A REVIEW OF FOSSIL AND RECENT SPECIES OF THE FAMILY ITHYCERIDAE (COLEOPTERA) FROM THE WORLD FAUNA

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Summary. The family review is performed. Eccoptarthrinae, Ulyaninae, Slonikinae and Ithycerinae are united into one family. New tribes Chilecarinini Legalov, trib.n. (type genus: Chilecar Kuschel, 1992), Ulyanisclini Legalov, trib.n. (type genus: Ulyanisca Gratshev, 1998) and subtribe Carodesina Legalov, subtrib.n. (type genus: Carodes Zimmermann, 1994) are described. New systematic placements are proposed: tribes Paleocartini Legalov, 2003, placem.n. and Brentorrhinoindini Legalov, 2003, placem.n. are transferred from family Rhynchitidae to family Ithyceridae; subfamily Slonikinae Zherichin, 1977, placem.n. is transferred from family Nemonychidae to family Ithyceridae; genus Ulyanisca Gratshev, 1998, placem.n. is transferred from subfamily Ulyaninae to subfamily Slonikinae; genus Gratshevibius Soriano, 2009, placem.n. is transferred from family Belidae to family Ithyceridae; Montsecanomalus rugosithorax (Gratshev & Zherikhin, 2000), placem.n., M. zherichini (Liu & Ren, 2006), placem.n. and M. punctatus (Liu & Ren, 2007), placem.n. are transferred from genus Cretonanophyes Zherichin, 1977 to genus Montsecanomalus Soriano, Gratshev, Delclôs, 2006. Changes of status: Ulyaninae Zherichin, 1993, stat.n. is downgraded from family to subfamily, Caritae Thompson, 1995, stat.n. and Baisorthyrhizinae Zherichin, 1993, stat.n. are downgraded from subfamilies to supertribes, Mesophylletini Poinar, 2006, stat.n. is downgraded from subfamily to tribe, Leptocarini Liu & Ren, 2007, stat.n. is downgraded from genus to subgenus, Nebrathorrisini Legalov, 2007, stat.n. is upgraded from subtribe to tribe. Four new combinations are proposed: Montsecanomalus rugosithorax (Gratshev & Zherikhin, 2000), comb.n., M. zherichini (Liu & Ren, 2006), comb.n., M. punctatus (Liu & Ren, 2007), comb.n. and M. polychaetus (Liu & Ren, 2007), comb.n.


INTRODUCTION


We can consider as generally accepted that the most primitive family is Nemonychidae which emerged in the Jurassic [Kuschel, 1983; Legalov, 2006; Zherikhin, 1993]. The family Obrieniidae from the Triassic does not belong to the superfamily Curculionoidea [Legalov, 2002, 2006; Kuschel, 2003] as was supposed first by Gratshev and Zherikhin [2003]. Obrieniidae belong to Archostemata because of the structure of the metepisternum, the elongated rostrum being a convergence. For example, species of the families Lycidae (Cantharoidea) and Salpingidae (Tenebrionoidea) from the recent fauna have an enlarged rostrum.

The majority of recent species of the family Nemonychidae develop in the sporophylls inside decaying male conifer strobili of coniferous [Oberprieler, Marvaldi, Anderson, 2007]. Transition of these beetles to inhabiting fruits and vegetative parts most likely was a basis for differentiation of this group in the Late Jurassic. The transition of Curculionid beetles to feeding on metasperms in the Cretaceous promoted the origin of the basic groups of the superfamily Curculionoidea. It was assumed that development in decaying gymnosperm sporophylls
[Oberprieler, Marvaldi, Anderson, 2007] had resulted in the origin of the family Anthribidae known from the Cretaceous [Zherichin, 1993]. Development in fruits resulted in the origin of Ithyceridae (=Eccoptarthridae). It may be safely suggested that the families Rhynchitidae and Brentidae, and possibly Curculionidae diverged from this group. Family Belidae was formed because of transition to development in vegetative organs and Oxy Corynidae diverged from this group. Probably Rhynchitidae diverged directly from Nemonychidae in the Cretaceous along with adaptation to development in the buds of angiosperm. The question about possible parallelisms arises. Probably the combination of the gular sutures and a reduced labrum with a distinct suture arose several times in different groups. Presently we may observe this in Belidae, which have 2 sutures joining apically to form a triangle. If we recognise parallelism of the first character then inclusion of the family Allocorinidae (with unpaired gular suture) into the family Oxy Corynidae (with paired gular suture) is justified [Marvaldi, Oberprieler, Lyal, Bradbury, Anderson, 2006]. Family Attelabidae could be separated directly from Belidae [Legalov, 2002] or from the subfamily Rhinocar tinae of the family Rhynchitidae. Divergence of Attelabidae from Ithyceridae is probable. Peculiarity of species of the family Ithyceridae (=Eccoptarthridae, = Caridae) was noted by many authors. Thompson [1992] and Kuschel [1995] have described them as subfamily Carinae of the families Belidae and Brentidae, respectively. Zimmermann [1994] has described Caridae as independent family.

Recent species of Ithyceridae are distributed in North America, southern South America, New Guinea [Oberprieler, Marvaldi, Anderson, 2007; Setliff, 2007] and Australia. The fossil forms are known from North America, South America, Europe and Asia (fig. 1).


