

CONTRIBUTION TO THE KNOWLEDGE OF THE
LONGICORN BEETLES (COLEOPTERA, CERAMBYCIDAE)
OF THE CAUCASUS. 2. TRIBE XYLOSTEINI

К ПОЗНАНИЮ ЖУКОВ-ДРОВОСЕКОВ (COLEOPTERA,
CERAMBYCIDAE) КАВКАЗА. 2. ПРЕДСТАВИТЕЛИ ТРИБЫ
XYLOSTEINI

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taxonomy, morphology, biology, distribution, Caucasus.

Ключевые слова: Coleoptera, Cerambycidae, *Xylosteus*, *Leptorhabdium*, *X. caucasicola*,
L. caucasicum, таксономия, морфология, биология, распространение, Кавказ.

ABSTRACT

Validity of genus *Leptorhabdium* is discussed and confirmed. Discriminative features of the Balkan *Xylosteus spinolae* and Caucasian *X. caucasicola* are given, the latter species is resurrected, *Xylosteus caucasicola* Plavilstshikov, 1936, **stat. resurr.** Distribution and biological characters of *X. caucasicola* and *L. caucasicum* are given.

РЕЗЮМЕ

Обсуждается и подтверждается самостоятельность рода *Leptorhabdium*. Приводятся отличия балканского *Xylosteus spinolae* и кавказского *X. caucasicola* и последнему возвращается видовой статус, *Xylosteus caucasicola* Plavilstshikov, 1936, **stat. resurr.** Даются распространение и особенности биологии *X. caucasicola* и *L. caucasicum*.

Tribe *Xylosteini* is represented at the Caucasus by genera *Xylosteus* Frivaldszky, 1838 and *Leptorhabdium* Kraatz, 1879, both with single congener *X. caucasicola* Plavilstshikov, 1936 (Figs 1-6) and *L. caucasicum* Kraatz, 1879 (Figs 25-26) respectively.

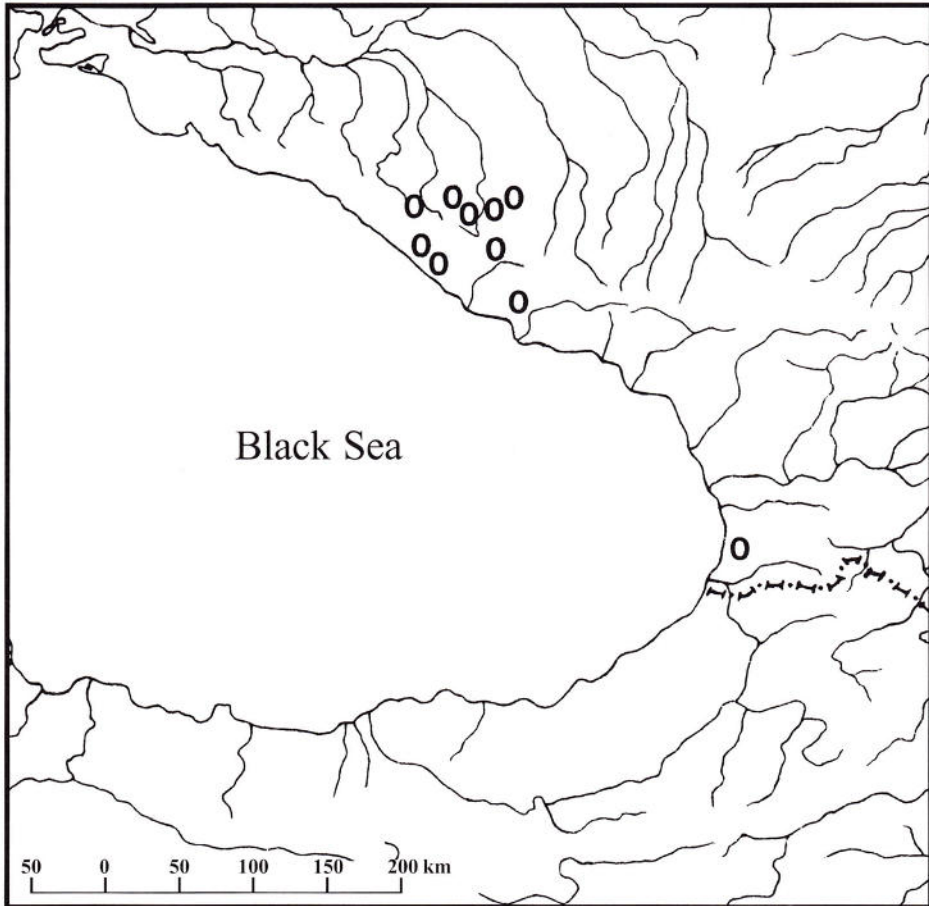
Immature stages and main biological features of both species are rather satisfactorily known (Danilevsky, 1974; Miroshnikov, 1980, 1990; Danilevsky, Miroshnikov, 1985). Furthermore, the experience in some details of their biology made possible to collect besides larvae a big amount of imago (ca. 60 ex. *X. caucasicola* and ca. 100 ex. *L. caucasicum*) in some regions of the West Caucasus. Noteworthy, both species are usually represented by few specimens in the bulk of studied collections, particularly as regards *X. caucasicola*. On the other hand, insufficiency of the knowledge on their localities makes impossible the detail description of their distribution in the moment, even it is already possible to judge generally concerning their ranges.

