparison.** The new subtribe differs from the subtribe Crepidotina by the metafemora extending significantly beyond apex of abdomen, scape much shorter than flagellum and elongated body.

**Composition.** The genera *Laogenia* Pascoe, 1874, *Autonopsis* Pascoe, 1874, *Brenthidogenia* Heller, 1926, *Laodaria* Heller, 1926, *Tatitotimus* Heller, 1926 and *Timiotatus* Faust, 1899 belong to the new subtribe.

Subtribe **Litosomina** Lacordaire, 1865, **stat. n.**

**Remarks.** The genus *Toxarhinus* Lacordaire, 1865 belongs to this subtribe.

Subtribe **Polytina** Zimmerman, 1993, **stat. n.**

**Remarks.** The genus *Polytus* Faust, 1894 belongs to this subtribe.

Tribe **Sipalomimini** Legalov, **trib. n.**

urn:lsid:zoobank.org:act:CA0F2396-145E-4DB2-871A-0FD383A97D32

**Type genus.** *Sipalomimus* Voss, 1958

**Diagnosis.** Body black. Rostrum long, widened in mesorostrum, distinctly curved. Mandible small. Eyes transverse-oval, not protruding from contour of head. Forehead subequal or slightly narrower than rostrum base. Antennae inserted in first third. Scape quite short, reaching or not reaching eye. Club compact, truncate. Pronotum bell-shaped, longer than wide, coarsely punctate. Scutellum small. Base of elytra weakly wider than base of pronotum. Elytra elongate. Humeri weakly rounded. Elytral striae distinct. Interstriae wide, flattened; filled with tubercles or carinae. Procoxal cavities contiguous. Metepisternum quite narrow, subparallel. Pygidium not exposed. Procoxae spherical. Femora clavate. Tibiae narrow, uncinata, attached to femora using brackets. Tarsi long and narrow. 1st and 2nd tarsomeres long-conical. 3rd tarsomere narrow, not bilobed. Claws free.

**Comparison.** The new tribe differs from the tribe Orthognathini by the exposed pygidium, and tibiae attached to femora with brackets. It is distinguished from the tribe Sphenophorini in the contiguous procoxal cavities.

**Composition.** The genera *Sipalomimus* Voss, 1958 and *Trochorhopalus* Kirsch, 1877 belong to the new tribe.

Tribe **Rhynchophorini** Schoenherr, 1833

Tribe **Ommatolampini** Lacordaire, 1865

Tribe **Oxyopisthini** Kolbe, 1899

Tribe **Sphenophorini** Lacordaire, 1865

Subtribe **Sphenophorina** Lacordaire, 1865

Subtribe **Sphenocorynina** Lacordaire, 1865, **stat. n.**

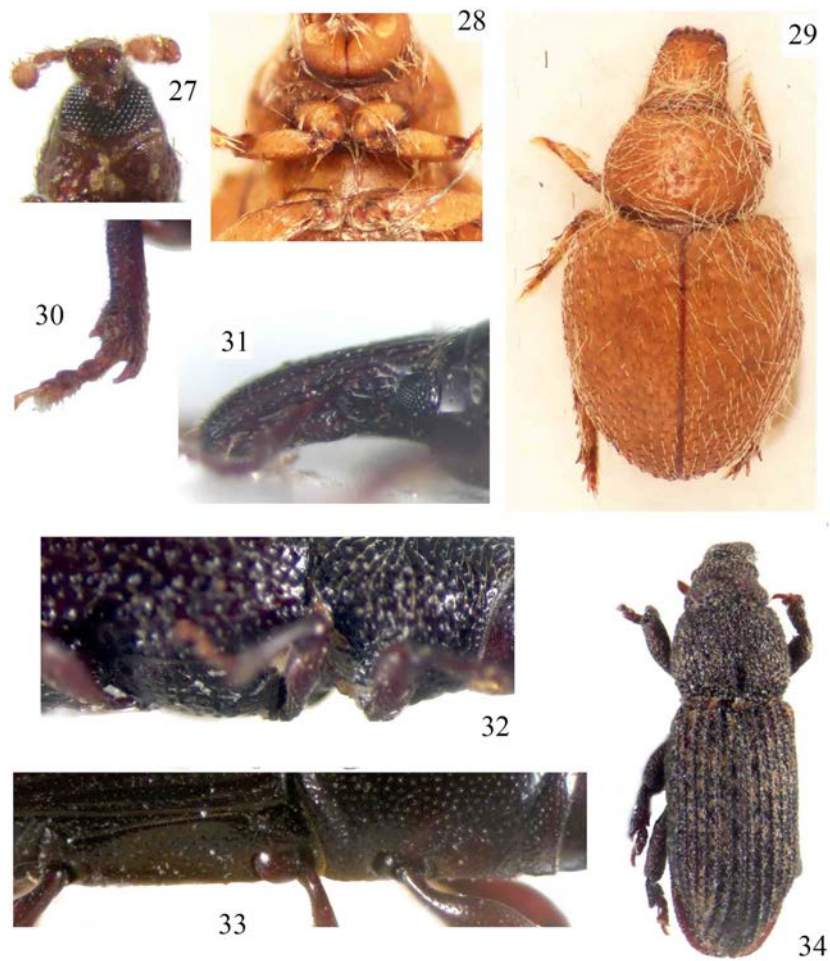
Subfamily **Cossoninae** Schoenherr, 1825

Lacordaire, 1865; Wollaston, 1873; Champion, 1906-1909; Voss, 1934, 1939, 1953, 1955a, 1955b; Csiki, 1936; Konishi, 1962; Morimoto, 1962, 1973; Kuschel, 1966; Decelle, Voss, 1972; Folwaczny, 1973; O'Brien, Wibmer, 1982; Dieckmann, 1983; Wibmer, O'Brien, 1986; Zherikhin, Egorov, 1991; Alonso-Zarazaga, Lyal, 1999; Anderson, 2002c; Davis, Engel, 2007; Bouchard et al., 2011; Nazarenko et al., 2011; Jordal, 2014; Legalov, 2015, 2016a; Poinar, Legalov, 2015a, 2015b; Alonso-Zarazaga et al., 2017; Morrone, Hlaváč, 2017; etc.