RESULTS

Family Ithyceridae Schoenherr, 1823
(Col. pl. I – a – j, II – a – j; III – a–p; IV, a – m)

Description. Body light or dark, with appressed or erect setae. Head constricted behind eyes or not constricted behind them. Rostrum short, shorter than pronotum, wide, widened to apex, flattened, with carina; or very long, or medium, longer than head, straight or slightly curved, sometimes acuminate to apex. Mandible with teeth on interior and without teeth on exterior margins or with teeth on exterior margin (rhynchitoid type). Maxillary palps sometimes long. Labial palps 2-, 3-, or 4-segmented. Antennae inserted submedially, or subapically, or inserted in the 1st third of the rostrum, or before the base of the rostrum, laterally, or ventrally, or dorsally. Eyes from medium to large, convex. Frons wide or of equal width with the rostrum at its basis, or narrow. Temples short or elongated. Antennae long. Scapus of the antennae more or less elongated. Segments of the funicle
trapezoid. Clava noncompact, or almost compact, or compact, shorter and wider than funicle, tear-shaped. Pronotum almost rectangular or almost trapezoid, sometimes transversal, sometimes with lateral carina. Sides almost direct or rounded. Disc convex or flattened, punctate. Scutellum triangular or quadrangular, wide. Elytra with irregular rows of the points, or regular rows, elongated, sometimes almost parallel, sharply narrowed in the apical third. Humeri weakly smoothed. The greatest width on the middle or behind it. Intervals wide, punctate. Scutellar striae usually absent. Striae reduced, or very weak, or distinct. 9th striae merges with 10th striae before metacox, or 9th striae not merges with 10th striae. Apex of the elytra rounded or separated. Prothorax short or elongated. Postorbital blades absent or weak. Procoxa located near the first margin of the prothorax, or near its base, or in the middle. Pre- and postcoxal parts of the prothorax elongated or not elongated. Mesepisternum narrow. Metepisternum very narrow. Abdomen slightly convex. All ventrites of almost equal length, or 1st and 2nd ventrites longer, or 1st ventrite short, or 1st ventrite long, 3rd and 4th ventrites shorter, 5th ventrite shorter than 4th or of equal length to it, or 2nd - 5th ventrites shorter, of approximately equal length. Pygidium in males usually large and convex. Legs long. Femora widened, sometimes with teeth. Tibiae robust or narrow, almost direct, weak or strongly curved, or slightly biconcave, sometimes with micro and spurs. Tarsi long. 1st segment wide, trapezoid or not widened; larger in the fore legs than in the middle or hind legs. 2nd segment triangular or bilobed. 3rd segment bilobed. Claws widely spaced, sometimes without teeth, usually with very weak teeth at the basis. Length of body: 1.1-18.0 mm.

Remarks. I accept a large volume of this family. I accept a point of view by Zherichin & Gratshev’s [1995] that Jurassic forms together with the Eocene and recent forms are a monophyletic group. This family has emerged in the Late Jurassic and was dominating in the Cretaceous [Gratshev, Zherichin, 1999]. In the end of the Cretaceous the most part of its species became extinct. Usually we deal with badly preserved imprints of the fossil forms and some advanced recent species of this family.

I transfer the tribes Paleocartini and Brentorrhoinodini, being intermediate from Nemonychidae to Ithyceridae and Rhynchiitidae, from the family Rhynchiitidae to the family Ithyceridae. These groups are characterised by the abdomen structure typical for Ithyceridae but are close to Rhynchiitidae by the mandible structure.

I include into this family also the subfamilies Ulyaninae and Slonikinae described from the Cretaceous because they are characteristic with the mandible with teeth at exterior and interior margins (Ulyaniana Zherichin, 1993), subapically or submedially placed antennae, and free almost identical ventrites of the abdomen.

I transfer Ithycerinae from the family Brentidae into the family Ithyceridae, together with Eccoptarthrinae, Ulyaninae and Slonikinae because it is characterised by the abdomen similar to that of Eccoptarthrinae and Ulyaninae. Disposition of this group as subfamily in family Brentidae is incorrect [Marvaldi, Sequeira, O’Brien, Farrell, 2002; Oberprieler, Marvaldi, Anderson, 2007] because all Brentidae have the abdomen with longer 1st and 2nd ventrites and short 3rd and 4th ventrites.

It may be safely suggested that on early stage of development (in Jurassic) this was the same family with Nemonychidae and Belidae. Further differentiation of this group and extinction of many taxa was the basis for division of this group into separate families (Nemonychidae, Belidae, and Ithyceridae). The family Ithyceridae consists of isolated subfamilies (Eccoptarthrinae, Ulyaninae, Slonikinae, and Ithycerinae). The first develops in generative organs. The mode of life of the second and third is unknown. The larvae of Ithycerinae live in soil.

Key to subfamilies of the family Ithyceridae
1. Antennae inserted dorsally ................. Ulyaninae
   – antennae inserted laterally or ventrally ............... 2
2. Rostrum strongly narrowed to apex (lateral view) ................................................................. Slonikinae
   – rostrum not narrowed or slightly narrowed to apex (lateral view) ........................................... 3
3. Rostrum short and wide. Large beetles (11.6-14.5 mm) ............................................................ Ithycerinae
   – rostrum long and narrow. Small beetles (1.1-6.2 mm) ............................................................... Eccoptarthrinae

Key to genera and subgenera of the family Ithyceridae*

*Genus Paleocartus Legalov, 2003 is not included into the key because the structure of its 1st segment of the tarsi is not known. This genus is characterised by subapically inserted antennae and the mandible with a tooth on the interior margin.