Xylosteus caucasicola is known from the following localities: Sochi, Guzeripl (type localities, according to Plavilstshikov, 1936), Kamyshanova Polyana at the North of Lagonaki Highland, Solokhaul, Krasnaya Polyana, Mt. Mamdzyshkha n. Gagry (our data, partly published); the southernmost known locality is Kintrish Nature Reserve n. Batumi (Dzhavelidze, Danilevsky, 1981), the northernmost one - Sakhrai n. Dakhovskaya and confluence of rivers Belaya and Kisha (author's material), the westernmost one - Otdalennyj environs (Apsheeronsk district, basin of Pshekha, material of A. Shamaev, Moscow). Distribution of *X. caucasicola* is mapped below.

Leptorhabdium caucasicum "seems to inhabit almost all Transcaucasia, at least from Suram Pass to Dilizhan"; found in N Iran" (Plavilstshikov, 1936); recorded from NE Turkey: Torul (Gfeller, 1972). I know following Caucasian localities, including my own material, specimens from different collections, and published data (Zaitsev, 1954; Khnzorian, 1957; Danilevsky, 1974): Shagali, Idzhevan, Tbilisi, Borzhomi, Surami, Batumi, Krasnaya Polyana, Adler, Sochi, Solokhaul, Lazarevskoye; the northernmost locality is Khadyzhensk in the West Ciscaucasia (Miroshnikov, 1980, 1987). "Kudeista" in Krasnodar Province, recorded by Švácha (in Švácha, Danilevsky, 1988), and followed by Sama (1993), is obviously erroneous transliteration of Kudepsta near Sochi.

Taxonomic status of the genera in question and their congeners was doubtless for the bulk of specialists till now. However, Švácha (in Švácha, Danilevsky, 1988), basing on larval characters, offered to treat *Leptorhabdium* as a subgenus of *Xylosteus*. Sama (1993) did not share this point of view. I cannot follow Švácha's proposal too. Actually, *Xylosteus* and *Leptorhabdium* are closely related. However, coinciding in many of larval characters, they manifest considerable difference in imago, particularly, in the shape of eyes and ultimate joint of maxillary palpi, the attachment place of antennae and shape of antennomeres, shape and reticulation of pronotum, shape of elytra (especially in female), and some other features. Moreover, males of *Xylosteus* are allate and females apterous, while both sexes of *Leptorhabdium* possess normal wings. There are also some differences in biology of the genera in question. For example, there are records concerning visits of *Leptorhabdium* to flowers of trees and bushes (Khnzorian, 1957; Linsley and Chemsak, 1972; Danilevsky, Miroshnikov, 1985; Sama, 1993 etc.). Noteworthy, the author found beetles of *L. caucasicum* on flowers only before evening and during evening time, the majority being observed before twilight (Miroshnikov, 1980). Beetles of *Xylosteus* are known to be reticent

