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## ***Bohemanius uroleucus* (BOHEMAN, 1845), a weevil driven out after one century of absconding (Coleoptera: Curculionidae)**

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### **Abstract**

*Bohemanius uroleucus* (BOHEMAN, 1845) (Coleoptera: Curculionidae), a weevil endemic to Sardinia, is rediscovered after about one century. The discovery of its host plant, *Delphinium pictum* WILLD. (Ranunculaceae), is reported. The genus is redescribed, and a literature survey is made. Comparison with other genera of the tribe Ceutorhynchini sharing with *Bohemanius* some of its unusual features leads to the recognition of the morphological isolation of *Bohemanius* among Ceutorhynchinae. The new synonymy: *Phrydiuchus augusti* COLONNELLI, **nom.n.** [= *Ceuthorrhynchus speiseri* SCHULTZE, 1897 not *C. speiseri* FRIVALDSZKY, 1894, **syn.n.**] is established.

**Key words:** Coleoptera, Curculionidae, *Bohemanius uroleucus*, Sardinian fauna, taxonomy, ecology.

### **Introduction**

During a collecting trip to Sardinia, the second author, together with Cesare Bellò and Helio Pierotti, was able to visit on June 12, 2001 the Sopramonte di Orgosolo, one of the less accessible areas of the island (Figs. 1, 2). The investigated locality of Ottolu (1050 m, about 40°12'N 9°26'E) is a valley heavily grazed by sheep and pigs. The area was set on fire some 70 years ago, as reported to the second author by a shepherd (Fig. 1). In spite of that, the vegetation still consists of some huge *Quercus ilex* L. and centuries-old *Juniperus phoenicea* L. scattered at the bottom of the valley as remnants of the forests which covered many districts of the island until the end of the nineteenth century, when deforestation was quickly carried on to build railways, to produce coal, and to gain ground for agriculture and sheep-farming. Weevils of the genera *Brachycerus* OLIVIER, 1790, *Cycloderes* SAHLBERG, 1823, *Sitona* GERMAR, 1817, *Pseudomeira* STIERLIN, 1881, *Dolichomeira* SOLARI, 1954, *Stenocarus* THOMSON, 1859 were collected by sifting plant debris or by turning stones.

Along wastewater from a drinking trough, a population of flowering *Delphinium pictum* WILLD. (Ranunculaceae), a very rare plant from Sardinia, Corsica (PIGNATTI 1982) and the Balearic Islands (CASTROVIEJO et al. 1981) was found. Among the young leaves of the plant, several freshly emerged specimens of an unusual Ceutorhynchinae were collected by the second author. These specimens were later identified by the first author as *Bohemanius uroleucus* (BOHEMAN, 1845).

BOHEMAN (1845: 149) described this species from "Sardinia" as *Ceuthorrhynchus uroleucus*: the types (examined by the first author) are deposited in the Chevrolat collection (Naturhistoriska Riksmuseet, Stockholm, Sweden). It seems most probable that quite a large series of specimens was originally at hand to Chevrolat, since searches in the major European natural history museums by the first author allowed to find a number of examples, all labelled "Sardinia" and pinned in the same way as are the types, making it probable that Chevrolat himself forwarded the insects to his colleagues and friends.



Fig. 1: Collecting site of Sopramonte di Orgosolo, Ottolu, 1050 m a.s.l., with *Delphinium pictum*, host plant of *Bohemanius uroleucus*.

Apart from reporting of the name in checklists of Italian, European or Palearctic Coleoptera (e.g. GAUBIL 1849, [SCHAUM] 1852, SCHAUM 1859, STEIN 1868, BERTOLINI 1872, 1899, WINKLER 1932), only few papers dealt with this taxon after its description. The first was that by BRISOUT (1860), who incorrectly sunk this name as a synonym of *Mogulones peregrinus* (GYLLENHAL, 1837), evidently not having seen any authentic *B. uroleucus*. SCHULTZE (1898), who had at hand only one female specimen from "Sardinien", immediately recognized that the special features of this weevil required not only its revival from synonymy with *M. peregrinus*, but also the description of a new genus. In the same paper, SCHULTZE (1898) noted that "der Käfer scheint äußerst selten und in letzter Zeit nicht wieder aufgefunden zu sein". In the keys to species of the Italian Coleoptera, PORTA (1932) only translated into Italian the generic diagnosis of *Bohemanius* by SCHULTZE (1898), and simply reported the original Latin description of *B. uroleucus* by BOHEMAN (1845). Afterwards, MARCU (1947) described the stridulatory organ of *Bohemanius uroleucus* based upon (possibly old) material from "Sardinien".