1. Rostrum short and wide, with carina .......... Ithycerus
   – rostrum long and narrow ............................................................... 2
2. Rostrum strongly narrowed to apex (lateral view) .......................... 3
   – rostrum not narrowed or slightly narrowed to apex (lateral view) .............................................. 4
3. Femora without teeth. Precoxal margin of the prothorax elongated ............................................ Slonik
   – femora with teeth. Precoxal margin of the prothorax short ........................................................... Ulyanisca
4. Antennae inserted dorsally ................. Ulyaniana
   – antennae inserted laterally or ventrally .................. 5
5. 1st segment of tarsi not widened .................................................. 6
   – 1st segment of tarsi widened ........................................... 11
6. Antennae inserted subapically .......... Nebrenthorrhinus
   – antennae inserted submedially or subbasally .......... 7
7. Pronotum without carina on side ....................... 8
   – pronotum with weak carina on side ..................... 9
8. Antennae inserted on the rostrum middle .... Abrocar
   – antennae inserted on the rostrum basis .......................................................... Auletomacer
9. 1st segment strongly elongated ............... Baltoac
   – 2nd segment weakly elongated .......................... 10
10. 2nd and 3rd segments of the tarsi bilobed .............. Baissohortinus
    – 2nd segment triangular .............................. Cretanophytes
11. Procoxa located closer to apical or basal margin of prothorax .............................................. 12
– procoxa located at the middle of prothorax .......... 18
12. Postcoxal part of prothorax widened ................. 13
– precoxal part of prothorax widened .................... 14
13. Tibiae wide. Femora stronger widened
................................................................................. Eccoptarthrus
– tibiae narrow. Femora weaker widened
................................................................................. Hispanocar
14. Pronotum without carina on side ....................... 15
– pronotum with weak carina on side .................... 16
15. Frons strongly convex .................................. Gratshevibelus
– frons weakly convex ....................................... 20
16. Claws with tooth. Tarsi elongated ................. Martinsnetoa
– claws without tooth. Tarsi short ....................... Cretocar
17. Tarsi with dense setae. 1st ventrite longer than 2nd
ventrite .......................................................... Jarzembowskia
– tarsii without dense setae. 1st ventrite shorter than 2nd
ventrite .......................................................... Gobicar
18. Antennae inserted submedially. Mandible of a
rhynchitoid type ............................................. Brethorrhoinoides
– antennae inserted subbasally ............................. 19
19. Tibiae curved, narrower .......................... Emanrhynchus
– tibiae straight, wider ........................................ 20
20. Rostrum longer than head and pronotum taken
together (Montsecanomalous) .......................... 21
– rostrum of equal length, or little longer, or shorter
than head and pronotum taken together ............. 22
21. Procoxa shorter ........................................... Montsecanomalous
– procoxa longer ............................................... Leptocar
22. Antennae inserted ventrally ............................... Carodes
– antennae inserted laterally ............................... 23
23. Elytra almost rectangular, with heterogeneous setae
................................................................................. Carodes
– elytra oval, with uniform setae ............................. 24
24. Head distinctly constricted behind eyes. Middle tibiae
of males without micro ................................ Caenominirus
– head not constricted behind eyes. Middle tibiae of
males with micro ............................................... Chilecar

Subfamily Eccoptarthrinae L. Arnoldi, 1977
(Col. pl. I – a – j, II – a – j; IV, a – m)
Eccoptarthrini L. Arnoldi, 1977: 169
Type genus: Eccoptarthrus L. Arnoldi, 1977
Description. Body light or dark, with appressed or
erect setae. Head constricted behind eyes or not
constricted behind them. Rostrum very long, or long
and weakly curved, or medium. Mandible with teeth on
interior and without teeth on exterior margin, or with teeth on
exterior margin. Maxillary palps sometimes long. Labial
palps 2-, or 3-segmented. Antenna inserted submedially,
or subapically, or in the 1st third of the rostrum, or before
the rostrum basis, laterally or ventrally. Eyes from med-
ium to large, convex. Frons wide or of equal length to
the width of the rostrum at its basis, or narrow. Temples
short or elongated. Antenna long. Scapus of the antennae
more or less elongated. Segments of the funicle trapezoid.
Clava noncompact or almost compact. Pronotum almost
rectangular or almost compact, sometimes transversal,
sometimes with lateral carina. Sides almost direct or
rounded. Disc convex, punctate. Scutellum triangular or
quadrangular, wide. Elytra elongated, with irregular or
regular rows of the points. Humeri weakly smoothened. The
greatest width at the middle or behind it. Striae reduced,
or very weak or distinct. 9th striae merge with 10th striae
before metacoxa. Apex of elytra rounded. Prothorax short
or elongated. Procoxa located near the apical margin of
prothorax or near its basal margin, or at the middle. Pre-
and postcoxal parts of pronotum elongated or not elon-
gated. Mesepisternen narrow. Metepisternum very nar-
row. Abdomen slightly convex. Ventrites of almost equal
length, or 1 and 2 ventrites long, or 1 ventrite short,
or 1 ventrite longer. 3rd and 4th ventrites shorter. 5th
ventrite shorter than 4th ventrite, or equal length to it, or
2nd - 5th ventrites short, of approximately equal length.
Legs long. Procoxa conic. Femora widened. Tibiae robust
or narrow, almost direct, weak or strongly curved, or
weakly biconcave. Tarsi long. 1st segment wide, trape-
zoid or not widened, in fore legs larger than in middle
legs. 2nd segment triangular or bilobed. 3rd segment
bilobed. Cuspal segment elongated. Claws widely
spaced, sometimes without teeth, usually with very weak
teeth at the basis. Length of body: 1.1-6.2 mm.

Remarks. Eccoptarthrinae are divisible into 3 super-
tribes basing on the place of the antennal attachment
and the mandible structure: supertribe Eccoptarthritae
with submedially or subapically inserted antennae and mandi-
ble without teeth or as in Rhynchitidae (a rhynchytoid
type); supertribe Baissorhynchitae with antennae inserted
in the 1st third of the rostrum and possibly simple mandi-
ble; supertribe Carintae with antennae inserted near
the rostrum basis and the mandible as in Rhynchitidae or
simple.

Supertribe Eccoptarthritae L. Arnoldi, 1977
(Col. pl. I – a – j, II – a – j)
Eccoptarthrini L. Arnoldi, 1977: 169
Type genus: Eccoptarthrus L. Arnoldi, 1977
Description. Body brown. Head constricted behind
eyes, or not constricted behind them. Rostrum long,
slightly curved, or medium, little longer than head. Man-
dible with teeth on interior and without teeth on exterior
margin, or with teeth on exterior margin. Maxillary palps
sometimes long. Antenae inserted submedially, laterally
or subapically. Eyes from medium to large. Frons wide,
or equal in length to the width of the rostrum at its base.
Temples short or elongated. Antennae long. Scapus of the
antenna not constricted. Segments of the funicle trapezoid.
Clava noncompact, large. Pronotum almost rectangular,
sometimes transversal. Sides almost direct or rounded.
Disc convex, punctate. Scutellum triangular or quadrangu-
lar, wide. Elytra elongated, with striae. Humeri weakly
smoothened. The greatest width in the middle or behind it.
Striae reduced or probably weakly expressed. Prothorax
long. Procoxa elongated, located near the apical margin of
the prothorax, or near basal margin, or in the middle. Pre-
and postcoxal parts of the prothorax elongated or not
elongated. 1st ventrite long. 2nd - 5th ventrites short, of
approximately equal length. Legs long. Procoxa conic.
Femora widened. Tibiae robust or narrow. Tarsi long. 1st
segment wide, trapezoid or not widened, that in prote-
siors larger than in mesotarsi. 2nd segment triangular. 3rd
segment bilobed. Cuspal segment elongated. Claws widely
spaced. Length of body: 2.5-6.0 mm.