### Key to tribes and subtribes of Cossoninae

1. Prosternum with rostral channel.....Acamptini
- Prosternum without rostral channel. ....2
2. Eyes connected ventrally (Figure 27). Femora with sharp teeth.....Pseudapotrepini
- Eyes distinctly separated ventrally. Femora without teeth, or with obtuse teeth.....3
3. Procoxal cavities contiguous (Figure 28). Humeri flattened.....4
- Procoxal cavities separated.....5
4. Rostrum thin and long. Flagellum 5-segmented. Eyes present.....Cryptommatini
- Rostrum short (Figure 29). Flagellum 6- or 7-segmented. Eyes absent or reduced.....Onycholipini
5. Tibiae with denticles on outer margin (Figure 30).....Araucariini
- Tibiae without denticles on outer margin.....6
6. Rostrum with secondary scrobe (Figure 31). Flagellum 5-segmented.....7
- Rostrum without secondary scrobe. Flagellum rarely 5-segmented.....8
7. Rostrum almost straight or slightly curved. Antennal scrobe long.....Pentarthrini
- Rostrum strongly curved. Antennal scrobe short.....Tapiromimini
8. Mesoventrite more or less strongly depressed below level of metaventrite (Figure 32). Procoxal cavities narrowly separated. (Rhyncholini).....9
- Mesoventrite on level of metaventrite (Figure 33). Procoxal cavities widely separated.....13
9. 6th elytral stria reaches base of elytra.....10
- 6th elytral stria short of base of elytra.....11
10. Procoxal cavities narrowly separated. Body lustrous.....Stenoscelidina
- Procoxal cavities more widely separated. Body dull (Figure 34).....Choerorhinina
11. Rostrum about 2.5 times longer than wide.....Phloeophagina
- Rostrum no more than 2.0 times longer than wide.....12
12. Pronotum considerably narrower than elytra base (Figures 36 and 37).....Pseudomimina
- Pronotum barely narrower than elytra base (Figure 38).....Rhyncholina
13. Humeri rounded.....14
- Humeri distinct.....18
14. Flagellum 6- or 7-segmented. If flagellum 5 segmented then eyes smaller, if 4-segmented then eyes absent.....15
- Flagellum 5-segmented.....16
15. Flagellum 7-segmented. Eyes absent. Pronotum and elytra approximately equal in width.....Neumatorini
- Flagellum from 4- to 7-segmented. Eyes developed, if absent then flagellum 4-segmented. Elytra usually behind middle distinctly wider than pronotum.....Dryotribini (part)
16. Body covered with scales (Figure 35). Elytra usually coarsely sculptured.....Nesiobiini
- Body bare. Elytra slightly sculptured (Figures 39 and 41).....17
17. Body metallic-lustrous, convex. Elytra oval or elliptical (Figure 40). Procoxal cavities usually narrowly separated (Figure 42).....Acanthinomerini
- Body dull (Figure 39). Elytra usually narrower. Procoxal cavities widely separated (Figure 43).....Microxylobiini
18. Procoxal cavities narrowly separated (Figures 44 and 45).....Dryotribini (part)
- Procoxal cavities widely separated.....

19. Eyes lateral, oval or round.....Cossonini  
 —Eyes lateral-ventral, transverse.....Himatini



**Figures 27-34.** Cossoninae: 27 - *Pseudapotrepus insularis* Hustache 1932, type, head, ventrally; 28 - *Onycholips bifurcatus* Wollaston, 1861, prosternum and mesoventrite; 29 - *O. bifurcatus*, body, dorsally; 30 - *Xenocnema spinipes* Wollaston, 1873, apex of protibia; 31 - *Euophryum confine* (Broun, 1881), rostrum, laterally; 32 - *Pselactus spadix* (Herbst, 1795), meso- and metaventrite, laterally; 33 - *Orthotemnus filliformis* Champion, 1914, meso- and metaventrite, laterally; 34 - *Choerorhinus squalidus* Fairmaire, 1858, body, dorsally.

**Systematic list of tribes and subtribes of Cossoninae**

- Tribe **Acamptini** LeConte, 1876
- Tribe **Rhyncolini** Gistel, 1856
- Subtribe **Stenoscelidina** Wollaston, 1877, **stat. n.**  
 =Hexarthrina Voss, 1934  
 =Stenocorynini Voss, 1933
- Subtribe **Choerorhinina** Folwaczny, 1973, **placem. n., stat. n.**
- Subtribe **Phloeophagina** Voss, 1955
- Subtribe **Rhyncolina** Gistel, 1856, **stat. res.**
- Subtribe **Pseudomimina** Voss, 1939  
 = Aphyllurini Voss, 1955, **syn. n.**
- Tribe **Onycholipini** Wollaston, 1873, **stat. res.**
- Tribe **Araucariini** Kuschel, 1966
- Tribe **Pseudapotrepini** Champion, 1909
- Tribe **Pentarthrini** Lacordaire, 1865
- Tribe **Tapiromimini** Voss, 1972
- Tribe **Neumatorini** Folwaczny, 1973
- Tribe **Dryotribini** LeConte, 1876  
 =Cotasteriden Faust, 1886
- Tribe **Cryptommatini** Voss, 1972
- Tribe **Acanthinomerini** Voss, 1972
- Tribe **Microxylobiini** Voss, 1972

