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First record of the South Siberian–Far Eastern species *Acanthosoma denticaudum* Jakovlev, 1880 (Heteroptera: Acanthosomatidae) in the European part of Russia

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Abstract. *Acanthosoma denticaudum* Jakovlev, 1880, which is distributed across southern Siberia, the southern Russian Far East, Japan, Korea, and eastern China, is recorded for the first time from Yekaterinburg, at the Botanical Garden of the Ural Branch of the Russian Academy of Sciences. This collection site is approximately 1,500 km west of the previously known westernmost limit of the *A. denticaudum* range. The species may have been introduced to the botanical garden through planting material. Two years of collection data indicate that populations of this species have established themselves at this new location. The species may spread further west in milder temperate continental climates than in the southern part of Western Siberia. Based on photographs available online, it has already crossed the Urals and extended westwards to the Kostroma and Nizhny Novgorod regions. A brief literature review of the distribution and bionomics of *A. denticaudum* is provided. Illustrations of the external morphology and terminalia of both males and females are included, along with a list of the most important diagnostic characters of this species, which can facilitate its identification in new locations within European Russia.

Key words: Ural, Sverdlovsk Region, Yekaterinburg, Acanthosomatidae, *Acanthosoma denticaudum*, new record.

Первая находка южносибирско-дальневосточного вида *Acanthosoma denticaudum* Jakovlev, 1880 (Heteroptera: Acanthosomatidae) в европейской части России

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Резюме. *Acanthosoma denticaudum* Jakovlev, 1880, распространенный на юге Сибири и российского Дальнего Востока, в Японии, в Корее и на востоке Китая, впервые отмечен в Екатеринбурге (Ботанический сад Уральского отделения Российской академии наук). Место этой находки отстоит на 1500 км западнее от ранее известной самой западной границы ареала *A. denticaudum*. Возможно, этот вид был завезен в ботанический сад с посадочным материалом. Двухгодовые данные сборов материала свидетельствуют о том, что популяции этого вида закрепились на новом месте. Вид может распространиться далее на запад в условиях более мягкого умеренно-континентального климата, чем на юге Западной Сибири. Судя по фотографиям, представленным в Интернете, он уже преодолел Урал и распространился на запад до Костромской и Нижегородской областей. Дан краткий литературный обзор распространения и биологии *A. denticaudum*. Приведены иллюстрации внешнего вида и терминалий самца и самки, а также перечислены важнейшие диагностические признаки этого вида, что может помочь выявлению его в новых локациях в европейской части России.

Ключевые слова: Урал, Свердловская область, Екатеринбург, Acanthosomatidae, *Acanthosoma denticaudum*, новая находка.

Seven species of the genus *Acanthosoma* Curtis, 1824 are found in Russia: *A. crassicaudum* Jakovlev, 1880, *A. denticaudum* Jakovlev, 1880, *A. expansum* Horváth, 1905, *A. forficula* Jakovlev, 1880, *A. haemorrhoidale* (Linnaeus, 1758), *A. labiduroides* Jakovlev, 1880, and *A. spinicolle* Jakovlev, 1880 [Kanyukova, 2010; Gapon, 2024]. Of these, only one species, *A. haemorrhoidale*, was previously known in the European part of the country. It is represented by two subspecies: the nominotypical subspecies (Figs 1, 3, 4), distributed across Europe and Transcaucasia, and the Siberian–Far Eastern *A. h. angulatum* Jakovlev, 1880, whose western range, according to Kiritshenko [1951, 1953], extends as far as Yekaterinburg. This article reports the finding of another species, *A. denticaudum*, in the European part of Russia.

Order Heteroptera Family Acanthosomatidae *Acanthosoma denticaudum* Jakovlev, 1880 (Figs 2, 5, 6)

Material. 2♂, 4♀ (Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia), "Russia, Sverdlovsk Region, Yekaterinburg, Botanical Garden of the Ural Branch of the Russian Academy of Sciences, 15.19.VIII.2022, 9.29.VI.2023, 4.VII.2023, coll. A.A. Bogdanova".

Acanthosoma denticaudum was originally described from the "environs of Nikolsk, on the Amur" [Jakovlev, 1880] (Nikolaevsk-on-Amur?; the holotype of this species, housed in the collection of the Zoological Institute of the Russian Academy of Sciences, lacks a geographic label). Subsequently, the species has been recorded from Japan, the Korean Peninsula, Northern, Northeastern, and Southeastern



Figs 1–2. *Acanthosoma* spp., habitus.

1 – *A. haemorrhoidale haemorrhoidale*, male (Bryansk, Russia); 2 – *A. denticaudum*, male (Yekaterinburg, Russia), antennal segments V are broken. Scale bar 5 mm.

Рис. 1–2. Виды рода *Acanthosoma*, табитус.

1 – *A. haemorrhoidale haemorrhoidale*, самец (Брянск, Россия); 2 – *A. denticaudum*, самец (Екатеринбург, Россия), пятые членики усиков утрачены. Масштабная линейка 5 мм.

