

## A NEW GENUS OF THE SUBFAMILY CARINAE (COLEOPTERA, ITHYCERIDAE) FROM AUSTRALIA

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[Легалов А.А. Новый род подсемейства Carinae (Coleoptera, Ithyceridae) из Австралии]

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**Key words:** *Coleoptera, Curculionoidea, Ithyceridae, Carinae, new genus, key, Australia*

**Ключевые слова:** *Coleoptera, Curculionoidea, Ithyceridae, Carinae, новый род, определитель, Австралия*

**Summary.** New genus *Crowsonicar* Legalov, **gen. nov.** (type species: *Car pini* Lea, 1911) of the tribe Carini is a relative to the genus *Car* Blackburn, 1897, differing by the mandibles without second lateral tooth, body with long semi-erect setae, shallow elytral striae, thick and long oblique setae on the exterior apical margin of tibiae. A new combination *Crowsonicar pini* (Lea, 1911), **comb. nov.** is established. A list of the recent Carinae taxa is supplied, with a key to the species.

**Резюме.** В статье описывается новый род *Crowsonicar* Legalov, **gen. nov.** (типовой вид: *Car pini* Lea, 1911) из трибы Carini, близкий к роду *Car* Blackburn, 1897, отличается мандибулами без второго зубца на наружном крае, телом, покрытым длинными, полуторчащими щетинками, неглубокими бороздками надкрылий, густыми, длинными наклонными щетинками на наружном вершинном крае голеней. Установлена новая комбинация *Crowsonicar pini* (Lea, 1911), **comb. nov.** Составлен список современных таксонов. Приводится определительная таблица.

### INTRODUCTION

Ithyceridae is a relict group, discretely distributed in North and South America, Australia, and New Guinea [Legalov, 2009a]. The oldest representatives of these beetles are known from the Middle-Upper Jurassic [Gratshev, Legalov, 2011; Legalov, 2012]. Ithyceridae were the most diverse in the Upper Cretaceous [Davis et al., 2013; Gratshev, 1999; Gratshev, Zherichin, 1999, 2000a, 2000b, 2003; Gratshev, Legalov, 2011; Legalov, 2009a, 2010, 2011; Liu, Ren, 2006, 2007; Poinar, 2006, 2008; Soriano, Gratshev, Delclòs, 2006; Soriano, 2009; Zherichin, 1977, 1993]. The composition of this family is under discussion [Alonso-Zarazaga, Lyal, 1999; Bouchard et al., 2011; Gratshev, 1999; Kuschel, 1995; Marvaldi, Morrone, 2000; Marvaldi et al., 2002; Morrone, 1997; Oberprieler, Marvaldi, Anderson, 2007; Sanborne, 1981; Thompson, 1992; Zherikhin, Gratshev, 1995; Zimmerman, 1994]. I treat this family in a broad sense in this and previous papers [Legalov, 2009, 2012].

### MATERIAL AND METHODS

Materials for this work are stored in the Deutsches Entomologisches Institut (Germany: Müncheberg), Hungarian Natural History Museum (Budapest), and Zoological Museum of Lomonosov Moscow State University (Moscow).

### RESULTS

#### LIST OF THE RECENT TAXA OF THE SUBFAMILY CARINAE

##### Supertribe Caritae Thompson, 1992

Carinae Thompson, 1992: 882

Type genus: *Car* Blackburn, 1897

= Carinae Zimmermann, 1994: 449 non Thompson, 1992 (Type genus: *Car* Blackburn, 1897)

= Carinae Kuschel, 1995: 18 non Thompson, 1992, nec Zimmermann, 1994 (Type genus: *Car* Blackburn, 1897)

##### Tribe Carini Thompson, 1992

Carinae Thompson, 1992: 882

Type genus: *Car* Blackburn, 1897

= Carinae Zimmermann, 1994: 449 non Thompson, 1992 (Type genus: *Car* Blackburn, 1897)

= Carinae Kuschel, 1995: 18 non Thompson, 1992, nec Zimmermann, 1994 (Type genus: *Car* Blackburn, 1897)