Tribe **Nesiobiini** Alonso-Zarazaga et Lyal, 1999

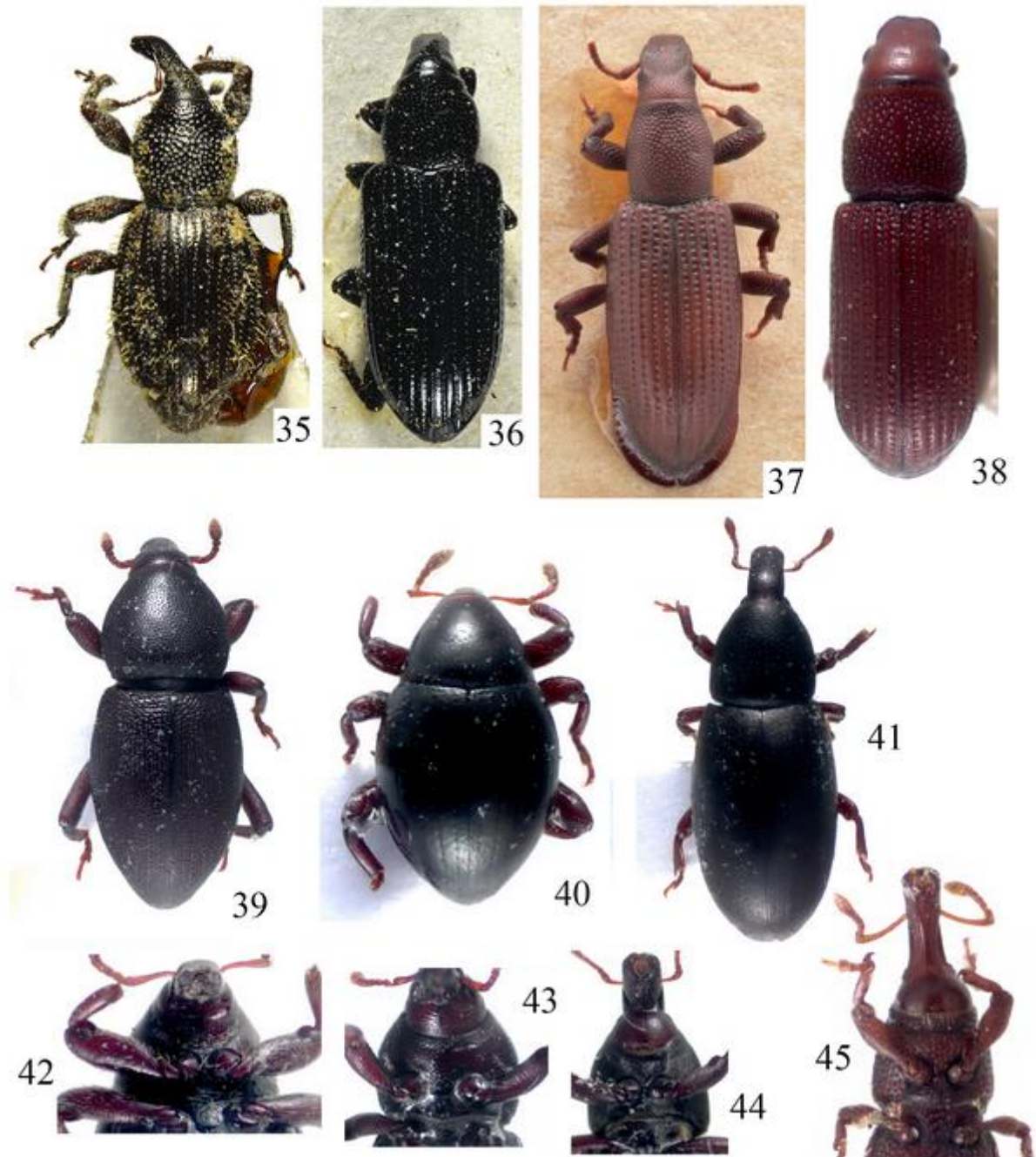
Tribe **Cossonini** Schoenherr, 1825

= Proecini Voss, 1956, **syn. n.**

Tribe **Himatinini** Konishi, 1962, **stat. res.**

Tribe insertae sedis

**Allomorphini** Folwaczny, 1973



**Figures 35-45.** Cossoninae: 35 - *Nesiobius horridus* (Wollaston, 1871), body, dorsally; 36 - *Pseudomimus burgeoni* Hustache 1934, type, body, dorsally; 37 - *Aphyllura brenskei* Reitter, 1884, holotype, body, dorsally; 38 - *Rhyncolus elongatus* (Gyllenhal, 1827), body, dorsally; 39 - *Microxylobius lucifugus* Wollaston, 1861, type, body, dorsally; 40 - *Acanthinomerus conicollis* (Wollaston, 1861), type, body, dorsally; 41 - *Caulotrumpis lucifugus* Wollaston, 1854, type, body, dorsally; 42 - *Acanthinomerus conicollis*, type, fore-body, ventrally; 43 - *Microxylobius lucifugus*, type, fore-body, ventrally; 44 - *Caulotrumpis lucifugus*, type, fore-body, ventrally; 45 - *Amaurorhinus sardous* Folwaczny, 1972, fore-body, ventrally.

Subfamily **Molytinae** Schoenherr, 1823

**Addenda.** Two tribes, Cryptoplini Lacordaire, 1863 and Cranopoeini Kuschel, 2009, are considered as part of this subfamily.

Cryptoplini and Cranopoeini are close to the tribes Metatygini Pascoe, 1888 and Mecysolobini Reitter, 1913.