Since none of the above publications gave any precise locality data, the first author examined the large collection from Sardinia built up at the end of the 19<sup>th</sup> and at the beginning of the 20<sup>th</sup> centuries by Dodero, presently housed in the Museo Civico di Storia Naturale di Genova, Italy. Only two examples were found, collected in 1899 in the vicinity of Dorgali, approximately 40°16'N 9°35'E.

In spite of the accurate searches favored in the last 40 years by the improvement of the roads in Sardinia, no other specimens turned up. Even a careful collector such as our friend Carlo Meloni living in Cagliari, who successfully devoted himself to searching for Coleoptera all over the island, failed to collect it, although we called his attention to this "vanished" weevil. The features of *B. uroleucus* are so peculiar that by its morphology it was impossible to infer any plant on

which to investigate, considering that no biological data were available. Therefore, it seemed that *B. uroleucus* also was to be included in the quite long list of insects that may perhaps have become extinct (GOBBI 2000), both due to human impact and/or to natural factors.

Its rediscovery in a remote area that since about 3,000 years was (and still sometimes is) a hiding-place for bandits, partisans and outlaws somewhat gives the impression of the driving out of an absconder.

The discovery that the host plant of the weevil almost surely is *Delphinium pictum* (Ranunculaceae), was the starting point of reconsidering the relationships between *Bohemanius* and other genera in the tribe Ceutorhynchini GISTEL, 1848. A short redescription of the genus based on its single species follows.

### ***Bohemanius* SCHULTZE, 1898**

*Bohemanius* SCHULTZE 1898b: 265.

*Bohemannius* [incorrect subsequent spelling]: BERTOLINI 1899: 127.

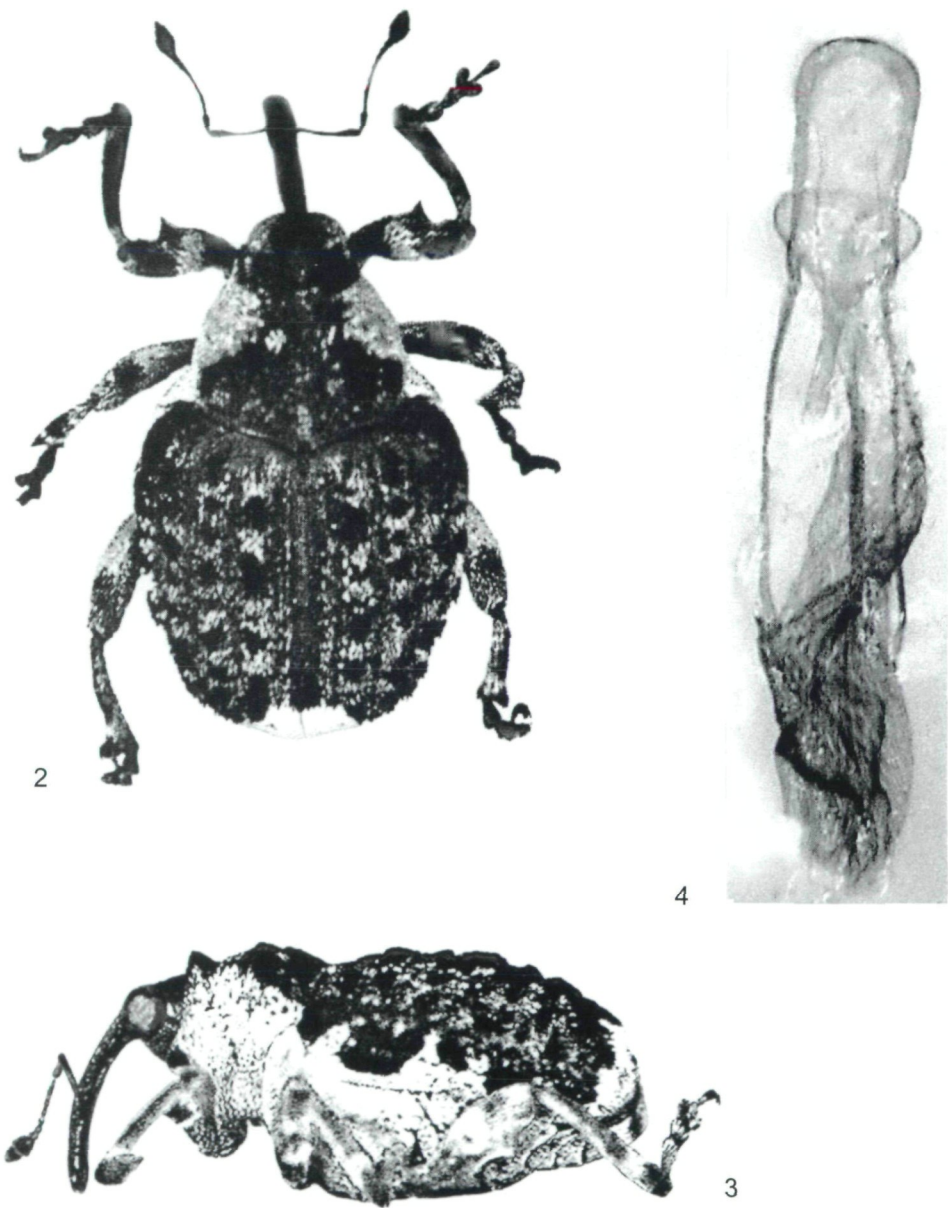
TYPE SPECIES: *Ceuthorhynchus uroleucus* BOHEMAN, 1845, by monotypy.