* The modern name is Dilizhan (author's comment)



Map. Distribution of *Xylosteus caucasicola* Plavilstshikov, 1936.

and found away of their fodder substratum only occasionally; *X. caucasicola* was often captured by the author by pitfall traps. No evidence is known to me concerning visits of the Palaearctic species of the genus to flowers. There is only record by Linsley and Chemsak (1972) on occurrence of *Xylosteus ornatus* Leconte at *Prunus* flowers, this species being separated by Sama (1993) to different genus *Pseudoxylosteus*.

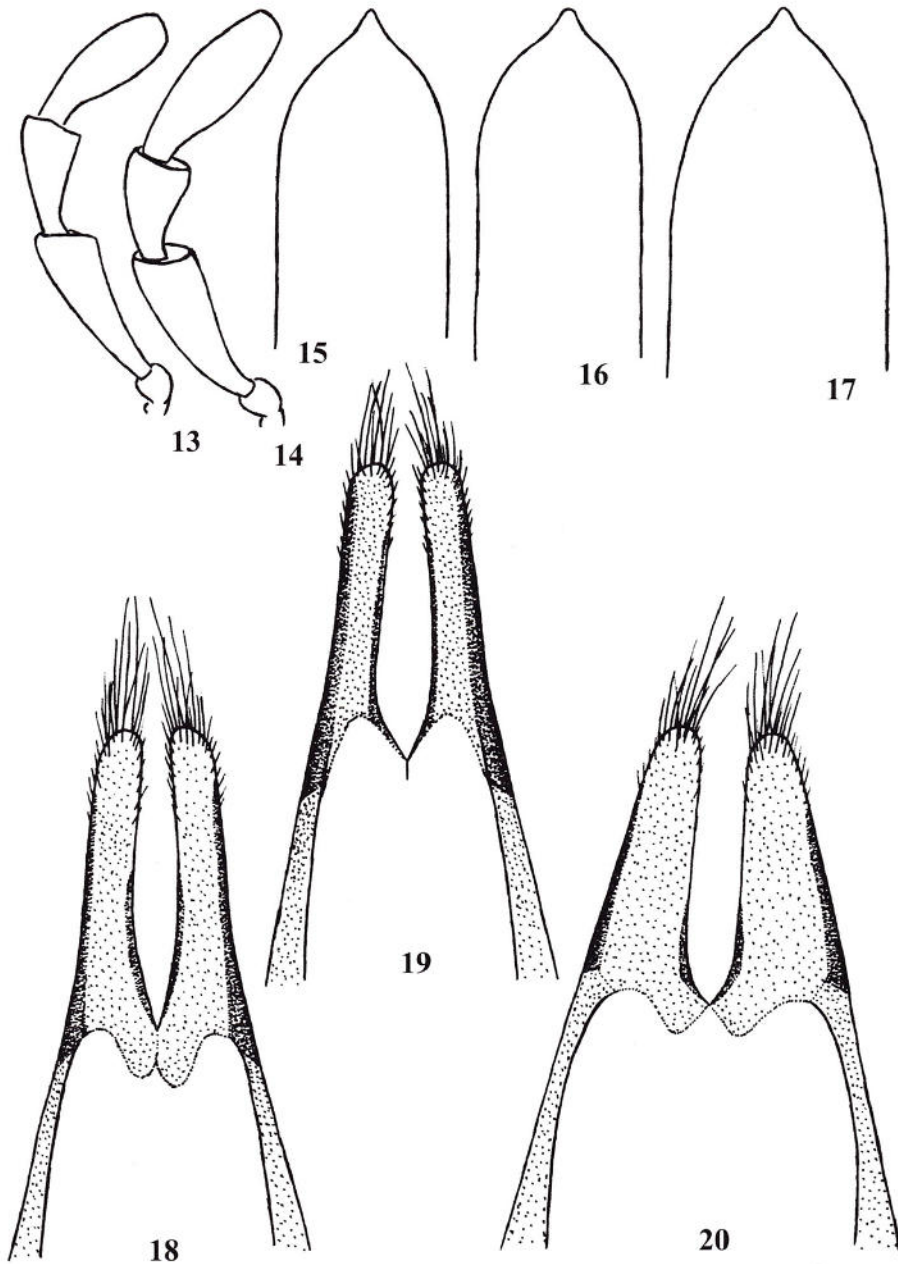
The larval mode of life and development of *Xylosteus* and *Leptorhabdium*, at least, *X. caucasicola* and *L. caucasicum*, according to my observations, are extremely close, their fodder substratum being identic and very specific (Miroshnikov, 1984; 1990). During several years of studies in the West Caucasus (since 1979) I used to find larvae, pupas, and imago of these species