Remarks. 4 tribes are considered within the supertribe
Eccoptarthritae: Eccoptarthrini (with submedially inserted
antennae and a widened 1st segment of the tarsi), Paleo-
cartini (with a not widened 1st segment of the tarsi, sim-
ple mandible, and subapically inserted antennae), Brenthorrhinoidini (with the mandible of a rhynchitoid
type, submedially inserted antennae and widened 1st
segment of the tarsi), and Nebrenthorrhinini Legalov,
2007, stat.n. (with the mandible of a rhynchitoid type,
subapically inserted antennae and not widened 1st seg-
ment of the tarsi).

Key to genera of the supertribe Eccoptarthritae
1. Antennae inserted submedially .................................. 2
   – Antennae inserted subapically ................................ 3
2. 1st segment of the tarsi widened ........ Brenthorrhinoides
   – 1st segment of the tarsi not widened .............. Abrocar
3. Mandible of a rhynchitoid type ...... Nebrenthorrhinus
   – Mandible without teeth on exterior margin..............

.........................................................Paleocartus

Tribe Eccoptarthrini L. Arnoldi, 1977
Eccoptarthrini L. Arnoldi, 1977: 169
Type genus: Eccoptarthrus L. Arnoldi, 1977

Description. Head constricted behind eyes, or not
constricted behind them. Rostrum long, slightly curved.
Antennae inserted submedially laterally. Frons wide,
equal in length to the width of the rostrum at its base.
Eyes large. Temples short or elongated. Antennae long.
Scapus of the antennae elongated. Segments of the funicle
more or less elongated. Clava noncompact. Pronotum
almost rectangular. Sides almost direct. Disc convex,
Procoxa elongated, located near the apical margin of
the prothorax, or near basal margin, or in the middle.
Pre- and postcoxal parts of the prothorax elongated or not
Tibiae robust or narrow. Tarsi long. 1st segment wide, trapezoid or not widened, in prot-
tarsi larger than in mesotarsi. 2nd segment triangular. 3rd
division. 2.5-6.0 mm.

Genus Eccoptarthrus L. Arnoldi, 1977
Eccoptarthrus L. Arnoldi, 1977: 169
Type species: Eccoptarthrus crassipes L. Arnoldi, 1977

Eccoptarthrus crassipes L. Arnoldi, 1977
Eccoptarthrus crassipes L. Arnoldi, 1977: 169

Distribution. Late Jurassic (Kazakhstan: Karatau).

Genus Abrocar Liu & Ren, 2006
Abrocar Liu & Ren, 2006: 62
Type species: Abrocar Liu & Ren, 2006

Abrocar brachyorhinos Liu & Ren, 2006
Abrocar brachyorhinos Liu & Ren, 2006: 64

Distribution. Late Jurassic (China: Liaoning Prov.).

Abrocar macilentus Liu & Ren, 2007
Abrocar macilentus Liu & Ren, 2007: 644

Distribution. Late Jurassic or Early Cretaceous
(China: Liaoning Prov.).

Tribe Paleocartini Legalov, 2003, placem.n.
Paleocartini Legalov, 2003: 78

Type genus: Paleocartus Legalov, 2003

Description. Body dark. Rostrum medium, little
longer than head. Antennae inserted subapically.
Mandible with teeth on interior margin and without teeth
on exterior margin. Eyes from medium to large. Frons
wide. Antennae long, reaching apical margin of the
pronotum. Scapus oval, thicker than funicle segments.
Segments of the funicle more or less elongated. Clava
noncompact, large. Pronotum transversal, with rounded
sides, densely punctate. Elytra almost rectangular,
sometimes elongated. The greatest width in the middle
or behind it. Humeri somewhat smoothed. Striae reduced
or probably weakly expressed. Legs long. Femora widened.
Length of body: 2.8-3.7 mm.

Genus Paleocartus Legalov, 2003

Paleocartus Legalov, 2003: 78

Type species: Brenthorrhinoides pubescens Gratshev
& Zherikhlin, 1996

Paleocartus pubescens (Gratshev & Zherikhlin, 1996)
Brenthorrhinoides pubescens Gratshev & Zherikhlin,
1996: 115

Distribution. Late Jurassic (Kazakhstan: Karatau).

Paleocartus robustus (Gratshev & Zherikhlin, 1996)
Brenthorrhinoides robustus Gratshev & Zherikhlin,
1996: 115

Distribution. Late Jurassic (Kazakhstan: Karatau).

Tribe Brenthorrhinoidini Legalov, 2003, placem.n.
Brenthorrhinoidini Legalov, 2003: 88

Type genus: Brenthorrhinoides Gratshev & Zherikhlin, 1996

Description. Body brown, possibly naked. Rostrum
medium, slightly widened to apex. Antennae possibly
submedial. Mandible with teeth on exterior margin. Eyes
large. Frons wide. Antennae long, reaching apical margin
of the pronotum. Scapus distinct. Funicle segments
elongated. Clava noncompact, large. Pronotum strongly trans-
versal, with rounded sides, densely punctate. Scutellum
quadrangular, wide. Elytra almost rectangular. The greatest
width in the middle. Humeri smoothed. Striae distinct,
points in them small and dense. Legs long. Femora wid-
ened. Tibiae long, wide, almost direct. Tarsi long with
strongly elongated and widened 1st segment. Length of
body: 4.0 mm.

Genus Brenthorrhinoides Gratshev & Zherikhlin, 1996

Brenthorrhinoides Gratshev & Zherikhlin, 1996: 119

Type species: Brenthorrhinoides mandibulatus
Gratshev & Zherikhlin, 1996

Brenthorrhinoides mandibulatus Gratshev &
Zherikhlin, 1996

Brenthorrhinoides mandibulatus Gratshev &
Zherikhlin, 1996: 115

Distribution. Late Jurassic (Kazakhstan: Karatau).