##### Genus *Car* Blackburn, 1897

*Car* Blackburn, 1897: 35

Type species: *Car condensatus* Blackburn, 1897

***Car condensatus* Blackburn, 1897**

*Car condensatus* Blackburn, 1897: 36

**Distribution.** Eastern Australia.

***Car intermedius* Lea, 1926**

*Car intermedius* Lea, 1926: 361

**Distribution.** North-eastern Australia.

## Genus *Crowsonicar* Legalov, gen.n.

(Col. pl. II: *b, d*)

Type species: *Car pini* Lea, 1911

**Description.** Body yellowish brown, with appressed and erect pale setae. Rostrum long, hardly longer than head and pronotum together, weakly curved, slightly widened at apex and near antennal insertions, smooth, without carina. Mandible with 1 tooth on exterior and 2 teeth on interior margins. Labial palpi 3-articled. Frons narrow, narrower than rostrum basis, flat. Eyes large, slightly convex. Vertex convex, finely punctate. Temples weakly elongated, finely transversely wrinkled. Gular suture single, rough. Antennae inserted ventrally near base of rostrum. Antennae long, reaching humeri. Scapus of antenna elongated, equal in length to 1st and 2nd flagellomeres together. Flagellomeres trapezoid. 1st flagellomere elongated. 2nd flagellomere narrower, longer than 1st. 3rd flagellomere equal to 2nd flagellomere. 4th flagellomere thicker and hardly longer than 3rd flagellomere. 5th flagellomere shorter than 4th flagellomere. 6th flagellomere shorter than 5th flagellomere. 7th flagellomere shorter and thicker than 6th flagellomere. Clava not compact, hardly wider than 7th flagellomere. 1st and 2nd articles wide, trapezoid. 3rd article tear-shaped, pointed, longer than 2nd article. Pronotum almost rectangular, without grooves, with the greatest width in first third. Sides almost direct. Disc convex, sparsely punctate. Scutellum rectangular, finely and densely punctate, with dense pale setae. Elytra almost rectangular. Humeri weakly smoothed. Scutellar striae absent. Intervals almost flat, nearly smooth, wide. Striae rather shallow, with large points in them. Apex of elytra rounded. 9th stria merges with 10th stria before metacoxa. Underside of body finely punctate. Postorbital blades absent. Prothorax with forward-pointing setae on edge. Prothorax short. Procoxa located in its middle. Pre- and postcoxal parts of prothorax not elongated. Mesepisternum narrow, finely punctate. Metepisternum very narrow. Metathorax coarsely punctate. Meso- and metacoxal cavities separated. Abdomen slightly convex. 1st ventrite elongate, longer than 2nd ventrite. 2nd-5th ventrites short. 5th ventrite hardly wider than 4th ventrite. Legs long. Procoxa conic. Femora clavate, without teeth. Tibiae wide, weakly biconcave, thick long angled setae on outer apical margin. Tarsi long. 1st tarsomere wide, trapezoid. 2nd tarsomere widely triangular. 3rd tarsomere wide, bilobed. 5th tarsomere elongate. Claws widely spaced, without teeth. Length of body: 2.1 mm.

**Diagnosis.** The new genus is very close to the genus *Car* Blackburn, 1897 but differs by the mandibles without second lateral tooth, body with long semi-erect setae, shallow elytral striae, outer apical margin

of tibiae with thick long oblique setae (col. pl. II: *a – d*).