REDESCRIPTION: Length: 3.25 – 3.42 mm. Pitchy-black, moderately shining, very coarsely punctate, basal 4/5 of scape, desmomeres (sensu ALONSO-ZARAZAGA 1990) in part, club, knees, tibia and tarsi (apical fifth of joint 4 excepted) honey-reddish. Dorsal vestiture on basal 2/3 of rostrum, on head, and ground clothing of pronotum consisting of slanted or almost recumbent, dark brown to brownish, narrow, longitudinally sulcate scales (sulcus starts to be visible at a magnification of 50x): some lanceolate whitish scales are on pronotum along dorsal sulcus and here and there condensed in very small patches. Even-numbered elytral interspaces with a tessellate clothing consisting of tufts of adpressed half-lifted narrow blackish hair-like scales alternate with rather dense lanceolate impressed white scales, which also cover (intermingled with some narrow recumbent brownish ones) the odd-numbered interspaces. Base of suture from a short distance behind scutellum to about the middle of elytra with a more or less evident stripe of adpressed golden-brownish narrow scales with truncate apex. In addition, pronotum and elytra are clothed with milk-white elliptical sulcate recumbent imbricate scales forming the pattern shown in Fig. 2. This kind of scaling overall covers underside and forms a ring on middle of femora. Rostrum moderately curved, very coarsely punctate almost up to apex in the male and to apical fourth in the female, tricarinate up to just beyond of antennal insertion, from this point to apex rostrum in front view is larger than at base, apex of rostrum with only 2-4 lifted thin brownish setae. Antenna inserted at about apical 3/8 of rostrum in the male and shortly apical of midpoint in the female. Scape slightly curved and gradually clubbed apically, first desmome about 1.5 times as long and as thick as second, 3 and 4 elongate, 5 conical and about twice as long as wide, 6 and 7 oval, the last not transverse, club shortly fusiform, about as long as desmomeres 5-7 together. Frons impressed, strongly punctate and with a row of erect hair-like scales along inner margin of eyes, vertex carinate. Eyes lateral, subtriangular, rather strongly convex. Pronotum transverse, constricted at apex, base bisinuose, sides moderately curved and somewhat bisinuose near apex, maximum pronotal width at the base. Fore margin of prothorax elevated and notched in the middle. Disc rather flat, densely punctate, anterolateral depressions evident, dorsal sulcus entire, an impression is immediately before middle on each side of dorsal channel, lateral tubercles strong. Elytra slightly longer than wide, rather convex, widest at basal fourth, sides slightly and uniformly curved up to weak preapical tubercles, humeral calli fairly strong, elytral disc slightly depressed behind scutellum. Strial furrows moderately deep, catenulate, with scales similar to those on intervals, only a little smaller. Odd-numbered intervals quite flat, strongly punctate and slightly wider than striae. Even-numbered interspaces fairly convex and about 1.5 times as wide as odd-numbered ones: at the level of each tuft of dark scales

they show a rasp-like tubercle. Legs robust, femora with a strong acute tooth. Tibia enlarged from base to apex, curved basally, setae of apical comb dark brown: meso and metatibial mucro of male not very big, acute. Tarsi relatively short, claws strongly appendiculate at base. Sternal channel deep up to base of metaventricle. Urosternites 1-2 flat (female) or shallowly depressed (male). Urosternite 5 and pygidium with a rather deep fovea in both sexes, in the female the fovea on pygidium is only a little smaller than that of male. Aedeagus: Fig. 6. Internal sac of aedeagus overall with minute teeth. See also Figs. 2-4.