Corrected key (Legalov, 2018b, p. 342):

46. Labial palpi absent. ....47  
 — Labial palpi present. ....47a  
 47. Body elongate. Pronotum present. Rostrum lacking two grooves dorsally. ....Metatygini  
 — Body elongate. Pronotum absent. Rostrum with two longitudinal grooves dorsally. ....Palaesomenini  
 47a. Claws usually with long teeth. Procoxal cavities more or less separated. Front legs often larger than other. ....Mecysolobini

- Claws without teeth, sometimes absent. Procoxal cavities contiguous or separated. Front legs not enlarged.....47b  
 48b. Femora dentate. Postocular lobes without vibrissae. ....Cryptoplini  
 — Femora unarmed. Postocular lobes with vibrissae. ....Cranopoeini

Tribe Lithinini Lacordaire, 1863

Subtribe Lithinina Lacordaire, 1863

= Diabathrariini Lacordaire, 1863, **syn. n.**

Tribe **Phrynixini** Kuschel, 1964

Subtribe **Gochina** Legalov, **subtrib. n.**

urn:lsid:zoobank.org:act:F991EEC2-C7E6-467A-888D-F5D03029EDBF

Type genus. *Geochus* Broun, 1882

**Diagnosis.** Body brown or black, glabrous. Rostrum slightly shorter than pronotum, weakly curved. Antennal scrobes laterally, directed under eye, dorsally in place of antennal attachment. Eyes small, not protruding or weakly protruding from contour of head. Forehead distinctly narrower than rostrum base. Antennae inserted subapically. Scape long, reaching eye. Club compact, with subequal in length 1st and 2nd segments. Pronotum bell-shaped, punctate. Scutellum absent. Base of elytra weakly wider than base of pronotum. Elytra short. Humeri smoothed. Elytral striae distinct. Interstriae weakly convex or almost flat. Prosternum without rostral channel and postocular lobe. Pre- and procoxal portions short. Procoxal cavities separated. Mesocoxal cavities widely separated. Metaventrite short, flattened. Sclerolepidia absent. Abdomen flattened. Ventrites 1 and 2 long, fused. Ventrites 3 and 4 short. Ventrite 5 long, without anal setae. Pygidium not exposed. Procoxae almost conical. Meso- and metacoxae spherical. Femora clavate, toothed or not. Tibiae narrow, unarmed. Tarsi short. Tarsomere 1 conical or short-conical. Tarsomere 2 short-conical. Tarsomere 3 short-conical or bilobed. Tarsomere 5 present or absent. Claws free, divergent (if present).

**Comparison.** The new subtribe differs from the nominative subtribe in the widely separated procoxal cavities, short and small body.

**Composition.** Three genera from South Africa (*Afrogeochus* Rheinheimer, 1998), *Philinnipes* (undescribed) and New Zealand (*Geochus* Broun, 1882) belong to the new subtribe.

Corrected key (Legalov, 2018b, p. 344):

53. Procoxal cavities separated. ....53a  
 — Procoxal cavities contiguous. ....54  
 53a. Tibiae with uncus. Rostrum separated by impression from head. Sclerolepidia present. ....Cotasteromimini  
 — Tibiae unarmed. Rostrum not separated by impression from head. Sclerolepidia **absent**. ....*Geochina* (Phrynixini)

## Acknowledgments

The author thanks O. Jaeger (Germany: Dresden), K.-D. Klass (Germany: Dresden), A.G. Kirejtshuk (Russia: St.-Petersburg), B.A. Korotyayev (Russia: St.-Petersburg), P. Limbourg (Belgium: Bruxelles), O. Merkl (Hungary: Budapest), N.B. Nikitsky (Russia: Moscow), H. Perrin (France: Paris), D. Telnov (UK: London) for the opportunity to study of material, and Dr. George O. Poinar, Jr. (USA: Corvallis) for improving the manuscript. The study was partially supported by the Russian Foundation for Basic Research (project no. 19-04-00465-a) and the Federal Fundamental Scientific Research Program for 2013–2020 (project no. AAAA-A16-116121410121-7).