in old lying trunks and stumps of oak (*Quercus*), beech (*Fagus*), and chestnut (*Castanea*) of different diameter (sometimes very thick), often covered by moss (Figs 27,29), but as a rule at sites with firm, safe timber. Moreover, *X.caucasicola* is recorded from *Cerasus*, *Alnus* (Danilevsky, 1974 and basing on his collection), *Abies* (Miroshnikov, 1990) and seems to inhabit some other sorts of wood. It is also possible to forecast probability of occurrence of *L.caucasicum* at the same woods, because it seems to be polyphagous too. It seems interesting in this respect that the author found out settlements of both species at the same thick lying trunk of chestnut near Solokhaul (Sochi District) in 1996. Earlier we were unable to find out such a combined settlement, in spite of occurrence of both species at the same forest sites. Some illustrations to biology of these species are shown at figs 27 - 32.

Finally we must note, that *Xylosteus* and *Leptorhabdium* species, being quite close in larval characters, mode of life, and development, reveal significant morphological differences in imago and must be attributed to very close, though different genera. Discoveries of close, but also different genera *Palaeoxylosteus* in NE India and *Notorhabdium* in Malaya (Ohbayashi & Shimomura, 1986) deserves special attention in this respect.

Another taxonomic question, deserving attention, is Sama's proposal (1993) to treat *X.caucasicola* as the subspecies of Balkan *X.spinolae* Frivaldszky, 1838. Study of the large series of males and females of *X.caucasicola*, collected by me in Guzeripl environs in different years, some specimens from different localities (all known ones), syntypes from the Research Zoological Museum of Moscow State University (Moscow), and more than 20 specimens of males and females of *X.spinolae* from some localities make me to regard such a taxonomic transformation unsuccessful. The species in question are actually very close, though definitely distinguishable by the complex of characters, even some of them, given as the most important by Plavilstshikov (1936, etc.) reveals certain variability. Differences between *X.caucasicola* and *X.spinolae* are as follows:

| X. caucasicola (Figs 1-6) | X. spinolae (Figs 7-12) |
|--|--|
| Lying hairs on disk of pronotum distinctly more fine, shorter, much less prominent against the background, particularly in the middle, between tubercles, especially in females. | Lying hairs on disk of pronotum longer and more robust, distinctly stand out against the background. |
| Aedeagal apex pointed (Fig. 15); outer edge of parameres strongly pigmented by more narrow strip, their apical setae usually comparatively longer (Fig. 18); (studied 7 males). | Aedeagal apex dull (Fig. 16); outer edge of parameres strongly pigmented by more broad strip, their apical setae usually comparatively shorter (Fig. 19); (studied 5 males). |
| Apical segment of female maxillary palps less stretched, only 1.5 times longer than penultimate one and distinctly shorter than second one (Fig. 13). | Apical segment of female maxillary palps more stretched, about 2 times longer than penultimate one and nearly as long as second one (Fig. 14). |
| Keel, limiting antennal cavity inside, rather angulately protruding and more distinct. | Keel, limiting antennal cavity inside, rounded and less distinct. |
| Light spot near base of elytra usually smaller, longitudinal, sometimes missing (both in males and females). | Light spot near base of elytra usually larger, somewhat rounded. |