China, Eastern and Western Siberia, and Eastern Kazakhstan [Kanyukova, 2010; Vinokurov, Rudoi, 2020; Gapon, 2024]. In the Russian Far East, its range extends to Nikolaevsk-on-Amur. In Eastern Siberia, the species is confined to southern regions: the southern part of the Krasnoyarsk Region, the vicinity of Abakan and Minusinsk, the valleys of the Yenisei and Abakan rivers up to their confluence, the valleys of the Western Sayan, the western (“Bunbuy near Kansk”) and southern parts of the Irkutsk Region, and southern Buryatia [Kerzhner, 1964; Kulik, 1965; Sofronova, Sofronov, 2021; Sofronova, 2022]. In Western Siberia, the species is rare, inhabiting the southern parts of the forest and forest-steppe zones, as well as the mountain-forest belt; it has been recorded from the Tomsk and Novosibirsk regions, the Altai Region, and the Altai Republic [Kerzhner, 1964; Petrova, 1975]. The inclusion of this species in the catalogue of Heteroptera of the Asian part of Russia for the Omsk Region [Kanyukova, 2010], citing Lavrov’s publication [1927], is erroneous: that article lists only *Acanthosoma dentatum* De Geer, 1773 (a junior synonym of *Elasmostethus interstinctus* (Linnaeus, 1758)), *A. haemorrhoidale*, and *Acanthosoma* sp. from the vicinity of Omsk.

Ecologically, *A. denticaudum* is confined to moist areas within sparse mixed and deciduous forests, the edges of swamps, river valleys, and lake shores, and is also found in gardens and parks. It is trophically associated with various deciduous trees [Petrova, 1975]. In the vicinity of Tomsk, it was most frequently found on bird cherry, blackcurrant, and apple; near Novosibirsk, it was found on birch, aspen, and willow [Petrova, 1975]; and in Irkutsk, on Amur cork tree (*Phellodendron amurense* Rupr.), introduced from the Far East [Sofronova, 2022]. In the south of Buryatia, it was found in communities of Japanese elm (*Ulmus davidiana* var. *japonica* Rehder), a relict species for Siberia, which are refugia of nemoral biota [Sofronova, Sofronov, 2021], on *Malus baccata* (L.) Borkh. and Japanese elm. The species overwinters as an adult in dry grass; in the Far East and Eastern Siberia, eggs are laid in early June on tree leaves and shoots, with larvae developing from mid-June until the final third of August [Kulik, 1965].

In Yekaterinburg, *A. denticaudum* was collected both by hand and by shaking specimens from tree branches onto an entomological canopy in the Botanical Garden. Specimens of this species were found on hawthorn,

rowan, birch, maple, and honeysuckle. Two females of *A. haemorrhoidale haemorrhoidale* were also collected from elder and elm trees in June and July 2023. The location of this new record of *A. denticaudum* is 1,500 km west of Tomsk, where the species was reliably recorded in 1951, 1952, and 1961 [Petrova, 1975]. It is possible that this species was accidentally introduced to Yekaterinburg with planting material, which the Botanical Garden regularly receives, including from Siberia and the Far East. The findings of this species in the Botanical Garden over two years (August 2022 and June–July 2023) may indicate that its populations have become established in this new location. In Western Siberia, the species is distributed sporadically across the forest-steppe of the southern subregion within the continental forest West Siberian climatic region, as well as in the forests of the Altai and Sayan mountain regions (according to the climatic zoning system of Alisov [1969]). Yekaterinburg lies on the border between the continental forest West Siberian region and the European Atlantic-continental forest region. The latter is characterised by a generally milder, temperate continental climate, and it

can be anticipated that *A. denticaudum*, having crossed the Urals, will continue to spread westward and, being evidently a widely polyphagous insect, will find a suitable food supply there.

There is reason to believe that this species has already crossed the Urals and spread westwards. The iNaturalist website [Acanthosoma..., 2026] contains photographs that can be used to identify *A. denticaudum*. Based on these photographs, and considering the unverifiable nature of the information posted on this website, including the georeferencing of the images, it is likely that this species is present in the Chelyabinsk and Perm regions, Bashkortostan and Udmurtia, Kirov Region, Tatarstan and Chuvashia, as well as the Kostroma and Nizhny Novgorod regions.