## References

- Alonso-Zarazaga, M.A., Barrios, H., Borovec, R., Bouchard, P., Caldara, R., Colonnelli, E., Gültekin, L., Hlavá, P., Korotyayev, B., Lyal, C.H.C., Machado, A., Meregalli, M., Pierotti, H., Ren, L., Sánchez-Ruiz, M., Sforzi, A., Silfverberg, H., Skuhrovec, J., Trýzna, M., Velázquez de Castro, A.J. & Yunakov, NN. (2017). Cooperative catalogue of Palearctic Coleoptera Curculionoidea. *Monografías electrónicas*, 8, 1–729.
- Alonso-Zarazaga, M.A., Lyal, C.H.C. (1999). A world catalogue of families and genera Curculionoidea (Insecta: Coleoptera) (excepting Scolytidae and Platypodidae). Barcelona: Entomopraxis.
- Anderson, R.S. (2002a). I. Dryophthorinae Schoenherr 1825. *American Beetles* (Vol. 2) – Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, Jr. R.H., Thomas, M.C., Skelley, P.E., Frank, J.H. (eds.). CRC Press, Boca Raton, 728–730.
- Anderson, R.S. (2002b). II. Eriirhininae, III. Raymondionyminae. *American Beetles* (Vol. 2) – Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, Jr. R.H., Thomas, M.C., Skelley, P.E., Frank, J.H. (eds.). CRC Press, Boca Raton, 730–732.
- Anderson, R.S. (2002c). IX. Cossoninae Schoenherr 1825. *American Beetles* (Vol. 2) – Polyphaga: Scarabaeoidea through Curculionoidea. Arnett, Jr. R.H., Thomas, M.C., Skelley, P.E., Frank, J.H. (eds.). CRC Press, Boca Raton, 756–761.
- Anderson, R.S. (2002d). The Dryophthoridae of Costa Rica and Panama: checklist with keys, new synonymy and descriptions of new species of *Cactophagus*, *Mesocordylus*, *Metamasius* and *Rhodobaenus* (Coleoptera: Curculionidae). *Zootaxa*, 80, 1–94.
- Anderson, R.S., Marvaldi, A.E. (2014). 3.7.3 Dryophthorinae Schoenherr, 1825. *Arthropoda: Insecta. Handbook of Zoology. Tb. 40: Coleoptera (Beetles). Vol. 3: Morphology and Systematics (Phytophaga)*. Editor(s): R.A.B. Leschen and R.G. Beutel, 477–482.
- Askevold, I.S., O'Brien, C.W., Morimoto, K. (1994). **Systematics and evolution of weevils of the genus *Bagous* Germar (Coleoptera, Curculionidae)**. III. Phylogenetic analysis of the species from Japan. *Esakia*, 34, 75–129.
- Bedel, L. (1886). *Faune des Coleopteres du Bassin de la Seine. Vol. VI. Rhynchophora. Annales de la Societe entomologique de France*, (6) 4 (3), 249–280.
- Bouchard, P., Bousquet, Y., Davies, A.E., Alonso-Zarazaga, M.A., Lawrence, J.F., Lyal, C.H.C., Newton, A.F., Reid, C.A.M., Schmitt, M., Ślipiński, S.A., Smith, A.B.T. (2011). **Family-group names in Coleoptera (Insecta)**. *ZooKeys*, 88, 1–972. <http://dx.doi.org/10.3897/zookeys.88.807>
- Bovie, A. (1908). *Coleoptera. Fam. Curculionidae. Subfam. Cryptoderminae*. *Wytzman, P.A. Genera Insectorum*, 70, 1–3 + 1 pl.