Figs 13-20. Imago of *Xylosteus*, details:

13. Maxillary palpus of female of *X. caucasicola*. 14. Idem, *X. spinolae*. 15. Apex of penis of *X. caucasicola*. 16. Idem, *X. spinolae*. 17. Idem, *X. bartoni*. 18. Parameres of *X. caucasicola*. 19. Idem, *X. spinolae*. 20. Idem, *X. bartoni*.

| | |
|--|--|
| Basal elytral punctuation somewhat variable, though usually more dense and robust, particularly near suture (more prominent in females); middle elytral punctuation near suture usually more distinct. | Basal elytral punctuation usually more sparse and seems to be less robust (more prominent in females); middle elytral punctuation near suture usually less distinct. |
| Lateral tubercles of pronotum often more prominent and stronger protruding laterally, somewhat rounded apically. | Lateral tubercles of pronotum often less prominent and fainter protruding laterally, somewhat pointed apically. |
| Tubercles at vertex usually less prominent, dull. | Tubercles at vertex usually more prominent, conically protruding. |
| Body coloration often lighter, particularly elytral one. | Body coloration often darker, particularly dorsally. |

Besides above features, *X. caucasicola* is geographically detached and significantly remote from the range of *X. spinolae* and occurs only in the West part of the Caucasus (as it was above described), probably it could be also distributed in the neighbours regions of Turkey. There are some peculiar for each species biological details. According to our observations, *X. caucasicola*, inhabiting various woods, prefers oak, beech, and chestnut. *X. spinolae*, basing on literature records and material of different collections, inhabits mainly *Corylus*, even though it was found at different woods, including coniferous, same as *X. caucasicola* (Sama, 1988; 1993). I had often collected longicorn beetles, inhabiting *Corylus*, at the Black Sea Coast forests, particularly in Sochi district, though I was unable to find out *X. caucasicola*, even this wood was quite abundant and trees had the appropriate timber consistence. Though possibility of such find is quite probable.

Basing on above speculations, *X. caucasicola* must be regarded as distinct species, endemic for the Caucasus: *Xylosteus caucasicola* Plavilstshikov, 1936, **stat. resurr.**

The third congener of the genus in question (treating Nearctic *X. ornatus* within different genus *Pseudoxylosteus* Sama) - *X. bartoni* Obenberger & Maran, 1933 (Figs 21-24), possessing small range at Balkans, is easily distinguishable from both *X. caucasicola* and *X. spinolae* by less robust sculpture of the body dorsum, smoothed tubercles on disk of pronotum, shorter antennae, prominently not reaching elytral apices in male and reaching middle of elytra in female (both species mentioned above possess antennae reaching or slightly protruding beyond elytral apices in male and distinctly protruding beyond middle of elytra in female), usually stronger angulately protruding keels, limiting antennal cavity inside (even to compare with *X. caucasicola*), male genitalia (Figs 17, 20), stronger elongate body in female, lighter colouration of body in male, often different elytral pattern and some other characters.

