

**Weevils of the genus *Anthonomus* Germar  
(Coleoptera: Curculionidae) in the south of East Siberia**

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**Долгоносики рода *Anthonomus* Germar  
(Coleoptera: Curculionidae) на юге Восточной Сибири**

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**Abstract.** Six species of the weevil genus *Anthonomus* Germar were found in the forests with *Ulmus japonica* in Buryatia and southwestern Zabaikalskiy Territory: *A. maculatus* Ter-Minassian, 1973 (originally described from Mongolia), *A. rectirostris* (L.), *A. incurvus* (Panz.), *A. sorbi* Germ., *A. terreus* Gyll. and *A. dauricus* Fst. Host plants of all these species have been recorded. Amended description of the both sexes with photographs of the habitus and aedeagus of *A. maculatus* and its comparison with related species are given together with the data on its distribution in Russia and Mongolia. The taxonomy and distribution of the *A. rubi* species group is discussed. Photographs of the holotype of *Anthonomus cribratellus* Reitt. and of specimens of *Anthonomus sorbi* are provided. *Anthonomus subchalybaeus* Reitt., *A. incurvus*, *A. pomorum* (L.), *A. sorbi* and *A. rectirostris* are recorded for the first time for Mongolia, and *A. germanicus* Dieckm. for East Siberia. *Anthonomus rubi* is recorded for the first time from Mt. Fansipan in northern Vietnam.

**Key words.** Weevils, Russia, Buryatia, Coleoptera, Curculionidae, new records, *Anthonomus maculatus*, *Ulmus japonica*, *Ulmus pumila*.

**Резюме.** Шесть видов жуков-долгоносиков рода *Anthonomus* Germar найдены в лесах с вязом японским в Бурятии и на юго-западе Забайкальского края: *A. maculatus* Ter-Minassian, 1973 (первоначально описанный из Монголии), *A. rectirostris* (L.), *A. incurvus* (Panz.), *A. sorbi* Germ., *A. terreus* Gyll. и *A. dauricus* Fst. Установлены кормовые растения всех этих видов. Приведены дополненное описание обоих полов с фотографиями общего вида жука и эдеагуса *A. maculatus*, его отличия от близких видов и данные о распространении в Монголии и России. Обсуждаются систематика и распространение видов группы *A. rubi*. Приведены также фотографии голотипа *Anthonomus cribratellus* Reitt. и экземпляров *Anthonomus sorbi*. *Anthonomus subchalybaeus* Reitt., *A. incurvus*, *A. pomorum* (L.), *A. sorbi* и *A. rectirostris* впервые приведены для Монголии, *A. germanicus* Dieckm. – для Восточной Сибири. *Anthonomus rubi* впервые указан с горы Фансипан в северном Вьетнаме.

**Ключевые слова.** Жуки-долгоносики, Россия, Бурятия, новые находки, Coleoptera, Curculionidae, *Anthonomus maculatus*, *Ulmus japonica*, *Ulmus pumila*.

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## Introduction

Forests in southern East Siberia are characterized by absolute dominance of the conifers and small-leaved deciduous trees (Peshkova, 1985) harbouring poor assemblages of weevils of the genus *Anthonomus* Germ., most of which are distributed in the nemoral regions of either Western or Eastern Palaearctic. Distribution of several *Anthonomus* species associated with *Padus avium* Mill., *Sorbus* spp., *Crataegus* and *Rosa* spp. in East Siberia is insufficiently known; eastern boundaries are not clear for some, while for others material from the vast areas between their European and the Far Eastern records is missing, which called for their search in the gaps.

A few persisting broadleaf trees, e. g., the Japanese elm, *Ulmus japonica* (Rehder) Serg., are represented in southern East Siberia by relict populations, usually with relict undergrowth of nemoral bushes and herbs occurring also under poplars (*Populus suaveolens* Fisch. and *P. laurifolia* Ledeb.). These relicts-rich biomes are more common on the northern slope of the Khamar-Daban Range, a well-known refuge of nemoral vascular plants, fungi and lichens (Epova, 1956; Malyshev, Peshkova, 1984, etc.). Distribution of the Japanese elm in Buryatia is restricted to a few fragments of the flood-land forests in the Selenga River valley in the foothills of the eastern outskirts of Khamar-Daban. Further eastward a relatively large massif of the flood-plain forest with *Ulmus japonica* is present on the right bank of the Chikoi River downstream of Zhindo Village in Zabaikalskiy Territory.