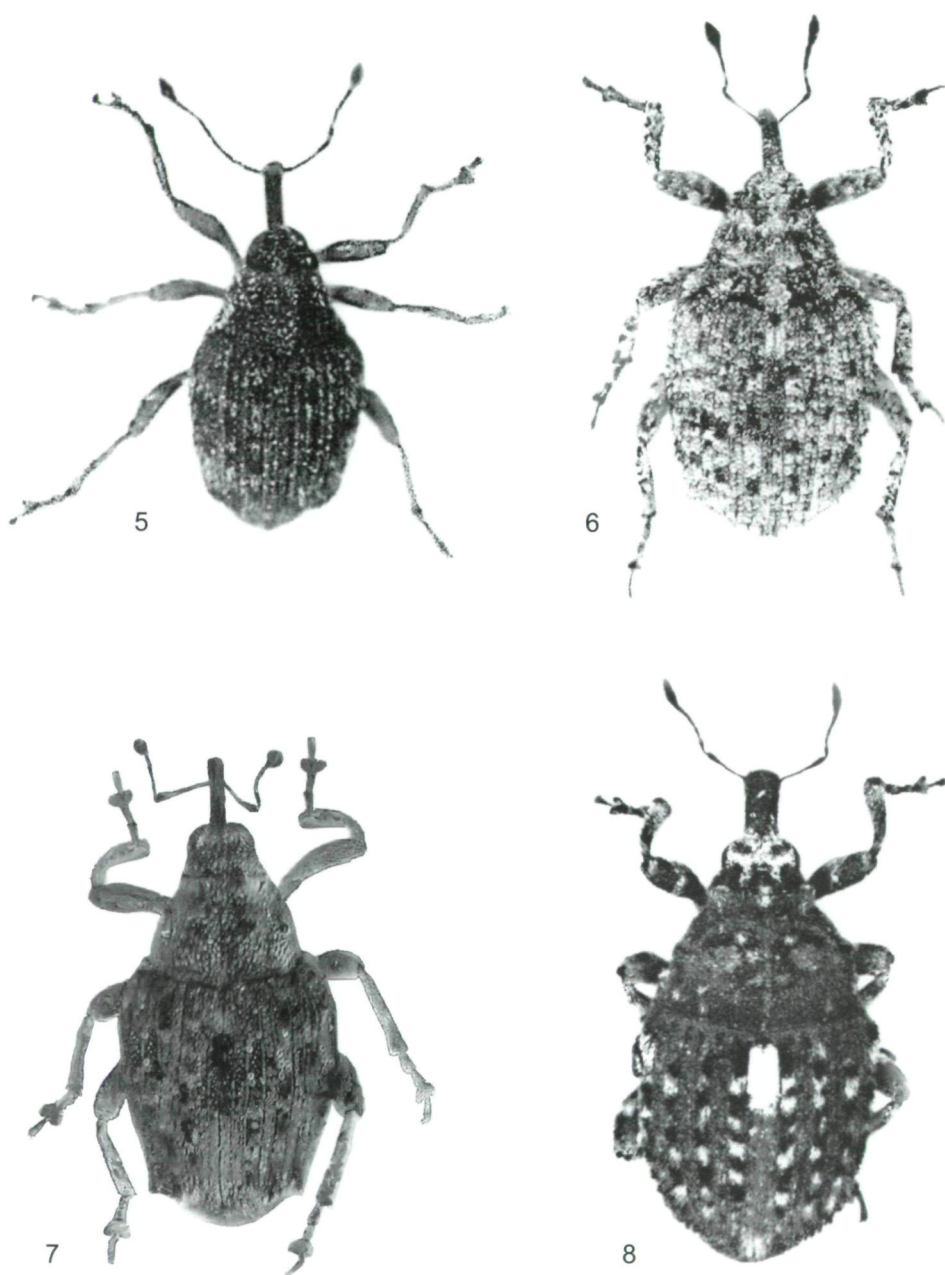
REMARKS: Limiting our considerations to the tribe Ceutorhynchini, *Bohemanius* shares the tessellate clothing of tufts of suberect dark hair-like scales on alternate intervals with *Hesperorrhynchus* PEYERIMHOFF, 1926, *Phrydiuchus* GOZIS, 1885, *Amicroplontus* COLONNELLI, 1984, *Indicoplontus* COLONNELLI, 1984 and *Rileyonymus* DIETZ, 1896, but none of these genera have a deep sternal groove for reception of rostrum. In addition to this important feature, the five members of the Macaronesian genus *Hesperorrhynchus* clearly differ from *Bohemanius* by the lack of membranous wings, the antenna inserted at apex of rostrum which also bears several erect setae, the completely different pattern of scales (Fig. 5). The hairy apex of rostrum and the particular pattern (Fig. 9) also makes it impossible to envision a relation with the tropical African *Amicroplontus aequatorialis* COLONNELLI, 1984, the only species of the three in this genus to have a somewhat tessellate elytral pattern. Also, the peculiar shape (Fig. 7) of *Indicoplontus indicus* (HUSTACHE, 1930), the single species of this Himalayan genus, does not indicate any affinity with *Bohemanius*. Not even the only Nearctic species of *Rileyonymus*, *R. relictus* DIETZ, 1896, having no sclerites on the internal sac of the aedeagus, claws with weak tooth, dense overall scaling of entire body, different body shape and not foveate pygidium (Fig. 6) can be considered related to the Sardinian genus. The five species of the Euromediterranean *Phrydiuchus* have short rostrum, apical third of it with suberect hairs, body convex, no dorsal channel on prothorax, and totally different scaling (Fig. 8). The new synonymy: *Phrydiuchus augusti* COLONNELLI, **nom.n.** [= *Ceuthorrhynchus speiseri* SCHULTZE, 1897 not *C. speiseri* FRIVALDSZKY, 1894, **syn.n.**] is here established. Note that males of *Phrydiuchus* have a foveate pygidium (weakly so in *P. augusti*).