Nebrenthorrhinina Legalov, 2007: 34
Type genus: Nebrenthorrhinus Legalov, 2003


Genus Nebrenthorrhinus Legalov, 2003
Nebrenthorrhinus Legalov, 2003f: 89
Type species: Nebrenthorrhinus lacasai Gratshev & Zherikhin, 2000

Nebrenthorrhinus lacasai (Gratshev & Zherikhin, 2000)
Brenthorrhinoides lacasai Gratshev & Zherikhin, 2000b: 41


Baiosaurhynchini Zherikhin, 1993: 30
Type genus: Baiosaurhynchus Zherikhin, 1977

Description. Body dark, sometimes legs light. Head constricted behind eyes, or not constricted behind them. Rostrum long or very long, slightly curved, or almost straight. Mandible without teeth on exterior margin. Antennae inserted in the first third of the rostrum. Frons narrow. Eyes large, slightly convex. Temples short. Antennae long. Scapus of the antennae more or less elongated. Clava noncompact, or almost compact. Pronotum almost trapezoid, sometimes with lateral carina. Disc convex, punctate. Elytra elongated, with irregular or regular rows of points. Humeri weakly smoothed. Striae very weak or distinct. 9th stria merges with 10th stria before metacoxa. Prothorax short or elongated. Procoxa located in its middle, or near basal margin. Pre- or postcoxal parts of the prothorax elongated. Metepisternum very narrow. Abdomen slightly convex. Ventrites of almost equal length, or 1st and 2nd ventrites long, or 1st ventricle short, or 3rd and 4th ventrites shorter, or 5th ventricle shorter than 4th ventricle, or they are of equal length. Legs long. Procoxa conic. Mesocoxa connected. Femora widened. Tibiae robust or narrow, almost direct, weak or strongly curved. Tibiae and tarsi sometimes with dense setae. Tarsi long. 1st segment wide, trapezoid or not widened. 2nd segment triangular or bilobed. 3rd segment bilobed. Claws widely spaced, sometimes without teeth. Length of body: 1.1-3.4 mm.

Remarks. 2 tribes (Baiosaurhynchini and Mesophyleti) have been assigned to this supertribe.

Key to subtribes of the supertribe Baiosaurhynchitae
1. Body wider. Scapus not elongated or weakly elongated. Elytra usually with rows of points.................. .......................................................... Baiosaurhynchini
   – Body elongated. Scapus strongly elongated. Elytra without rows of points ....................... Mesophyleti

Tribe Baiosaurhynchini Zherikhin, 1993
Baiosaurhynchini Zherikhin, 1993: 30
Type genus: Baiosaurhynchus Zherikhin, 1977

Description. Body dark. Head constricted behind eyes, or not constricted behind them. Rostrum long or very long, slightly curved. Mandible without teeth on exterior margin. Antennae inserted in the first third of the rostrum. Frons narrow. Eyes large, slightly convex. Temples short. Antennae long. Scapus of the antennae more or less elongated. Clava noncompact, or almost compact. Pronotum almost trapezoid, sometimes with lateral carina. Disc convex, punctate. Elytra elongated, with irregular or regular rows of points. Humeri weakly smoothed. Striae very weak or distinct. 9th stria merges with 10th stria before metacoxa. Prothorax short or elongated. Procoxa located in its middle, or near basal margin. Pre- or postcoxal parts of the prothorax elongated. Metepisternum very narrow. Abdomen slightly convex. Ventrites of almost equal length, or 1st and 2nd ventrites long, or 1st ventricle short, or 3rd and 4th ventrites shorter, or 5th ventricle shorter than 4th ventricle, or they are of equal length. Legs long. Procoxa conic. Mesocoxa connected. Femora widened. Tibiae robust or narrow, almost direct, weak or strongly curved. Tibiae and tarsi sometimes with dense setae. Tarsi long. 1st segment wide, trapezoid or not widened. 2nd segment triangular or bilobed. 3rd segment bilobed. Claws widely spaced, sometimes without teeth. Length of body: 1.1-3.4 mm.


Key to genera and subgenera of the tribe Baiosaurhynchini
1. 1st segment of the tarsi not widened .................. 2
   – 1st segment of the tarsi widened. .................... 3
2. 2nd and 3rd segments of the tarsi bilobed .................. Baiosaurhynchus
   – 2nd segment triangular .................. Cretonanophyes
3. Procoxa located closer to apical or basal margin of the prothorax .................................................. 4
   – procoxa located on the prothorax middle ........... 8
4. Postcoxal part of the prothorax widened ...... Hispanocar
   – precoxal part of the prothorax widened ........... 5
5. Pronotum without lateral carina .......................... 6
   – pronotum with weak lateral carina .................. 8
6. Claws with tooth. Tarsi elongated ............... Martinsnetoa
   – claws without tooth. Tarsi short .................. Cretocar
7. Tibiae curved, narrower ....................... Emanrhynchus
   – tibiae straight, wider (Montsecanomalus) ........ 10
8. Procoxa longer ........................................... Leptocar

Genus Cretonanophyes Zherikhin, 1977
Cretonanophyes Zherikhin, 1977: 178
Type species: Cretonanophyes longirostris Zherikhin, 1977

Cretonanophyes longirostris Zherikhin, 1977
Cretonanophyes longirostris Zherikhin, 1977: 178
Distribution. Early Cretaceous (Burjatia: Basia).

Genus Cretocar Gratshev & Zherikhin, 2000
Cretocar Gratshev & Zherikhin, 2000a: 246
Type species: Cretocar luzii Gratshev & Zherikhin, 2000

Cretocar luzii Gratshev & Zherikhin, 2000
Cretocar luzii Gratshev & Zherikhin, 2000a: 248

Genus Emanrhynchus Zherikhin, 1993
Emanrhynchus Zherikhin, 1993: 31
Type species: Emanrhynchus lebedevi Zherikhin, 1993

Emanrhynchus lebedevi Zherikhin, 1993
Emanrhynchus lebedevi Zherikhin, 1993: 31
Distribution. Early Cretaceous (Burjatia: Basia).