*Ulmus japonica* has an East Asian range, which within Russia includes the southern Transbaikalia and Far East; it is further distributed in eastern Mongolia, Central and Eastern China, Korean Peninsula, and in Japan. Isolated populations of Japanese elm with a square of 10–15 hectares in the lower Selenga River basin are separated from the main part of its range by no less than 500 km and are without doubt considered relict (Pleshanov, Pleshanova, 1997).

Steppes are widely distributed in the south of East Siberia with a variety of species of the roseaceous genus *Potentilla*, with which an endemic Palaearctic subgenus *Anthonomidius* Reitter of *Anthonomus* with four species is associated. One of these species, *A. dauricus* Fst., occurs in the steppified areas in the flood plains of southern taiga and forest-steppes mostly east of Lake Baikal; two species with more western ranges occur in Tuva and Altai; new data on their distribution and host plants are also included in this paper.

In the expeditions of the V.B. Sochava Institute of Geography, Siberian Branch of the Russian Academy of Sciences, Irkutsk, funded by the Russian Foundation for Basic research for implementation of the project No 18–05–00557 A “East Asian refuges of the nemoral biota with Japanese elm (*Ulmus japonica* Rehder) in the Western Transbaikalia”, insects were investigated in the flood-land landscapes with *Ulmus japonica*; some other localities where the search for this relict tree was performed but failed were also investigated. Prior to these expeditions, extensive material in the forests with the Japanese elm was collected by the second author 27.VI.2014, 27–29.VI and 9.VII.2015 in the vicinities of the Yugovo, Talovka, Il’inka and Mostovka villages in Pribaikal’skiy District, Republic of Buryatia. A special emphasis was made on a poorly known species of the weevil genus *Anthonomus* Germar, apparently associated with *Ulmus japonica*. In total, six *Anthonomus* species have been found in flood-land habitats; the taxonomic identity, distribution, and host plants of most species are poorly known, and new data on them are reported in this paper. Extensive material from East Siberia, Mongolia and the Russian Far East accumulated in the collection of the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZIN) is also used in this paper, and several species are recorded for the first time from various parts of southern Siberia, Russia, and Mongolia.

All material listed in the paper is in the ZIN collection if not specified otherwise in the text.

## Order Coleoptera

### Family Curculionidae

#### Subfamily Curculioninae

#### Tribe Anthonomini

#### Genus *Anthonomus* Germar, 1817

#### Subgenus *Anthonomidius* Reitter, 1915

Host plants of two Eastern Palaearctic species of *Anthonomidius* reported here for the first time belong to the genus *Potentilla* together with hosts of the two other species distributed in Europe. Thus all four members of this Palaearctic subgenus are associated with herbaceous plants, mostly of the genus *Potentilla*, are wingless and have largest parts of their ranges (*A. rubripes* Gyll., *A. germanicus* Dieckm., *A. dauricus* Fst.) or the entire ranges (*A. morosus* Fst.) in the steppe zone. *Anthonomidius* emphasizes the strong tendency to aptery in the inhabitants of the vast areas of the Palaearctic steppes famous for the predominance of the wingless tenebrionids and cerambycids (with high densities of the extremely species-rich Dorcadionini) and harbouring wingless representatives even of the genus or family group taxa comprising mostly or exclusively alate dendrobiont herbivores (Konstantinov et al., 2009).

#### *Anthonomus (A.) dauricus* Faust, 1891

*Material examined.* RUSSIA. *Khakassia*. Minusinsk, Tagarskiy Island, 10.VII.1936 (F. Lukjanovitsh leg.), 1 female. *Buryatia*. Kabanskiy District: right bank of the Selenga River, 1 km SW of Nikol'sk Village, 52°03'44.17" N, 106°52'14.69" E, sweeping *Potentilla bifurca* L., 31.VII.2018 (B. Korotyaev leg.), 1 specimen (subsequently lost); Kabansk Village vicinities, 52°03'46.5743" N, 106°39'32.9763" E, sweeping *P. bifurca*, 4.VI.2019 (B. Korotyaev leg.), 1 specimen. *Zabaikalskiy Territory*. Krasnochikoiyskiy District, 3 km W of Zhindo Village, right bank of Chikoi River, 49°56'24.8463" N, 107°54'52.2001" E, sweeping herbage with *P. bifurca* in flood plain, 9–11.VI.2019 (B. Korotyaev leg.), 3 specimens. NORTH KOREA. *North Pyongan (Phyŏnganbukto) Province*: Chŏngju, 11.VII.1950 (N. Borkhsenius leg.), 1 female; Sinŭiju, 9.VII.1950 (N. Borkhsenius leg.), 1 female. *North Hwanghae Province*, Sariwon, 24.VII.1950 (N. Borkhsenius leg.), 3 specimens.