- Caldara, R., O'Brien, C.W. (1998). Systematics and evolution of weevils of the genus *Bagous*. VI. Taxonomic treatment of the species of the western Palearctic Region (Coleoptera Curculionidae). *Memorie della Società Entomologica Italiana*, 76, 131–347.
- Caldara, R., O'Brien, C.W., Meregalli, M. (2017). A phylogenetic analysis of the aquatic weevil tribe Bagoiini (Coleoptera: Curculionidae) based on morphological characters of adults. *Zootaxa*, 4287, 1, 1–63. <https://doi.org/10.11646/zootaxa.4287.1.1>
- Champion, G.C. (1906-1909). *Biologia Centrali-Americana*. Insecta. Coleoptera. Rhynchophora. Curculionidae. Curculioninae (part), 4 (5).
- Csiki, E. (1936). Curculionidae: Rhynchophorinae, Cossoninae. Schenkling, S. (ed.). *Coleopterorum Catalogus auspiciis et auxilio W. Junk*, 149, 1–212.
- Davis, S.R., Engel, M.S. (2006). Dryophthorine weevils in Dominican amber (Coleoptera: Curculionidae). *Transactions of the Kansas Academy of Science*, 109 (3/4), 191–198.
- Davis, S.R., Engel, M.S. (2007). Cossonine weevils in Dominican amber (Coleoptera: Curculionidae). *Linzer biologische Beiträge*, 39, 803–820.
- Davis, S.R., Engel, M.S. (2009). An orthognathine weevil of the genus *Mesocordylus* in Dominican amber (Coleoptera: Curculionoidea: Dryophthoridae). *Beiträge zur Entomologie*, 59 (1), 233–238.
- Decelle, J., Voss, E. (1972). *La Faune terrestre de l'Île de Sainte-Hélène* (Deuxième partie). II. Insectes. 9. Coleoptera. 35. Fam. Curculionidae. *Annales du Musée Royal de l'Afrique Centrale, Tervuren*, 8, Sciences Zoologiques, 192, 306–515.
- Dieckmann, L. (1983). Beiträge zur Insektenfauna der DDR: Coleoptera – Curculionidae (Tanymecinae, Leptopiinae, Cleoninae, Tanyrhynchinae, Cossoninae, Raymondionyminae, Bagoiinae, Tanysphyrinae). *Beiträge zur Entomologie*, 33 (2), 257–381.
- Folwaczny, B. (1973). Bestimmungstabelle der paläarktischen Cossoninae (Coleoptera, Curculionidae) ohne die nur in China und Japan vorkommenden Gattungen, nebst Angaben zur Verbreitung. *Entomologische Blätter*, 69 (2), 65–180.
- Grebennikov, V.V. (2010). First *Alaocybites* weevil (Insecta: Coleoptera: Curculionoidea) from the Eastern Palearctic: a new microphthalmic species and generic relationships. *Arthropod Systematics and Phylogeny*, 68 (3), 331–365.
- Grebennikov, V.V. (2018a). Dryophthorinae weevils (Coleoptera: Curculionidae) of the forest floor in Southeast Asia: illustrated overview of nominal Stromboscerini genera. *Zootaxa*, 4418 (2), 121–135. <https://doi.org/10.11646/zootaxa.4418.2.2>
- Grebennikov, V.V. (2018b). Dryophthorinae weevils (Coleoptera: Curculionidae) of the forest floor in Southeast Asia: three marker analysis reveals monophyly of Asian Stromboscerini and new identity of rediscovered Tasactes. *European Journal of Entomology*, 115, 437–444. <https://doi.org/10.14411/eje.2018.044>
- Grebennikov, V.V. (2018c). Dryophthorinae weevils (Coleoptera: Curculionidae) of the forest floor in Southeast Asia: DNA analysis of two new *Nephus* from Vietnam and Taiwan suggests non-monophyly of Stromboscerini. *Zootaxa*, 4500 (3), 381–387. <https://doi.org/10.11646/zootaxa.4500.3.5>
- Heller, K.M. (1926). 5. Bestimmungsschlüssel außereuropäischer Käfer: Calandrini spurii (Laogenia etc.) und Verwandte. (Mit 14 Figuren im Text.). *Entomologische Blätter*, 22 (4), 180–187.
- Hubenthal, W. (1917). Die indomalaischen Arten der Curculionidengattung *Desmidophorus* Schoenherr. *Entomologische Blätter*, 13 (4–6), 103–123.
- Hustache, A. (1925). *Synopsis des Curculionoides de Madagascar*. *Bulletin de l'Académie Malgache, Nouvelle Série*, 7, 1–582.
- Jordal, B.H. (2014). 3.7.11 Cossoninae Schoenherr, 1825. *Handbook of Zoology*. Tb. 40: Coleoptera (Beetles). Vol. 3: Morphology and Systematics (Phytophaga). Editor(s): R.A.B. Leschen and R.G. Beutel, 629–632.
- Klima, A. (1934). Curculionidae: Eriirhininae. Schenkling, S. (ed.). *Coleopterorum Catalogus auspiciis et auxilio W. Junk*, 140, 1–167.
- Kolbe, H.J. (1899). Die Oxyopisthinen, eine neue Gruppe der Curculioniden des tropischen Afrika. *Stettiner Entomologische Zeitung*, 60 (1-6), 3–138.
- Konishi, M. (1962). Taxonomie studies on the Cossoninae of Japan (Coleoptera: Curculionidae). Part I. *Insecta Matsumurana*, 25 (1), 1–17.
- Korotyaev, B.A. (1976). Review of weevils of the genus *Dorytomus* Germ. (Coleoptera, Curculionidae) of North-East Asia. *Entomologicheskoe Obozrenie*, 55, 124–136 (in Russian).
- Kuschel, G. (1951). Revisión de *Lissorhoptrus* Leconte y géneros vecinos de América. *Revista Chilena de Entomología*, 1, 23–74.
- Kuschel, G. (1966). A cossonine genus with bark-beetle habits, with remarks on relationships and biogeography (Coleoptera Curculionidae). *New Zealand Journal of Science*, 9 (1), 3–29.
- Kuschel, G. (1990). Beetles in a suburban environment: a New Zealand case study. The identity and status of Coleoptera in the natural and modified habitats of Lynfield, Auckland (1974-1989). *DSIR Plant Protection Report*, 3, 1–119.
- Kuschel, G. (1995). A phylogenetic classification of Curculionoidea to families and subfamilies. *Memoirs of the Entomological Society of Washington*, 14, 5–33.
- Lacordaire, T. (1863). *Histoire Naturelle des Insectes. Genera des Coléoptres ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes*. 6. Paris, Roret.
- Lacordaire, T. (1865). *Histoire Naturelle des Insectes. Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes*. 7. Paris. Roret.
- Legalov, A.A. (2015). Fossil Mesozoic and Cenozoic weevils (Coleoptera, Obrieniodea, Curculionoidea). *Paleontological Journal*, 49 (13), 1442–1513. <http://doi.org/10.1134/S0031030115130067>
- Legalov, A.A. (2016a). New weevils (Curculionidae) in Baltic amber. *Paleontological Journal*, 50 (9), 970–985. <https://doi.org/10.1134/S0031030116090057>
- Legalov, A.A. (2016b). Two new genera and four new species of fossil weevils (Coleoptera: Curculionoidea) in Baltic amber. *Entomologica Fennica*, 27 (2), 57–69. <https://doi.org/10.33338/ef.59124>
- Legalov, A.A. (2018a). Annotated key to weevils of the world. Part 1. Families Nemonychidae, Anthribidae, Belidae, Ithyceridae, Rhynchitidae, Brachyceridae and Brentidae. *Ukrainian Journal of Ecology*, 8(1), 780–831. [https://doi.org/10.15421/2018\\_280](https://doi.org/10.15421/2018_280)
- Legalov, A.A. (2018b). Annotated key to weevils of the world. Part 2. Subfamily Molytinae (Coleoptera, Curculionidae). *Ukrainian Journal of Ecology*, 8 (4), 340–350.
- Legalov, A.A. (2018c). Annotated key to weevils of the world. Part 3. Subfamily Conoderinae (Coleoptera, Curculionidae). *Ukrainian Journal of Ecology*, 8 (4), 494–503.
- Legalov, A.A., Poinar, G.Jr. (2015). New tribes of the superfamily Curculionoidea (Coleoptera) in Burmese amber. *Historical Biology*, 27 (5), 558–564. <https://doi.org/10.1080/08912963.2014.896908>