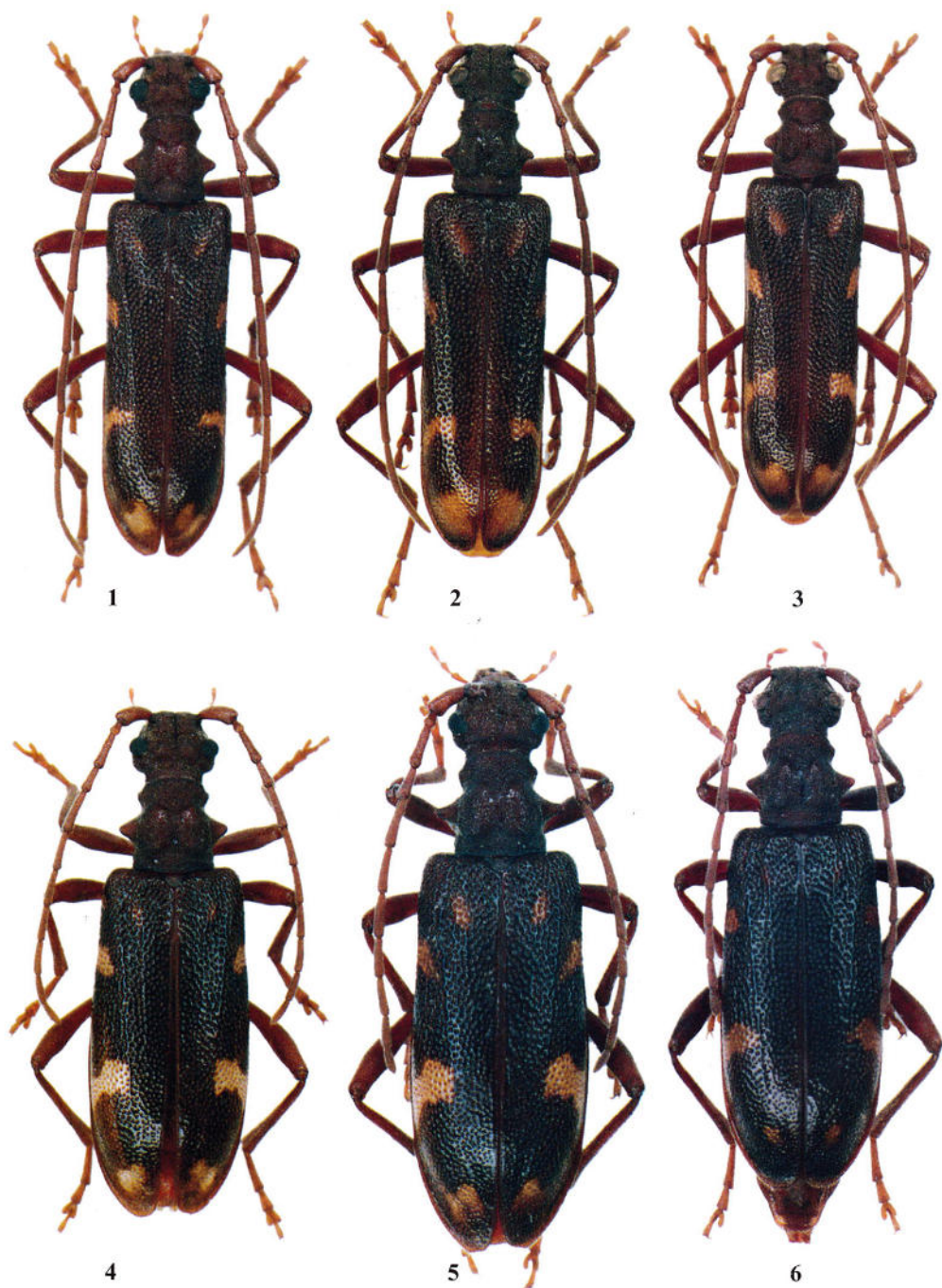
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References