*Remarks.* The elytra in the female from Chŏngju in North Korea are black which is unusual of this species but this specimen in all structural characters is very similar to the bright reddish brown females from other Korean localities.

*Distribution.* Russia [East Siberia and Far East: *Buryatia*, *Zabaikalskiy Territory*, *Amur Province* (ZIN)], eastern Mongolia [*Arkhangai*, *Sŭkhbaator* (Ter-Minassian, 1972), *Bulgan*, *Selenge*, *Khentii*, and *Dornod* aimags: ZIN], Northeastern China, North and South Korea (Alonso-Zarazaga et al., 2017).

*Host plants.* *Potentilla bifurca* L. (Rosaceae) – **first host recorded** for this species.

#### *Anthonomus (A.) germanicus* Dieckmann, 1968

*Material examined.* RUSSIA. *Republic of Altai*. Chike-Taman, 28.VI.1964 (I. Kerzhner leg.), 1 female.

*Distribution.* Central and Southeastern Europe, Kazakhstan (Dieckmann, 1968; Alonso-Zarazaga et al., 2017), Russia [southeastern European part, southwestern East Siberia (Altai) – **first record for Siberia**].

*Host plants.* *Fragaria* sp. (Dieckmann, 1968), *Potentilla arenaria* Borkh. (Isaev, 2007).

#### *Anthonomus (A.) morosus* Faust, 1891

*Material examined.* RUSSIA. ? *Republic of Altai*. "Altai", VII.1933 (Kovrigin leg.), 1 male. *Tuva*. Bay-Tayginskiy District, hills 10–15 km W of Teli Village, on *Pentaphylloides fruticosa*, 22.VI.1971 (B. Korotyaev leg.), 5 specimens. *Dzun-Khem-chikskiy* District, steppe near Chadan City, 3.VII.1979 (B. Korotyaev leg.), 2 specimens. Kyzyl City, left bank of Ulug-Khem, steppe, 16.VIII.1973 (B. Korotyaev leg.), 1 specimen. *Ovyurskiy* District, upper reaches of Sagly River, 9.VII.1980 (B. Korotyaev leg.), 1 female. MONGOLIA. *Uvs Aimag*: 30 km NE of Barun-Urt, sands, 5.VII.1968 (A. Emeljanov leg.), 1 specimen; 45 km ESE of Ulangom, 12.VII.1968 (A. Emeljanov leg.), 1 specimen; 10 km N of Khan-Khukhei-Ula peak, 6–7.VII.1968 (A. Emeljanov leg.), 1 specimen. *Khuvsgul Aimag*: Tes River near Shavryn-Gol River mouth, 1.VII.1968 (A. Emeljanov and

M. Kozlov leg.), 2 specimens; 45 km E of Tsetserleg Somon, 1.VII.1968 (M. Kozlov leg.), 2 specimens. *Govi-Altai Aimag*: Dutiin-Daba Pass, 37 km ENE of Tsogt, 14.VII.1970 (M. Kozlov leg.), 1 male.

*Distribution.* Russia [western East Siberia (Khakassia (type locality), Southeastern Altai, Tuva)], Mongolia.

Mongolian records (Uvs and Arkhangay aimags: Ter-Minassian, 1972: 254) were overlooked in the Palaearctic Catalogue (Alonso-Zarazaga et al., 2017).

*Host plants.* *Anthonomus morosus* is common in the depressions of central Tuva and occurs in the steppes where the genus *Potentilla* is represented mostly or exclusively by *Potentilla acaulis* L. In the mountains of central and southern Tuva, it is rather common on *Pentaphylloides fruticosus* (L.) O. Schwarz (**first host records**).

### Subgenus *Anthonomus* s. str.

#### *Anthonomus* (*A.*) *cribratellus* Reitter, 1915

(Fig. 1)

The holotype in the Hungarian Natural History Museum, Budapest (HNHM), was examined by the first author. It is labeled “Mantschguria, Laoian, 1904, N. Starck” (printed), “Holotypus *Anthonomus cribratellus* Reitter” (museum label), and handwritten Reitter’s label “*A. cribratellus* m. type”. It is a female, very broad and convex dorsally and, indeed, very different from the species reported under this name from the Russian Far East by Ter-Minassian (1936) and Egorov (1976); only one female very similar to *A. cribratellus* is present in the ZIN collection, but it differs in the much narrower elytra. This specimen was identified by A.A. Legalov in 2009 as *A. aino* Kôno, and the record of the latter species from Primorskiy Territory (Legalov, 2010) is apparently based on this specimen collected by S.A. Belokobylskij near Spassk-Dal’niy 30.VI–6.VII.2001. We have not examined material of *A. aino* from Japan, and the identity of the specimen from Spassk-Dal’niy is not clear.