Genus Gobicar Gratshev & Zherikhin, 1999
Gobicar Gratshev & Zherikhin, 1999: 40
Type species: Gobicar ponomarenkoi Gratshev & Zherikhin, 1999

Gobicar ponomarenkoi Gratshev & Zherikhin, 1999
Gobicar ponomarenkoi Gratshev & Zherikhin, 1999: 41
Distribution. Late Jurassic (Mongolia: Gobi-Altaiaimak).

Gobichiphanicus Gratshev & Zherikhin, 2000
Gobichiphanicus Gratshev & Zherikhin, 2000b: 42

Genus Gratshevibulus Soriano, 2009, placem. n.
Gratshevibulus Soriano, 2009: 100
Type species: Gratshevibulus erici Soriano, 2009
Remark. This genus is close to genus Cretocar and I transfer it from family Belidae to family Ithyceridae.

Gratshevibulus erici Soriano, 2009
Gratshevibulus erici Soriano, 2009: 101


Genus Montsecanomalus Soriano, Gratshev, Delclos, 2006
Montsecanomalus Soriano, Gratshev, Delclos, 2006: 558
Type species: Montsecanomalus zherichini Soriano, Gratshev, Delclos, 2006

Remarks. Species Cretonanophyes rugosithorax, C. zherichini, and C. punctatus have been described in the genus Cretonanophyes. The type species of this genus is characterised by the narrow 1st segment of the tarsi. Therefore named three species (Cretonanophyes rugosithorax, C. zherichini, and C. punctatus) are unrelated to the genus Cretonanophyes. These species are transferred to the genus Montsecanomalus because they are close to Montsecanomalus zherichini. Species of genera Montsecanomalus and Leptocar have only small differences in the form of coxae, so they are combined in one genus. However I give the status of subgenus to Leptocar.

Subgenus Montsecanomalus s. str.

Montsecanomalus (s. str.) rugosithorax (Gratshev & Zherikhin, 2000), comb.n., placem.n.
Montsecanomalus rugosithorax Gratshev & Zherikhin, 2000b: 43

Montsecanomalus (s. str.) zherichini (Liu & Ren, 2006), comb.n., placem.n.
Montsecanomalus zherichini Liu & Ren, 2006: 61
Distribution. Late Jurassic (China: Liaoning Prov.).

Montsecanomalus (s. str.) punctatus (Liu & Ren, 2007), comb.n., placem.n.
Montsecanomalus punctatus Liu & Ren, 2007: 645
Distribution. Late Jurassic or Early Cretaceous (China: Liaoning Prov.).

Montsecanomalus (s. str.) zherichini Soriano, Gratshev, Delclos, 2006
Montsecanomalus zherichini Soriano, Gratshev, Delclos, 2006: 559

Subgenus Leptocar Liu & Ren, 2007, stat.n.
Leptocar Liu & Ren, 2007: 642
Type species: Leptocar polychaetus Liu & Ren, 2007

Leptocar polychaetus Liu & Ren, 2007: 642
Distribution. Late Jurassic or Early Cretaceous (China: Liaoning Prov.).

Genus Baissorhynchus Zherikhin, 1977
Baissorhynchus Zherikhin, 1977: 176
Type species: Baissorhynchus tarsalis Zherikhin, 1977
**Biaisorhynchus tarsalis** Zherikhin, 1977

*Biaisorhynchus tarsalis* Zherikhin, 1977: 177

**Distribution.** Early Cretaceous (Burjatia: Basia).

**Genus Martinsemeta Zherichin & Gratshev, 2004**

*Martinsemeta* Zherichin & Gratshev, 2004: 65

*Type species:* *Martinsemeta dubia* Zherichin & Gratshev, 2004

**Distribution.** Early Cretaceous (Brazial: Santana).

**Genus Martinsemeta dubia Zherichin & Gratshev, 2004**

*Martinsemeta dubia* Zherichin & Gratshev, 2004: 66

**Distribution.** Early Cretaceous (Brazial: Santana).

**Genus Jarzembowskia Zherichin & Gratshev, 1997**

*Jarzembowskia* Zherichin & Gratshev, 1997: 628

*Type species:* *Jarzembowskia edmundi* Zherichin & Gratshev, 1997

*Jarzembowskia edmundi* Zherichin & Gratshev, 1997: 629

**Distribution.** Early Cretaceous (Spain: Montsec Range).

**Genus Hispanocar Soriano, Gratshev, Delclòs, 2006**

*Hispanocar* Soriano, Gratshev, Delclòs, 2006: 561

*Type species:* *Hispanocar kseniae* Soriano, Gratshev, Delclòs, 2006

*Hispanocar kseniae* Soriano, Gratshev, Delclòs, 2006: 561

**Distribution.** Early Cretaceous (Spain: Montsec Range).

**Tribe Mesophyletini Poinar, 2006, stat.n.**

*Mesophyletinae* Poinar, 2006: 879

*Type genus:* *Mesophyletis* Poinar, 2006


**Remarks.** 2 tribes (Carini and Chilecarini) have been assigned to the supertribe Caritae.

**Key to tribes of the supertribe Caritae**

<table>
<thead>
<tr>
<th>Description</th>
<th>Carini</th>
<th>Chilecarini</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mandible with 2 teeth on exterior margin. Antennae inserted ventrally</td>
<td>Carini</td>
<td>Chilecarini</td>
</tr>
<tr>
<td>– Mandible without teeth on exterior margin. Antennae inserted laterally</td>
<td>Carini</td>
<td>Chilecarini</td>
</tr>
</tbody>
</table>

**Tribe Carini Thompson, 1992**

*Carinae Thompson, 1992: 882*

*Type genus:* *Car* Blackburn, 1897

*Carinae Zimmermann, 1994a:* 449 [non Thompson, 1992]