Acanthosoma denticaudum is clearly distinguished from other species of this genus found in the Russian fauna by the following characters. The lamellar process of the mesothorax is tall, protruding significantly above the labium, with a sharply convex ventral margin. The lateral angles of the pronotum are rather short, with

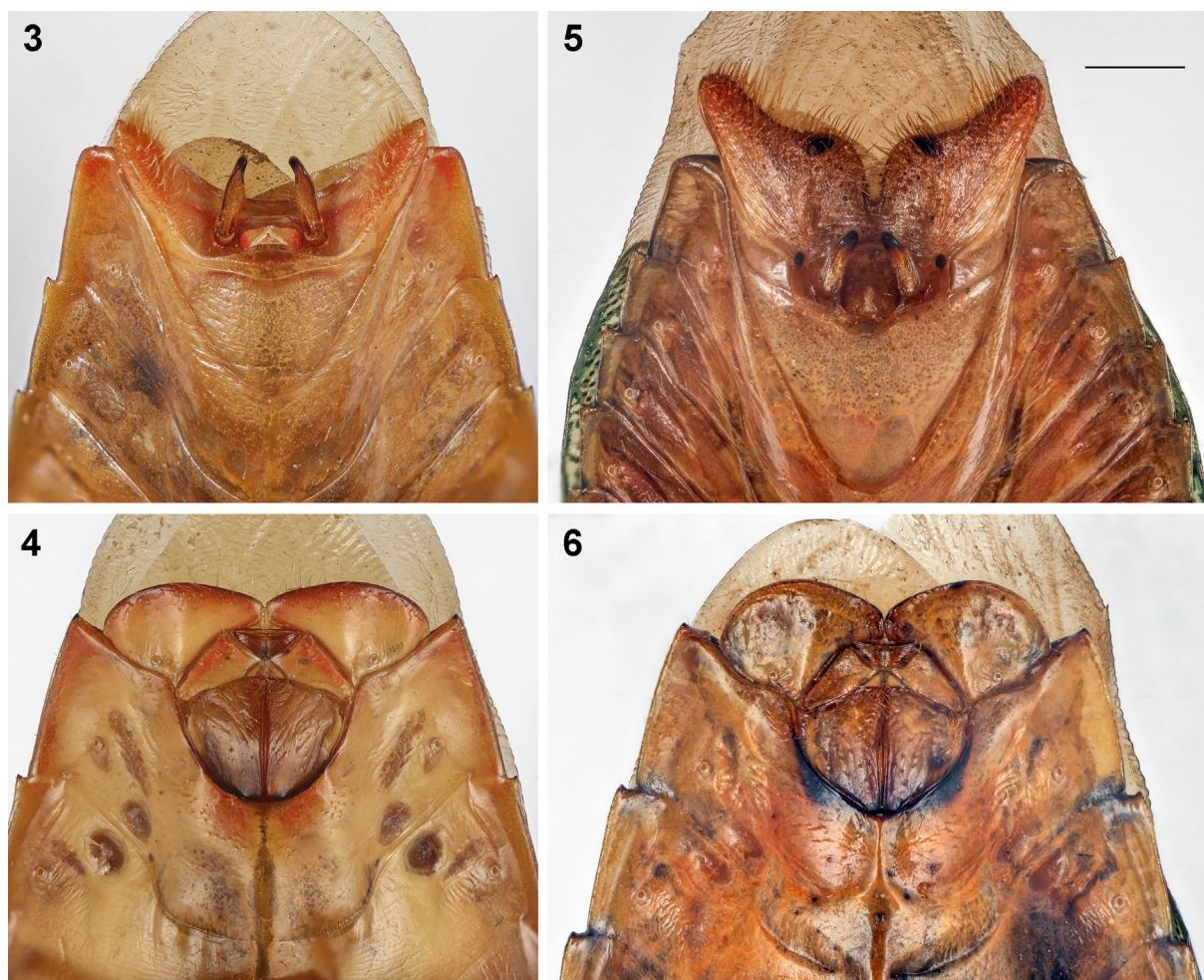


Fig. 3–6. *Acanthosoma* spp., terminalia in ventral view.

3–4 – *A. haemorrhoidale haemorrhoidale*; 5–6 – *A. denticaudum* (Yekaterinburg, Russia). 3, 5 – male terminalia; 4, 6 – female terminalia. Scale bar 1 mm.

Рис. 3–6. Виды рода *Acanthosoma*, терминалии, вид с ventральной стороны.

3–4 – *A. haemorrhoidale haemorrhoidale*; 5–6 – *A. denticaudum* (Екатеринбург, Россия). 3, 5 – терминалии самца; 4, 6 – терминалии самки. Масштабная линейка 1 мм.

blunt (not acute) apices that are neither blackened nor reddish (Fig. 2). The borders of the laterotergites of the connexivum are widely blackened, with the width of the black stripes exceeding the thickness of the tibia. The male genital segment (pygophore) (Fig. 5) has posterolateral angles shaped as long lobes that extend beyond the end of the abdomen and only slightly beyond the apices of the hemelytra; each posterolateral angle is broad at the base, tapering to a narrow, rounded apex, featuring a small black denticle at the base of the ventral margin and a slightly larger black denticle at the dorsal margin; the posterodorsal margin of the pygophore is considerably higher than the posteroventral margin, with a narrow and very deep median V-shaped notch. The apex of the paramere is slightly curved, relatively short, and somewhat blunt (not hooked or sharply pointed). The posterior margins of the paratergites VIII of the female terminalia are rather sharply convex (Fig. 6).

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