Deep sternal channel and blackish integuments are features also shown by *Nedyus* SCHÖNHERR, 1825, *Datonychidius* KOROTYAEV, 1997, *Ectamnogaster* SCHULTZE, 1903, *Coeliastes* WEISE, 1883, *Sinocolus* KOROTYAEV, 1996, *Trachelanthus* KOROTYAEV, 1980, and *Stenocarus*. The three members of the Holarctic *Nedyus* have convex body, pygidium without fovea, asymmetrical apex of aedeagus, wholly different pattern of scale (Fig. 13). The two species of the eastern Mediterranean *Datonychidius* (Fig. 10) are very similar to those of *Nedyus*, and essentially differ from them only because they live on Lamiaceae instead on Urticaceae (KOROTYAEV 1997). The body shape of the central and western Asiatic *Trachelanthus* is so peculiar (Fig. 15) that this genus also cannot be considered a close relative of *Bohemanius*, nor can it be regarded strictly allied to the three species of the Euromediterranean *Coeliastes* which are smaller, with a T-shaped postscutellar patch, elytral pattern similar to that of *Datonychidius*, no fovea on pygidium (Fig. 14). *Sinocolus charbinensis* (STÖCKLEIN, 1954), the only Chinese species of the genus, has a cross-shaped postscutellar patch, no fovea on pygidium and apical comb of setae of tibia ascending for about one third of tibial length, being thus closely related to the Palearctic *Thamiocolus* THOMSON, 1859, but surely not with *Bohemanius*. Prothorax with four impressions, relatively short rostrum, basal and apical white patches on elytral suture (Fig. 12), unimpressed pygidium indicate, that relationships of the three species of the western Palearctic *Stenocarus* with *Bohemanius* are fairly distant. Pattern, hairy apex of rostrum, not foveate pygidium, sharp aedeagal apex of the single species of the southern Mediterranean *Ectamnogaster* (Fig. 11) do not suggest a close relation between it and *Bohemanius*. All other genera of Ceutorhynchini with deep rostral groove have reddish integument and show no affinity with the Sardinian genus.