*Type genus:* *Car* Blackburn, 1897

*Carinae Kuschel, 1995: 18 [non Thompson, 1992, nec Zimmermann, 1994]*

**Tribe Chilecarini**

*(Col. pl. I – a – j, II – a – m)*

*Type genus:* *Chilecarini* Blackburn, 1897

*Carinae Kuschel, 1995: 18 [non Thompson, 1992, nec Zimmermann, 1994]*
Type genus: *Car* Blackburn, 1897


**Remarks.** The genus *Car* Blackburn, 1897 from Australia has been assigned to this tribe.

**Genus Car** Blackburn, 1897

(Col. pl. I – a – j, II – a, d)

*Car* Blackburn, 1897: 35

Type species: *Car condensatus* Blackburn, 1897

*Car condensatus* Blackburn, 1897

(Col. pl. I – a – j)

**Distribution.** Australia.

**Host plants.** *Callitris preissii*, *C. rhomboidea*, *C. glaucophylla* (Zimmermann, 1994a).

*Car intermedius* Lea, 1926

*Car intermedius* Lea, 1926: 361

**Distribution.** Australia.

**Host plants.** Unknown.

*Car pini* Lea, 1911

(Col. pl. II – a, d)

*Car pini* Lea, 1911: 103

**Distribution.** Australia.

**Host plants.** *Callitris endlicheri*, *C. preissii* (Zimmermann, 1994a).

**Tribe Chilacarini** Legalov, trib. n.

(Col. pl. II – b, c, e – j; IV, a – m)

Type genus: *Chilacar* Kuschel, 1992

**Description.** Body yellowish brown or with dark spots, with uniformly spaced appressed light setae, or setae forming spots on the elytra. Head constricted behind eyes or not constricted behind them. Rostrum long, shorter than head and pronotum taken together, weakly curved, slightly widened at the apex and near the antennal insertions, almost smooth. Mandible without teeth exterior margin. Labial palpae 2-, or 3-segmented. Antennae inserted laterally before the base of rostrum. Frons narrow, considerably narrower than rostrum at its basis, flat, densely punctate. Eyes large, almost protruding from the contour of the head, or weakly convex. Vertex convex, finely punctate. Temples weakly elongated, finely transversely wrinkled. Antennae long, reaching humeri. Scapus and 1st segment elongated, tear-shaped. Scapus longer than 1st segment. 2nd - 7th segments of the funicle elongated, trapezoid, narrow. 2nd segment narrower and shorter than 1st segment. 2nd - 4th segments approximately equal in length. 5th segment shorter than 4th segment. 6th segment shorter and wider than 5th segment. 7th segment hardly shorter than 6th segment. Clava noncompact, hardly wider than 7th segment. 1st and 2nd segments wide, trapezoid. 3rd segment tear-shaped, pointed, longer than 2nd segment. Pronotum almost rectangular or trapezoid, without grooves, narrowed to apex, sometimes with weak lateral carina, little longer than wide. The greatest width in the middle or near the basis. Sides almost direct. Disc convex, finely punctate. Scutellum rectangular, punctate. Elytra elongated, 1.42-1.67 times longer than wide. Humeri weakly smoothed. Scutellar striole absent. Intervals flat, punctate, wide. Striae very weak or distinct. Points in them large. Apex of the elytra rounded. 9th stria merges with 10th stria before metacoxa. Bottom finely punctate. Postorbital blades absent. Prothorax without forward erecting setae on the margin. Prothorax short. Procoxa located at its middle. Pre- and postcoxal parts of the prothorax not elongated. Mesepisternum narrow, finely punctate. Metepisternum very narrow. Metathorax coarsely punctate. Meso- and metacoxal cavities separated. Abdomen slightly convex. 1st ventricle long, little longer than 2nd ventricle. 2nd - 4th ventrites of the equal length.
5th ventrite long, equal in length to 1st ventrite. Legs long. Procoxa conic. Femora clavate, without teeth. Tibiae robust or slender, weakly biconcave. Meso- and metatibiae hardly shorter than protibiae. Mesotibiae in male with mucro or not with it. Tarsi long. 1st segment wide, trapezoid or not widened. 2nd segment triangular. 3rd segment bilobed. Clausal segment elongated. Claws widely spaced with very weak teeth on the basi. 7th tergite in male sclerotised. 8th sternite in female medially membranous or sclerotised on apex. Stylus in female short or elongated, hardly any longer than wide. Basal sclerite of the endophallus flagelliform. Length of body: 1.8-5.2 mm.

Remarks. 5 genera: Baltocar Kuschel, 1992, Chilecar Kuschel, 1992, Caenominurus Voss, 1965, Carodes Zimmermann, 1994 and Auletomacer Zherichin, 1993 from Cretaceous and Eocene, and from recent fauna of the South America and Australia have been assigned to this tribe.

Key to genera of the tribe Chilecarini
1. Pronotum without lateral carina ...................... 2
   – pronotum with weak lateral carina .......... Auletomacer
2. 1st segment of the tarsi not widened .......... Baltocar
   – 1st segment of the tarsi wided .......... 3
3. Elytra almost rectangular, with irregular setae. Labial palps 3-segmented .................. Carodes
   – elytra oval, with uniform setae. Labial palps 2-segmented .................................. 4
4. Head distinctly constricted behind eyes. Middle tibiae of males without mucro .......... Caenominurus
   – Head not constricted behind eyes. Middle tibiae of males with mucro ..................... Chilecar

Key to subtribes of the tribe Chilecarini
1. Labial palps 3-segmented. Elytra almost rectangular, wider, with irregular setae .................. Carodesina
   – labial palps 2-segmented. Elytra oval, narrower, with uniform setae ......................... Chilecarina

Subtribe Chilecarina Legalov, subtrib. n.
(Col. pl. II – b, c, e – j; IV, a – m)
Type genus: Chilecar Kuschel, 1992


Genus Baltocar Kuschel, 1992
Baltocar Kuschel, 1992: 197
Type species: Car succinicus Voss, 1953
Remarks. The labial palps of this genus are not known. This genus is close to the genera of this subtribe by the shape of body.

Genus Chilecar Kuschel, 1992
(Col. pl. II – b, c, e – j)
Chilecar Kuschel, 1992: 203
Type species: Chilecar pilgerodendri Kuschel, 1992

Chilecar pilgerodendri Kuschel, 1992
Chilecar pilgerodendri Kuschel, 1992: 206
Distribution. Chile.
Host plants. Fitzroya cupressoides, Pilgerodendron uniferus [Kuschel, 1992].