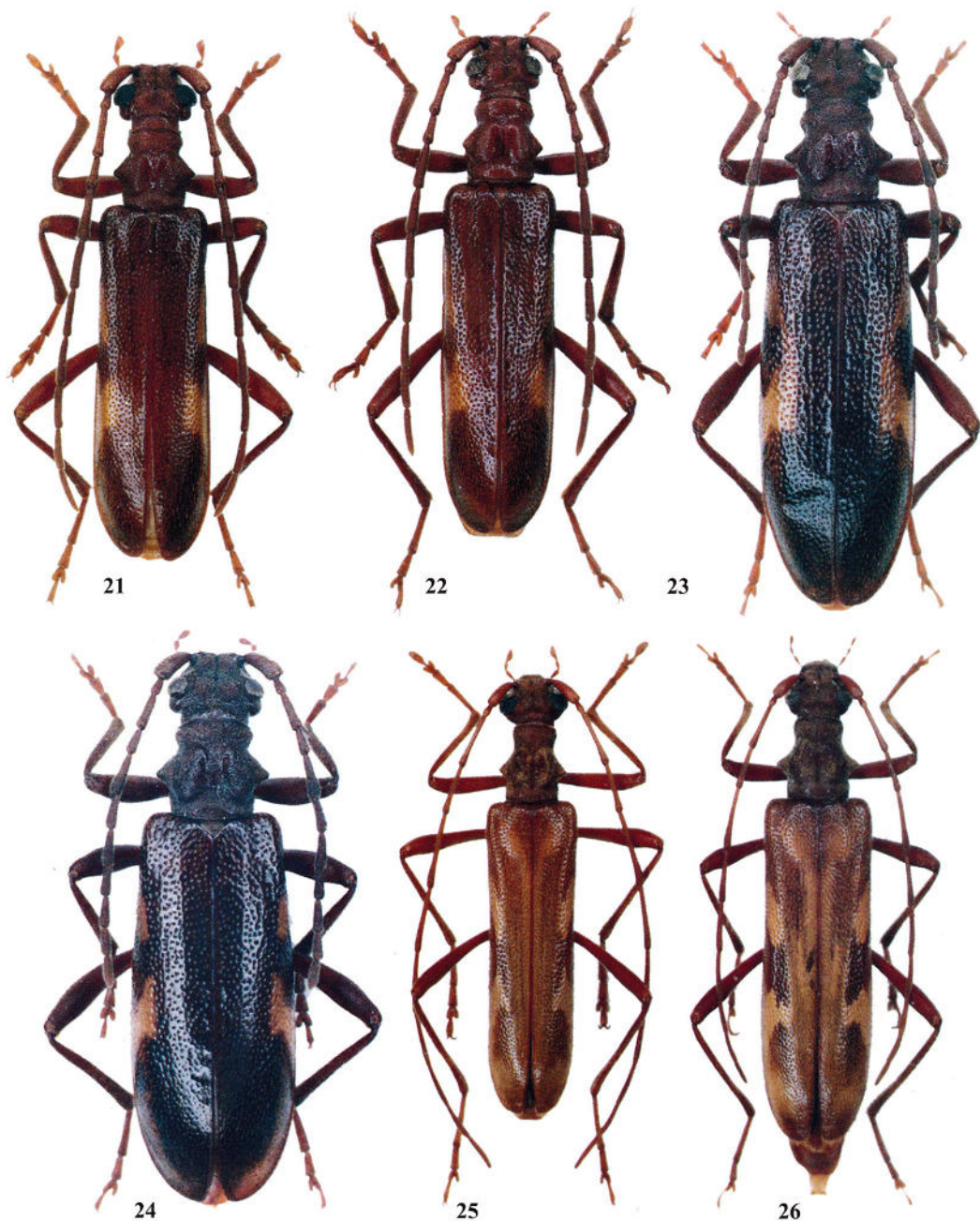
- Danilevsky M.L. 1974. [Description of larvae of two longicorn beetles of the tribe *Xylosteini* (Coleoptera, Cerambycidae)] // Entomol. obozr. Vol. 54. № 4. P. 872-875 [in Russian].
- Danilevsky M.L., Miroshnikov A.I. 1985. [The longicorn beetles of the Caucasus (Coleoptera, Cerambycidae). Key-book]. Krasnodar. 419 p.[in Russian].
- Dzhavelidze I.G., Danilevsky M.L. 1981. [New data on longicorn beetles (Coleoptera, Cerambycidae) of Georgia] // [Pests and diseases forest protection]. Tbilisi. № 2. S. 67-73 [in Russian].
- Gfeller W. 1972. Cerambycidae (Coleoptera) der Tuerkei-Persienexpedition 1970 der Herren Dr. h. c. Wittmer und U. v. Bothner // Mitt. entom. Ges. Basel (N.F.). Bd 22. № 1. S. 1-8.
- Khnzorian S. M. 1957. [Coleoptera of oak in Armenian SSR] // [Materials to the knowledge of the fauna of Armenian SSR]. Erevan. № 3. S. 59-152 [in Russian].
- Miroshnikov A.I. 1980. [Additions to fauna and ecology of the longicorn beetles (Coleoptera, Cerambycidae) of West Ciscaucasia] // Proc. Kuban Agric. Inst. Krasnodar. Vol. 194 (222). P. 52-55[in Russian].
- Miroshnikov A.I. 1984. [New data on the longicorn beetles (Coleoptera, Cerambycidae) of the North-West Caucasus] // Entomol. obozr. Vol. 63. № 2. S. 273-281. [in Russian].
- Miroshnikov A.I. 1987. [On protection of the rare species of Coleoptera in the North-West Caucasus] // [Nature protection in Adygeya]. Maykop. № 3. S. 197-201. [in Russian].
- Miroshnikov A.I. 1990. [Contribution to the knowledge of the longicorn beetles (Coleoptera, Cerambycidae) of the Caucasus. 1] // Entomol. obozr. Vol. 69. № 1. S. 84-92. [in Russian].
- Ohbayashi N., Shimomura T. 1986. Two New Lepturine Beetles of the Tribe *Xylosteini* (Coleoptera, Cerambycidae) from the Darjeeling District and the Malay Peninsula // Ent. Pap. pres. Kurosawa. Tokyo. P. 282-290.