- Morimoto, K. (1962). Key to families, subfamilies, tribes and genera of the superfamily Curculionoidea of Japan excluding Scolytidae, Platypodidae and Cossoninae. (Comparative morphology, phylogeny and systematics of the superfamily Curculionoidea of Japan. III). Journal of the Faculty of Agriculture, Kyushu University, 12, 21–66.
- Morimoto, K. (1973). On the genera of Oriental Cossoninae (Coleoptera: Curculionidae). Bulletin of the Government Experiment Station, 257, 81–100.
- Morimoto, K. (1978). Check-list of the family Rhynchophoridae (Coleoptera) of Japan, with descriptions of a new genus and five new species. Esakia, 12, 103–118.
- Morimoto, K. (1985). Supplement to the check-list of the family Rhynchophoridae (Coleoptera) of Japan, with descriptions of a new genus and four new species. Esakia, 23, 67–76.
- Morimoto, K., Kojima, H. (1999). Systematic Notes on the genus *Tanysphyrus* with descriptions of a related new genus. Entomological Review of Japan, 54 (2), 81–96.
- Morimoto, K., Kojima, H. (2006). Larva of *Desmidophorus crassus* and the systematic position of the Desmidophorini (Coleoptera: Curculionoidea). Esakia, 46, 89–100.
- Morrone, J.J., Cuevas, P.I. (2002). Cladistics of the pantropical genus *Rhinostomus* (Coleoptera: Curculionoidea: Dryophthoridae), with nomenclatural notes. Journal of the New York Entomological Society, 110 (3–4), 376–388.
- Morrone, J.J., Hlaváč, P. (2017). Checklist of the micro- and anophthalmic soil-dwelling weevils of the world (Coleoptera: Curculionidae). Zootaxa, 4239 (1), 1–102. <https://doi.org/10.11646/zootaxa.4239.1.1>**
- Nazarenko, V.Yu., Legalov, A.A., Perkovsky, E.E. (2011). A new species of the genus *Caulophilus* Woll. (Coleoptera: Curculionidae: Cossoninae) from the Rovno amber. Paleontological Journal, 45 (3), 287–290. <https://doi.org/10.1134/S0031030111030105>
- Nazarenko, V.Yu., Perkovsky, E.E. (2009). A new genus and species of Dryophthorid weevils (Coleoptera, Dryophthoridae: Stromboscerinae) from the Rovno Amber. Paleontological Journal, 43 (9), 1097–1100. <https://doi.org/10.1134/s003103010909010x>
- O'Brien, C.W. (1970). A taxonomic revision of the weevil genus *Dorytomus* in North America (Coleoptera: Curculionidae). University of California Publications in Entomology 60, 1–80.**
- O'Brien, C.W., Askevold, I.S. (1992). Systematics and evolution of weevils of the genus *Bagous* Germar (Coleoptera: Curculionidae). I. Species of Australia. Transactions of the American Entomological Society, 118 (4), 331–452.**
- O'Brien, C.W., Askevold, I.S. (1995). Systematics and evolution of weevils of the genus *Bagous* Germar (Coleoptera: Curculionidae). V. Taxonomic treatment of the species of the Indian subcontinent. Contributions of the American Entomological Institute, 28 (5), 1–182.**
- O'Brien, C.W., Askevold, I.S., Morimoto, K. (1994). Systematics and evolution of weevils of the genus *Bagous* Germar. (Coleoptera: Curculionidae). II. Taxonomic treatment of the species of Japan. Esakia, 34, 1–73.**
- O'Brien, C.W., Wibmer, G.J. (1982). Annotated checklist of the weevils (Curculionidae sensu lato) of North America, Central America, and the West Indies (Coleoptera: Curculionoidea). Memoirs of the American Entomological Institute, 34, i–ix, 1–382.**
- Oberprieler, R.G. (2014). 3.7.1 Brachycerinae Billberg, 1820 and Microcerinae Lacordaire, 1863. Arthropoda: Insecta. Handbook of Zoology. Tb. 40: Coleoptera (Beetles). Vol. 3: Morphology and Systematics (Phytophaga). Editor(s). R.A.B. Leschen and R.G. Beutel, 424–451.
- Oberprieler, R.G., Caldara, R., Skuhrovec, J. (2014). 3.7.2 Bagoini Thomson, 1859; Gonipterini Lacordaire, 1863; Hyperini Marseul, 1863. Arthropoda: Insecta. Handbook of Zoology. Tb. 40: Coleoptera (Beetles). Vol. 3: Morphology and Systematics (Phytophaga). Editor(s). R.A.B. Leschen and R.G. Beutel, 452–477.
- Osella, G. (1977). Revisione della sottofamiglia Raymondionyminae (Coleoptera, Curculionidae). Memorie del Museo Civico di Storia Naturale di Verona, 2 (1), 1–162.
- Poinar, G.Jr., Legalov, A.A. (2014). *Bicalcasura maculata* n. gen., n. sp. (Curculionoidea: Dryophthoridae) with a list of weevils described from Dominican amber. Historical Biology, 26 (4), 449–453. <https://doi.org/10.1080/08912963.2013.786066>
- Poinar, G.Jr., Legalov, A.A. (2015a). New species of the subfamily Cossoninae (Coleoptera: Curculionidae) in Dominican amber. Historical Biology, 27 (5), 491–502. <https://doi.org/10.1080/08912963.2014.888422>
- Poinar, G.Jr., Legalov, A.A. (2015b). New species of the genera *Dryophthorus* Germ. and *Stenommatius* Woll. (Coleoptera: Dryophthoridae) in Dominican amber. Historical Biology, 27 (5), 508–513. <https://doi.org/10.1080/08912963.2014.892938>
- Reitter, E. (1913). Bestimmungs-Schlüssel der mir bekannten europäischen Gattungen der Curculionidae, mit Einschluss der mir bekannten Gattungen aus dem palaearktischen Gebiete. Verhandlungen des naturforschenden Vereines in Brünn, 51 (1912), 1–90.
- Sharp, D. (1916). Re-arrangement of tire Bagoini. Preliminary list of the British members. Entomologist's Monthly Magazine, 52, 275.
- Sharp, D. (1917a). Studies in Rhynchophora. 1. Tribe Pseudobagoini. Entomologist's Monthly Magazine, 53, 26–32.
- Sharp, D. (1917a). Studies in Rhynchophora. 2. The British Bagoini. Entomologist's Monthly Magazine, 53, 100–108.
- Thompson, R.T. (1992). Observations on the morphology and classification of weevils (Coleoptera, Curculionoidea) with a key to major groups. Journal of Natural History, 26, 835–891. <https://doi.org/10.1080/00222939200770511>
- Thompson, R.T. (2005). On the nomenclature and taxonomy of *Tournotaris* Alonso-Zarazaga & Lyal, 1999 and related genera (Coleoptera, Curculionoidea, Eriirhinidae). Deutsche Entomologische Zeitschrift 52 (1). 125–130.
- Thompson, R.T. (2006). A revision of the weevil genus *Procas* Stephens (Coleoptera: Curculionoidea: Eriirhinidae). Zootaxa 1234, 1–63.
- van den Berg, H.C. (1968). A morphological study of the Vine Snout Beetle, *Cryptolarynx vitis* (Marshall) (Coleoptera: Curculionoidea). Annals of the University of Stellenbosch, 43 (2), 185–221.
- Vaurie, P. (1970a). Weevils of the tribe Sivalini (Coleoptera, Curculionidae, Rhynchophorinae) Part 1. The genera *Rhinostomus* and *Yuccaborus*. American Museum Novitates, 2419, 1–57.
- Vaurie, P. (1970b). Weevils of the Tribe Sivalini (Coleoptera, Curculionidae, Rhynchophorinae) Part 2. The Genera *Mesacordylus* and *Orthognathus*. American Museum Novitates, 2441, 1–78.
- Vaurie, P. (1971). Weevils of the tribe Sivalini (Coleoptera, Curculionidae, Rhynchophorinae). Part 3, The genus *Sipalinus*. American Museum novitates, 2463, 1–43.
- Voss, E. (1934). Die Cossoninen Afrikas und Madagaskars des Deutschen Entomologischen Instituts der Kaiser-Wilhelm-Gesellschaft. (Schluss). Arbeiten über morphologische und taxonomische Entomologie, Berlin- Dahlem, 1 (2-3), 118- 123, 186–194.
- Voss, E. (1939). Rhynchitinen, Attelabinen und Cossoninen aus dem Kongo-Gebiet (Col., Curc.). Revue de Zoologie et de Botanique Africaines, 32 (1), 42–82.