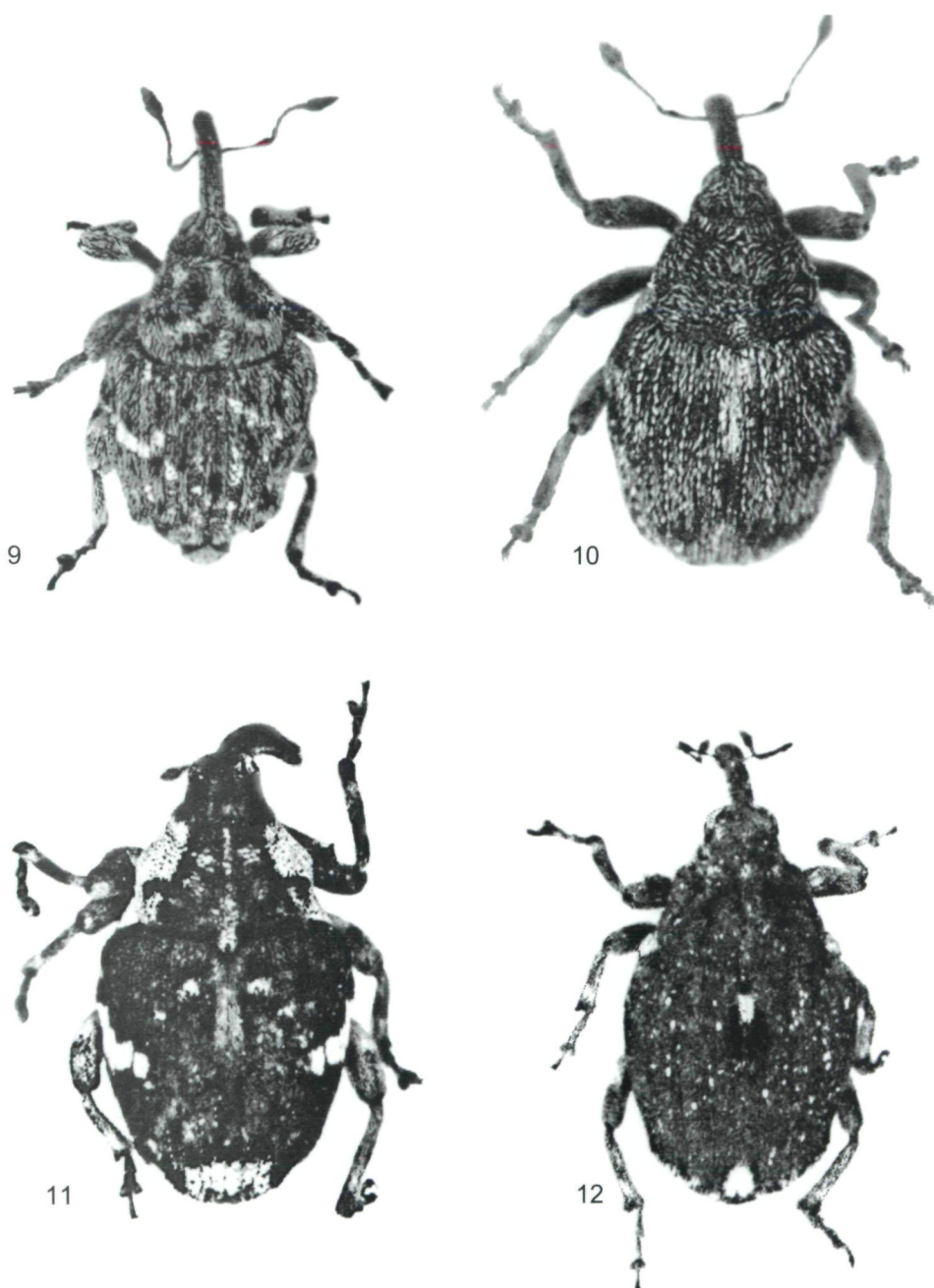


Figs. 2 – 4: *Bohemanius uroleucus* from Sardinia: Sopramonte di Orgosolo; 2) habitus, dorsal view, 3) same, lateral view, 4) aedeagus.

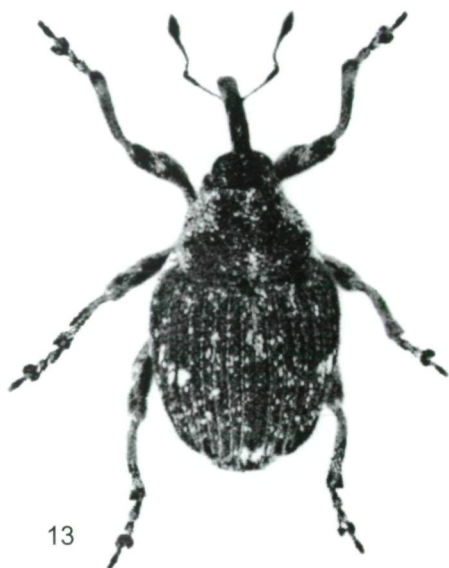




Figs. 5 – 8: Habitus of 5) *Hesperorrhynchus hesperus* (WOLLASTON, 1864) from Tenerife, El Batán, 6) *Rileyonymus relictus* from Arizona: Sonoita Creek, 7) *Indicoplontus indicus* from Nepal, Phulcoki, 8) *Phrydiuchus spilmani* WARNER, 1969, topotype from Italy, Tuscolo.