- Plavilstshikov N.N. 1936. [The longicorn beetles, 1] // [Fauna of the USSR. Coleoptera. Vol. 21.]. Moscow-Leningrad. 613 s.[in Russian].
- Sama G. 1988. Cerambycidae. Catalogo topografico e sinonimico // Fauna D'Italia. Coleoptera. Bologna. 216 S.
- Sama G. 1993. Notes sur les *Xylosteini* Reitter (Coleoptera, Cerambycidae // Biocosme Mesogéen. Nice, T.10.F.1. P.7-15.
- Švácha P. 1989. Subfamily Lepturinae Latreille, 1804.-In: Švácha P., Danilevsky M.L. Cerambycoid Larvae of Europe and Soviet Union (Coleoptera, Cerambycidae).3 // Acta Univ. Carolinae, Biologica. V. 32. № 1-2. P. 1-205.
- Zaitsev F.A. 1954. [The longicorn beetles (Coleoptera) of Georgian fauna] // Proc. Inst. zool. Acad. Sc. Georgian SSR. Tbilisi. № 13. S. 5-27 [in Russian].



Figs 1-6. *Xylosteus caucasicola*:
1-3. Males. 4-6. Females.



Figs 7-12. *Xylosteus spinolae*:
7-9. Males. 10-12. Females.



Figs 21-26. *Xylosteini*:

21-22. *Xylosteus bartoni*, males. 23-24. *Idem*, females.

25-26. *Leptorhabdium caucasicum*, male and female.



Fig.27. Brushwood of chestnut, populated by *Leptorhabdium caucasicum* (North-West Caucasus, Solokhaul, May, 1997).



Fig.28. Dry area on alive chestnut tree, populated by *Leptorhabdium caucasicum* (North-West Caucasus, Solokhaul, May, 1997).



Fig. 29. Brushwood of chestnut (background), populated by *Leptorhabdium caucasicum* (North-West Caucasus, Solokhaul, May, 1997).



Fig. 32. Emergence of *Leptorhabdium caucasicum* from the pupal cradle (North-West Caucasus, Solokhaul, May, 1997).



Fig. 30. Larva of *Leptorhabdium caucasicum* in the timber of chestnut.



Fig. 31. Larvae galleries of *Leptorhabdium caucasicum* in the timber of chestnut.