#### *Anthonomus* (*A.*) *incurvus* (Panzer, 1795)

*Material examined.* RUSSIA. *Tyumen’ Province.* 70–90 km upstream of Ratta Village, Taz River, 4.VIII.1992 (D. Kasparyan leg.), 1 female. *Irkutsk Province.* Nepinskiy District, Nepa Village on Nizhnaya Tunguska River, 29.V–1.VI.1873 (A. Czekanowski leg.), 5 specimens. Slyudyanskiy District, Khamar-Daban, Tibelti Village, 18.VII.1956 (A. Rozhkov leg.), 1 male. *Buryatia.* Tunkinskiy District, Zun Murino Village, on flowers of *Padus avium*, 29.V.1974 (V. Shilenkov leg.), 3 specimens. Pribaikalskiy District: 2 km N of Mostovka Village, Selenga River left bank, 52°06’57.13” N, 107°01’39.54” E: 27.VI.2014 (E. Sofronova leg.), 7 specimens; as above, 26.VI.2015 (E. Sofronova leg.), 2 specimens; as above, 28.VI.2015 (E. Sofronova leg.), 1 male; 2 km N of Talovka Village, on *Malus baccata* (L.) Borkh., 27.VI.2015 (E. Sofronova leg.), 1 male; as above, sweeping and beating *Padus avium* Mill., sifting litter in the forest, 17–20.VII.2018 (B. Korotyayev and E. Sofronova leg.), 16 specimens; 2.5 km NE of Il’inka Village, Selenga River, Senokosnyi I., 52°08’04.79” N, 107°20’23.66” E, sweeping and beating *P. avium*, sifting litter in the forest, 25–28.VII.2018 (B. Korotyayev and E. Sofronova leg.), 10 specimens; 4 km ENE of Il’inka Village, flood-plain forest with *Ulmus japonica*, 29.VI.2015 (E. Sofronova leg.), 5 specimens; Selenga left bank, Krasichikha River mouth, 52°07’51.26” N, 107°02’08.65” E, sweeping and beating *P. avium*, sifting litter in the forest, 28–29.VII.2018 (B. Korotyayev and E. Sofronova leg.), 5 specimens. Kabanskiy District, Posol’sk, damaging *P. avium*, 23.VI.1959 (Kalmakova leg.), 3 specimens. *Amur Province.* Arkharinskiy District, Ukrainka Village, 24.VI.1975 (S. Winter leg.), 1 male. *Khabarovsk Territory.* Verkhnebureinskiy District, Bureya basin, upstream of Usman’ River mouth, 500 m, flood-plain forest with *Padus asiatica*, 16.IX.2012 (A. Ryvkin leg.), 1 female. MONGOLIA. *Tuv Aimag.* Sudzuke, “southeastern” [actually western: Kerzhner, 1972] Khentei, NW of Ulan-Bator, 3.VI.1925 (P. Kozlov leg.), 1 female.