Figs. 9 – 12: Habitus of 9) *Amicroplontus aequatorialis* COLONNELLI, 1984 from Kenya, N'Taba forest, 10) *Datonychidius tener* (REITTER, 1888) from Greece, Kalávríta-Kerpiní, 11) *Ectamnogaster caviventris* (SCHULTZE, 1897) from Algeria, Sidi Ferrukh, 12) *Stenocarus cardui* (HERBST, 1784) from Sicily: Buscemi.



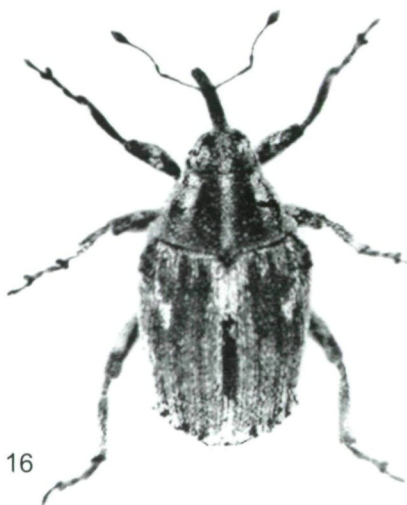
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Figs. 13 – 16: Habitus of 13) *Nedyus quadrimaculatus* (L., 1758) from England, Gosforth, 14) *Coeliastes lamii* (F., 1792) from Italy, Civita Castellana, 15) *Trachelanthus margaritae* (KOROTYAEV, 1980) from Turkmenistan, Kara-Kala, 16) *Prisistus caucasicus* (KIRSCH, 1879) from Azerbaijan, Mt. Bejugdaš.



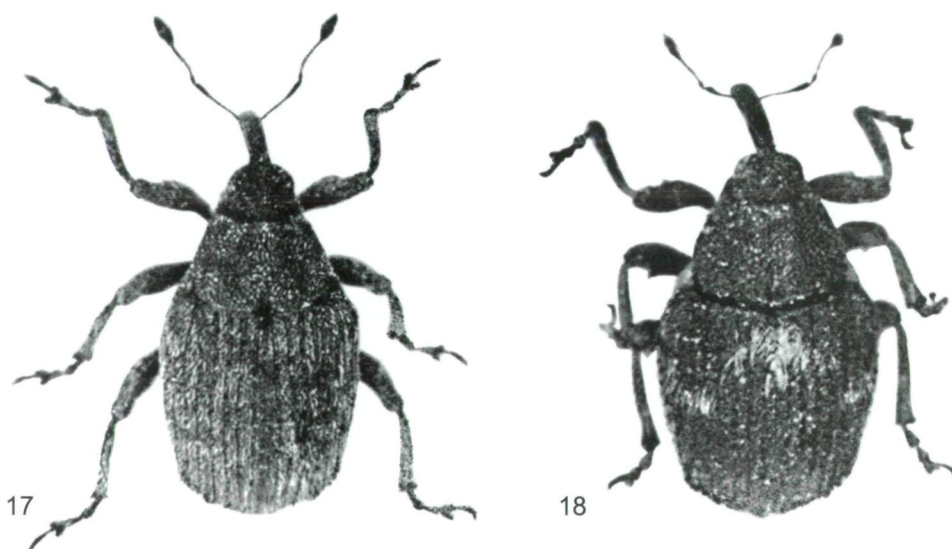
	rostral groove	pygidium	aedeagus	rostrum	distribution	host plants
<i>Amicroplontus</i>	faint	simple	---	long	Paleotropics	----
<i>Bohemanius</i>	deep	foveate ♂ ♀	rounded	long	Sardinia	Ranunculaceae
<i>Coeliastes</i>	deep	simple	sharp	long	Euromediterranean	Lamiaceae
<i>Datonychidius</i>	deep	simple	sharp, asymmetrical	long	E-Mediterranean	Lamiaceae
<i>Ectamnogaster</i>	deep	simple	sharp	long	S-Mediterranean	Asteraceae
<i>Hesperorrhynchus</i>	faint	simple	round, then sharpened	long	Macaronesia	Crassulaceae
<i>Indicoplontus</i>	faint	faintly sulcate ♂	slightly sharpened	long	Himalaya	----
<i>Nedys</i>	deep	simple	sharp, asymmetrical	long	Holarctic	Urticaceae
<i>Phrydiuchus</i>	faint	impressed ♂	sharp	quite short	W-Palearctic	Lamiaceae
<i>Ranunculiphilus</i>	faint	impressed ♂	narrow, sharp	quite short	Palearctic	Ranunculaceae
<i>Prisistus</i>	faint	sulcate ♂	usually sharp	long	Palearctic	Liliaceae
<i>Rileyonymus</i>	faint	simple	very sharp	long	Nearctic	Rutaceae?
<i>Sinocolus</i>	deep	simple	-----	long	China	----
<i>Stenocarus</i>	deep	simple	sharp	quite short	W-Palearctic	Papaveraceae
<i>Trachelanthus</i>	deep	simple	sharp, asymmetrical	long	Central Asia	Lamiaceae