**Etymology.** The new genus is named in honour of R.A. Crowson.

### *Crowsonicar pini* (Lea, 1911), comb.n.

*Car pini* Lea, 1911: 103

**Distribution.** South-western, Eastern Australia and Tasmania.

### Tribe Chilecarini Legalov, 2009

Chilecarini Legalov, 2009: 125

Type genus: *Chilecar* Kuschel, 1992

### Subtribe Chilecarina Legalov, 2009

Chilecarini Legalov, 2009: 125

Type genus: *Chilecar* Kuschel, 1992

### Genus *Chilecar* Kuschel, 1992

*Chilecar* Kuschel, 1992: 203

Type species: *Chilecar pilgerodendri* Kuschel, 1992

### *Chilecar pilgerodendri* Kuschel, 1992

*Chilecar pilgerodendri* Kuschel, 1992: 206

**Distribution.** Southern part of South America (Chile).

### Genus *Caenominurus* Voss, 1965

*Caenominurus* Voss, 1965: 330

Type species: *Caenominurus topali* Voss, 1965

### *Caenominurus topali* Voss, 1965

*Caenominurus topali* Voss, 1965: 331

**Distribution.** Northern part of South Andes (Argentina, Chile).

### Subtribe Carodesina Legalov, 2009

Carodesina Legalov, 2009: 126

Type genus: *Carodes* Zimmermann, 1994

### Genus *Carodes* Zimmermann, 1994

*Carodes* Zimmermann, 1994: 511

Type species: *Carodes revelatus* Zimmermann, 1994

### *Carodes revelatus* Zimmermann, 1994

*Carodes revelatus* Zimmermann, 1994: 513

**Distribution.** North-eastern Australia.

### Key to recent species of the subfamily Carinae

1. Mandibles with teeth on exterior margin. Antennae inserted ventrally. (Carini) ..... 2  
– mandibles without teeth on exterior margin. Antennae inserted laterally. (Chilecarini) ..... 3
2. Mandibles with second lateral teeth. Body with appressed setae. Elytral striae deep. Exterior apical margin of tibiae with short oblique setae ..... *Car*  
– mandibles without second lateral teeth. Body with long semi-erect setae. Elytral striae not deep. Thick long oblique setae on the exterior apical margin of tibiae ..... *Crowsonicar*
3. Labial palpi 3-articled. Elytra almost rectangular, wider, with irregular setae. (Carodesina) .....  
..... *Carodes*

- labial palpi 2-articled. Elytra oval, narrower, with evenly spaced setae. (*Chilecarina*) ..... 4
4. Head distinctly constricted behind eyes. Mesotibiae without mucro of males ..... *Caenomirus*
- head not constricted behind eyes. Mesotibiae with mucro of males ..... *Chilecar*

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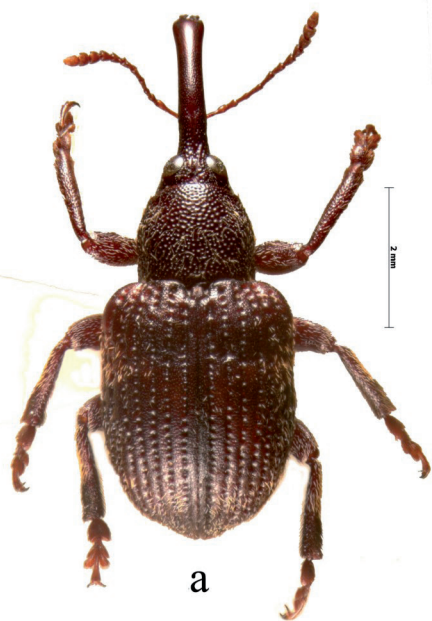
#### REFERENCES