Genus Caenominurus Voss, 1965 (Col. pl. IV, a – m)
Caenominurus Voss, 1965b: 330
Type species: Caenominurus topali Voss, 1965

Caenominurus topali Voss, 1965
Caenominurus topali Voss, 1965b: 331
Distribution. Argentina, Chile.
Host plants. Austrocedrus chilensis [Kuschel, 1992].

Subtribe Carodesina Legalov, subtrib. n.
Type genus: Carodes Zimmermann, 1994
Description. Body black-brown. Antennae, legs and elytra partially yellowish brown, or elytra with spots formed by setation. Head constricted behind eyes.

Genus Carodes Zimmermann, 1994
Carodes Zimmermann, 1994a: 511
Type species: Carodes revelatus Zimmermann, 1994

Carodes revelatus Zimmermann, 1994
Carodes revelatus Zimmermann, 1994a: 513
Distribution. Australia.
Host plants. Callitris preissii, C. rhomboidea, C. glaucophylla [Zimmermann, 1994a].

Subtribe incertae sedis
Genus Auletomacer Zherichin, 1993
Auletomacer Zherichin, 1993: 24
Type species: Auletomacer disruptus Zherichin, 1993
Remarks. The number of the segments of the labial palps is not known. Therefore the author cannot place this genus in one of subtribes.

Auletomacer disruptus Zherichin, 1993
Auletomacer disruptus Zherichin, 1993: 25
Distribution. Early Cretaceous (Khabarovskii krai: Khetana).

Subfamily Ulyaninaceae Zherichin, 1993, stat. n.
Ulyaninidae Zherichin, 1993: 179
Type genus: Ulyaniana Zherichin, 1993

Genus Carodes Zimmermann, 1994
Carodes Zimmermann, 1994a: 511
Type species: Carodes revelatus Zimmermann, 1994

Carodes revelatus Zimmermann, 1994
Carodes revelatus Zimmermann, 1994a: 513
Distribution. Australia.
Host plants. Callitris preissii, C. rhomboidea, C. glaucophylla [Zimmermann, 1994a].

Subtribe incertae sedis
Genus Auletomacer Zherichin, 1993
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Auletomacer disruptus Zherichin, 1993
Auletomacer disruptus Zherichin, 1993: 25
Distribution. Early Cretaceous (Khabarovskii krai: Khetana).

Subfamily Ulyaninaceae Zherichin, 1993, stat. n.
Ulyaninidae Zherichin, 1993: 179
Type genus: Ulyaniana Zherichin, 1993
Description. Body dark. Rostrum long or slightly elongated, shorter than head and pronotum taken together, straight, slightly curved or almost pointed to apex. Antennae inserted laterally behind the middle of the rostrum or subapically. Frons wide, convex. Eyes large. Temples short or weakly elongated. Antennae long. Scapus and funicle segments elongated. Clava noncompact, wide. Pronotum disc flattened or slightly convex, punctate, usually with lateral carina. Scutellum triangular. Elytra elongated. Humeri weakly smoothed. Intervals wide, punctate. Postorbital blades absent or weak. Prothorax elongated or short. Procoxa located near the basis of pronotum, or in its middle. Precoxal part of the prothorax elongated or not elongated. Abdomen slightly convex. 1st ventrite long, little longer than 2nd ventrite, 2nd - 4th ventrites of equal length, 5th ventrite longer than 1st ventrite, or 1st - 4th ventrites long, approximately equal in length. 5th ventrite little shorter than 4th ventrite. Legs long. Femora clavate, without teeth or with tooth. Tibiae robust, curved, widened to apex. Tarsi long, weakly widened. Length of body: 3.1-5.6 mm.

Remarks. 2 tribes have been assigned to the subfamily.

Key to tribes of the subfamily Slonikinae
1. Femora without tooth. Precoxal part of prothorax elongated ................................................. Slonikini
   – Femora with tooth. Precoxal part of prothorax short ................................................................. Ulyaniscini
Tribe Slonikini Zherichin, 1977
Slonikinae Zherichin, 1977: 179
Type genus: Slonik Zherichin, 1977


Genus Slonik Zherichin, 1977
Slonik Zherichin, 1977: 170
Type species: Slonik sibiricus Zherichin, 1977

Slonik sibiricus Zherichin, 1977
Slonik sibiricus Zherichin, 1977: 180

Distribution. Early Cretaceous (Jurassic: Bayan-Hongor aimak).

Tribe Ulyaniscini Legalov, trib.n.
Type genus: Ulyanisca Gratshev, 1998


Ulyanisca Gratshev, 1998: 45
Type species: Ulyanisca dentipes Gratshev, 1998

Remarks. This genus is close to the genus Slonik with the form of rostrum and the location of the antennae.

Ulyanisca dentipes Gratshev, 1998
Ulyanisca dentipes Gratshev, 1998: 45


Subfamily Ithycerinae Schoenherr, 1823
(Col. pl. III – a–p)
Ithycerides Schoenherr, 1823: 1136
Type genus: Ithycerus Schoenherr, 1823
Pachyrhinchidae Kirby, 1837: 203
Type genus: Pachyrhynchus Kirby, 1837


Genus Ithycerus Schoenherr, 1823
(Col. pl. III – a–p)
Ithycerus Schoenherr, 1823: 1136
Type species: Rhyctites curculionoides Herbst, 1797
= Curculio noveboracensis Foerster, 1771
Pachyrhynchus Kirby, 1837: 203
Type species: Pachyrhynchus schoenherri Kirby, 1837 = Curculio noveboracensis Foerster, 1771

Ithycerus noveboracensis (Foerster, 1771)
(Col. pl. III – a–p)
Curculio noveboracensis Foerster, 1771: 35
Curculio punctatus Fabricius, 1781: 187
Rhyctites curculionoides Herbst, 1797: 136
Pachyrhynchus schoenherri Kirby, 1837: 203

Distribution. Canada, USA.

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