As for the biology of members of the above considered genera (see Table above), none are known to feed on Ranunculaceae or even to a somewhat related plant family, Papaveraceae excepted. In particular, species of *Coeliastes*, *Datonychidius*, *Phrydiuchus*, *Trachelanthus* live on Lamiaceae (DIECKMANN 1972, KOROTYAEV 1997, WARNER 1969, pers.obs.), those of *Hesperorrhynchus* develop on Crassulaceae (WOLLASTON 1854, 1864, COLONNELLI 1990), members of *Nedys* feed on *Urtica* (BARGAGLI 1885, BEUTENMULLER 1890), whereas all *Stenocarus* evolve on *Papaver* (RUPERTSBERGER 1880, VITALE 1929). The biology of species of *Sinocolus*, *Amicroplontus* and *Indicoplontus* is unknown. The single ecological note regarding *Rileyonymus relictus* is that found by the first author on a label of a specimen from Mexico which was collected on *Citrus*, a plant not native in America.

The only other genus in the subfamily Ceutorhynchinae whose members live on Ranunculaceae is *Ranunculiphilus* DIECKMANN, 1969 (WAGNER 1944, DIECKMANN 1969). The nominotypical subgenus *Ranunculiphilus* is composed of five species distributed in the Palearctic Region, whereas the single species *R. italicus* (BRISOUT, 1869) from the western Palearctic Region is included in the subgenus *Austroceutorhynchus* KOROTYAEV, 1980 (COLONNELLI 1998, KOROTYAEV 1997). However, not even a distant relation among *Bohemanius* and *Ranunculiphilus* does exist (Figs. 2, 4, 17, 18), apart from the fact that both belong to the tribe Ceutorhynchini. Members of *Ranunculiphilus* have very coarsely and minutely punctate dark integument, no patches of scales, no rostral groove, broadly impressed male pygidium. The morphology of *Ranunculiphilus* approaches it to *Prisistus* REITTER, 1916 (Fig. 17), as pointed

out by DIECKMANN (1969), KOROTYAEV (1980, 1997) and COLONNELLI (1998). The host plants of most of the 27 species of *Prisistus*, all from the Palearctic Region, are unknown, but the few ones for which we have biological records all develop on Liliaceae (KOROTYAEV 1980, COLONNELLI 1987).

In conclusion, it seems that *Bohemanius* is a relict taxon having only distant relationship with other Ceutorhynchini. Of all the above mentioned genera, however, is seems that the most close relative (in a very broad sense) is the monotypical *Ectamnogaster*, another apparently relict genus having some morphological convergence with the Palearctic *Hadroplontus* THOMSON, 1859, whose three species live on thistles (PERRIS 1887, RUPERTSBERGER 1880, SMRECZYŃSKI 1974, KOROTYAEV 1996) like *Ectamnogaster caviventris* (SCHULTZE, 1897) (PEYERIMHOFF 1919, BOLDT, CAMPOBASSO & COLONNELLI 1980).



Figs. 17 – 18: Habitus of 17) *Ranunculiphilus* (s.str.) *faeculentus* (GYLLENHAL, 1837) from Turkey, Çankırı, 18) *R. (Austroceutorhynchus) italicus* (BRISOUT) from Italy, Pignola.

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