- 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. 315 pp.
- Blackburn T., 1897. Further notes on Australian Coleoptera, with descriptions of new genera and species // Transactions and proceedings and report of the Royal Society of South Australia. Vol. 21. P. 28-39.
- Bouchard P, Bousquet Y, Davies AE, Alonso-Zarazaga MA, Lawrence JF, Lyal CH, Newton AF, Reid CA, Schmitt M, Słipiński SA, Smith AB., 2011. Family-group names in Coleoptera (Insecta) // Zookeys. No. 88. P. 1-972.
- Davis S.R., Engel M.S., Legalov A., Ren D., 2013. Weevils of the Yixian Formation, China (Coleoptera: Curculionoidea): Phylogenetic considerations and comparison with other Mesozoic faunas // Journal of Systematic Palaeontology. Vol. 11. No. 4. P. 399-429.
- Gratshev V.G., 1999. Ulyanidae, an extinct family of weevils (Coleoptera, Curculionoidea) // Proceedings of the First International Paleontological Conference. Moscow. P. 41-47.
- Gratshev V.G., Zherichin V.V., 1999 *Gobicar*, a New Late Jurassic genus of Eccoptarthrid weevils from Mongolia (Insecta, Coleoptera: Eccoptarthridae) // Paleontological Journal. No. 2. P. 43-45.
- Gratshev V.G., Zherikhin V.V., 2000a. The weevils from the Late Cretaceous New Jersey Amber (Coleoptera, Curculionoidea) // Studies on fossils in amber, with particular reference to the Cretaceous of New Jersey. Leiden. P. 241-254.
- Gratshev V.G., Zherichin V.V., 2000b. New Early Cretaceous weevil taxa from Spain (Coleoptera, Curculionoidea) // Acta geologica Hispanica. Vol. 35. P. 37-46.
- Gratshev V.G., Zherikhin V.V., 2003 The fossil record of weevils and related beetle families (Coleoptera, Curculionoidea) // Acta Zoologica Cracoviensia. Vol. 46. supplement. P. 129-138.
- Gratshev V.G., Legalov A.A., 2011. New Mesozoic Ithyceridae Beetles (Coleoptera) // Paleontological Journal. Vol. 45. No 1. 76-81.
- Kuschel G., 1992. Reappraisal of the Baltic Amber Curculionoidea described by E. Voss // Mitteilungen aus dem Geologisch-Paläontologischen Institut der Universität Hamburg. Heft 73. S. 191-215.
- Kuschel G., 1995. A phylogenetic classification of Curculionoidea to families and subfamilies // Memoirs of the Entomological Society of Washington. No. 14. P. 5-33.
- Lea A.M., 1911. Notes on Australian Curculionidae in the Belgian Museum, with descriptions of new species. Part. 2. // Mémoires de la Société Entomologique de Belgique. Vol. 18. P. 61-128.
- Lea A.M., 1926. On some Australian Curculionidae // Proceedings of the Linnean Society of New South-Wales. Vol. 51. P. 327-362.
- Legalov A.A., 2009a. A review of fossil and recent species of the family Ithyceridae (Coleoptera) from the world fauna // Amurian Zoological Journal. Vol. 1. No. 2. P. 117-131+ col. pl. I-IV.
- Legalov A.A., 2009b. Contribution to the knowledge of the Mesozoic Curculionoidea (Coleoptera) // Amurian Zoological Journal. Vol. 1. No. 4. P. 283-295 + col. pl. I-IV.
- Legalov A.A., 2010. Checklist of Mesozoic Curculionoidea (Coleoptera) with description of new taxa // Baltic Journal of Coleopterology. Vol. 10. No. 1. P. 71-101
- Legalov A.A., 2011. New data on fossil beetles of the superfamily Curculionoidea (Coleoptera, Curculionidae) from Jurassic and Cretaceous deposits of the Northern Hemisphere // Evraziatskii Entomologicheskii Zhurnal. Vol. 10. No. 1. P. 63-71. [in Russian]
- Legalov A.A., 2012. Fossil history of Mesozoic weevils (Coleoptera: Curculionoidea) // Insect Science. Vol. 19. No. 6. P. 683-698.
- Liu M., Ren D., 2006. First fossil Eccoptarthridae (Coleoptera: Curculionoidea) from the Mesozoic of China // Zootaxa. No. 1176. P. 59-68.
- Liu M., Ren D., 2007. New fossil eccoptarthrids (Coleoptera: Curculionoidea) from the Yixian Formation of western Liaoning, China // Science in China Series D: Earth Sciences. Vol. 50. No. 5. P. 641-648.
- Marvaldi A.E., Morrone J.J., 2000. Phylogenetic systematics of weevils (Coleoptera: Curculionoidea): a reappraisal based on larval and adult morphology // Insect Systematics and Evolution. Vol. 31. P. 43-58.
- Marvaldi A.E., Sequeira A.S., O'Brien Ch.W., Farrell B.D., 2002. Molecular and morphological phylogenetics of weevils (Coleoptera: Curculionoidea): do niche shifts accompany diversification? // Systematic Biology. Vol. 51. No. 5. P. 761-785.