- Voss, E. (1940). Über Rüsselkäfer der Indomalayischen Subregion, vorwiegend von Java (Col.: Curc.). Teil I. (82. Beitrag zur Kenntnis der Curculioniden). Tijdschrift voor Entomologie, 83, 17–93.
- Voss, E. (1952). Mandschurische Rüssler aus dem Museum G. Frey. Mitteilungen der Münchener entomologischen Gesellschaft, 42, 190–205.
- Voss, E. (1953). Einige Rhynchophoren der Bernsteinfauna (Col.). Mitteilungen aus dem Geologisch-Paläontologischen Institut Hamburg 22, 119–140.
- Voss, E. (1955a). Bemerkenswerte Ergebnisse einer Revision der Attelabiden des Ungarischen Naturwissenschaftlichen Museums zu Budapest, nebst Bemerkungen zur Cossoninen-Gattung *Aphyllura* Reitt. (Coleoptera). Annales Historico-Naturales Musei Nationalis Hungarici, (S. N), 6, 269–277.
- Voss, E. (1955b). Zur Synonymie und systematische Stellung europäischer Cossonine-Gattungen unter Berücksichtigung einiger Gattungen der madeirischen Fauna. Mitteilungen der Münchener Entomologischen Gesellschaft, 44–45, 182–239.
- Voss, E. (1958). Ein Beitrag zur Kenntnis der Curculioniden im Grenzgebiet der Orientalischen zur Paläarktischen Region (Col., Curc.). Die von J. Klapperich und Tschung Sen in der Provinz Fukien gesammelten Rüsselkäfer. Decheniana Beihefte, 5, 1–139.
- Wibmer, G.J., O'Brien, C.W. (1986). Annotated checklist of the weevils (Curculionidae sensu lato) of South America (Coleoptera: Curculionoidea). Memoirs of the American Entomological Institute, 39, i–xvi, 1–563.**
- Wollaston, T.V. (1873). On the genera of the Cossonidae. Transactions of the Entomological Society of London, 1873 (4), 427–657.
- Zherikhin, V.V. (2000). Tertiary brachycerid weevils (Coleoptera: Brachyceridae) from the collections of Muséum Nationale d'Histoire Naturelle, Paris, with a review of other fossil Brachyceridae. Paleontological Journal, 34 (suppl. 3), 333–343.
- Zherikhin, V.V., Egorov, A.B. (1991). Zhuki-dolgonosiki (Coleoptera, Curculionidae) Dal'nego Vostoka SSSR (obzor podsemeistv s opisaniem novykh taksonov) [Weevils (Coleoptera, Curculionidae) from Russian Far East (review of subfamilies with description of new taxa). Vladivostok. (in Russian).
- Zimmerman, E.C. (1993). Australian Weevils (Coleoptera. Curculionoidea). III. Nanophyidae, Rhynchophoridae, Eriirhinidae, Curculionidae: Amycterinae, literature consulted. CSIRO Publications.
- Zumt, F. (1929). Revision der Genera *Notaris* Germ., *Lepidonotaris* m., *Thryogenes* Bed., *Grypus* Germ., *Icaris* Tourn. und *Picianus* m. (Col. Curc.). Coleopterologisches Centralblatt, 3(5/6), 213–239.

---

**Citation:**

Legalov, A.A. (2020). Annotated key to weevils of the world. Part 4. Subfamilies Eriirhininae, Dryophthorinae and Cossoninae (Curculionidae). Ukrainian Journal of Ecology, 10(2), 319–331.



This work is licensed under a Creative Commons Attribution 4.0. License

© 2020. This work is published under <https://creativecommons.org/licenses/by/4.0>(the“License”). Notwithstanding the ProQuest Terms and Conditions, you may use this content in accordance with the terms of the License.