- Morrone J.J., 1997. The impact of cladistics on weevil classification, with a new scheme of families and subfamilies (Coleoptera: Curculionoidea) // Trends in Entomology. Vol. 1. P. 129–136.
- Oberprieler R.G., Marvaldi A.E., Anderson R.S., 2007. Weevils, weevils, weevils everywhere // Zootaxa. No. 1668. P. 491-520.
- Poinar G., 2006. *Mesophyletis calhouni* (Mesophyletinae), a new genus, species, and subfamily of Early Cretaceous weevils (Coleoptera: Curculionoidea: Eccoptarthridae) in Burmese amber // Proceedings of the Entomological Society of Washington. Vol. 108. No. 4. P. 878-884.
- Poinar G., 2008. Type genus for Mesophyletinae, a subfamily of Early Cretaceous weevils (Coleoptera: Curculionoidea: Eccoptarthridae) in Burmese Amber // Proceedings of the Entomological Society of Washington. Vol. 110. No. 1. P. 262.
- Sanborne M., 1981. Biology of *Ithycerus noveboracensis* (Forster) (Coleoptera) and weevil phylogeny // Evol. Monogr. Vol. 4. P. 1-80.
- Soriano C., Gratshev V.G., Delclòs X., 2006. New Early Cretaceous weevils (Insecta, Coleoptera, Curculionoidea) from El Montsec, Spain // Cretaceous Research. Vol. 27. P. 555-564.
- Soriano C., 2009. First record of the family Belidae (Insecta, Coleoptera) in amber. New genus and species from the uppermost Albian amber of France // Geodiversitas. Vol. 31. No. 1. P. 99-104.
- Thompson R.T., 1992. Observations on the morphology and classification of weevils (Coleoptera, Curculionoidea) with a key to major groups // Journal of Natural History. Vol. 26. P. 835-891.
- Voss E., 1965. The zoological Results of Gy. Topal's collections in South Argentina. 17. Attelabidae (Coleoptera) (188. Beitrag zur Kenntnis der Curculioniden) // Annales Historico-Naturales Musei Nationali Hungarici. Vol. 57. P. 329-332.
- Zherichin V.V., 1977. Family Attelabidae Billberg, 1820. In: Arnoldi L.V., Zherichin V.V., Nikritin L.M., Ponomarenko A.G. Mesozoic Coleoptera // Proceeding of Paleontological institute. Vol. 161. P. 176-180. [in Russian]
- Zherikhin V.V., 1993. Family Nemonychidae Bedel, 1882, Family Ulyanidae Zherichin, fam. nov., Family Anthribidae Billberg, 1829, Family Attelabidae Billberg, 1820. In: Gromov V.V., Dmitriev V.Yu., Zherikhin V.V., Lebedev E.L., Ponomarenko A.G., Rasnitsyn A.P., Sukatsheva I. D. 1993. Cretaceous insect faunas of the Ulya River basin, West Okhotsk Region // Mesozoic insects and ostracods from Asia. Nauka Press, Moscow. P. 20-33. [in Russian].
- Zherikhin V.V., Gratshev V.G., 1995. A comparative study of the hind wing venation of the superfamily Curculionoidea, with phylogenetic implications // Biology, phylogeny, and classification of Coleoptera. Papers celebrating the 80th birthday of Roy A. Crowson. Warszawa. P. 633-777.
- Zherichin V.V., Gratshev V.G., 2004. Fossil Curculionoid beetles (Coleoptera, Curculionoidea) from the Lower Cretaceous of Northeastern Brazil // Paleontological Journal. No. 5. P. 58-68.
- Zimmerman E.C., 1994. Australian Weevils (Coleoptera. Curculionoidea). Vol. 1. Anthribidae to Attelabidae. CSIRO Publications. XXXII + 741 pp.

COLOR PLATE II

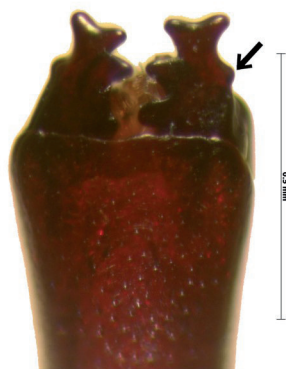
ЦВЕТНАЯ ТАБЛИЦА II



a



b



c



d

Fig. 1. Carini gen. spp.: a – *Car condensatus* (habitus), b – *Crowsonicar pini* (habitus), c – *Car condensatus* (apex of rostrum with mandibles), d – *Crowsonicar pini* (apex of rostrum with mandibles)

Рис. 1. Carini gen. spp.: a – *Car condensatus* (внешний вид), b – *Crowsonicar pini* (внешний вид), c – *Car condensatus* (вершина головотрубки и мандибулы), d – *Crowsonicar pini* (вершина головотрубки и мандибулы)