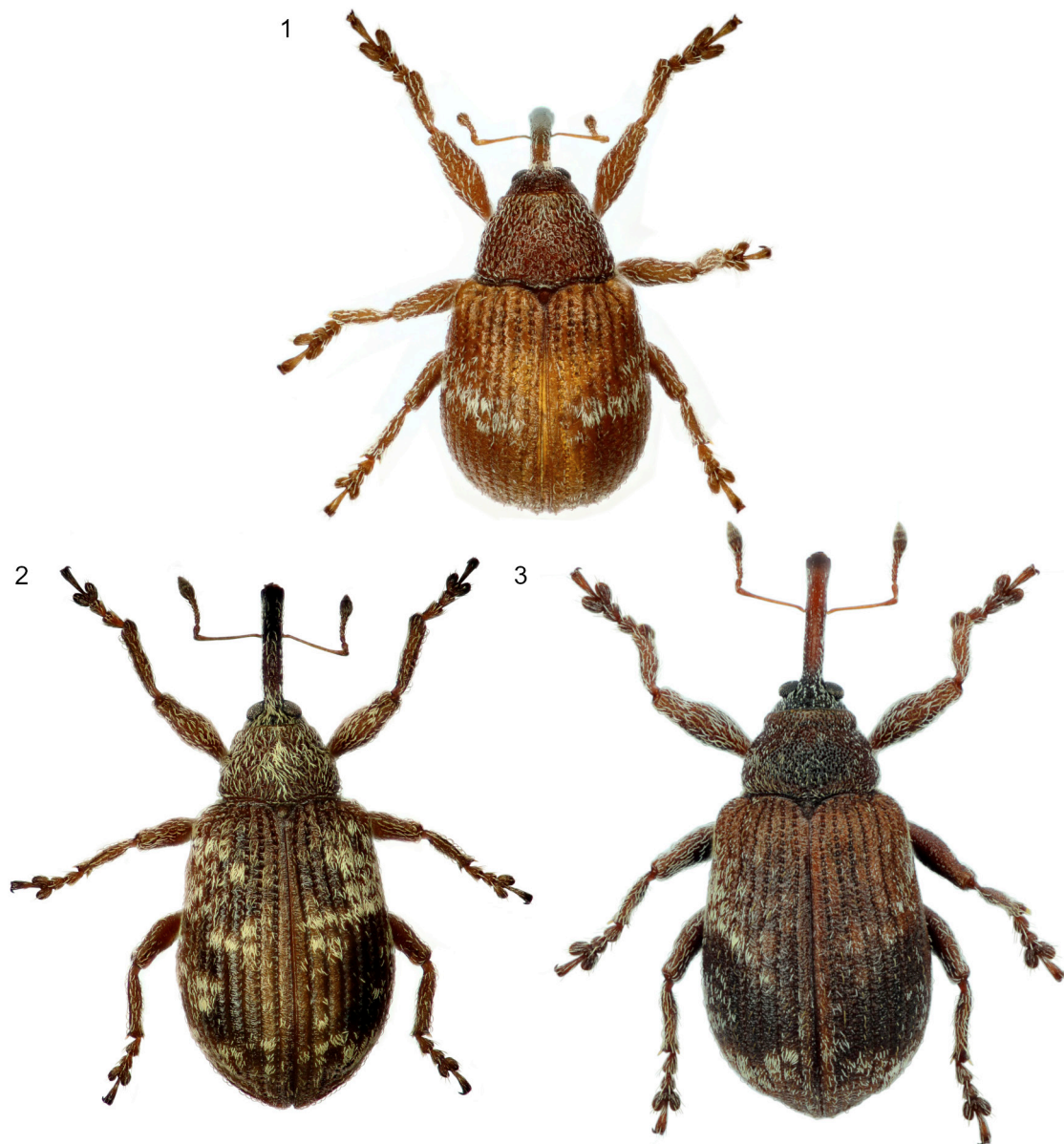
*Distribution.* Trans-Palaearctic species. In European Russia the northernmost record is Onezhskiy District of Arkhangel’sk Province where the first author collected extensive material on *Padus avium*. Legalov [2010; as *A. humeralis* (Panz.)] recorded *A. incurvus* from West Siberia, Khakassia and Irkutsk Province; in this paper it is recorded for the first time from Tyumen’ Province, Buryatia and Mongolia.

*Host plants.* Dieckmann (1968) reports *Padus avium* Mill. (as *Prunus padus*) as the main host; in southern Europe and in the Middle East it feeds also on *Padus mahaleb* (L.) Borkh.

#### *Anthonomus* (*A.*) *maculatus* Ter-Minassian, 1973

(Figs 2, 4)

Ter-Minassian, 1973: 305 [Mongolia: Central (= Tuv) Aimag].



**Figs 1–3.** *Anthonomus* spp., dorsal habitus. 1 – *A. cribratellus* Reitter, holotype; 2 – *A. maculatus* Ter-Minassian, female, Buryatia; 3 – *Anthonomus* sp. ?? aff. *maculatus*, female, Russia, Primorskiy Territory. Photo by G.E. Davidian.

*Description.* Male. Rostrum 1.48–1.74 times as long as pronotum, at base 0.52–0.66 times as wide as fore femur measured at base of femoral tooth, rather weakly evenly curved, cylindrical, parallel-sided in basal part and widening from antennal insertions – rather weakly at one-third way to apex, then moderately; at apex 1.1–1.2 times as wide as at base. Dorsal surface of rostrum matt, except for short apical glabrous medial area widening posteriorly, with very coarse oblong punctures upon coarse microsculpture consisting of oblong microreticulation merging in undulate striae, with minute punctures in cells; no median carina present, but dorsum occasionally obtusely tectiform raised along midline in apical part. Varyingly long and distinct bolster-shaped glabrous sulci occasionally present along sides over antennal insertions. Antennae inserted at 0.44–0.50 way from apex. Scape slender, weakly swollen and curved in apical quarter. Funicle short; 1<sup>st</sup> segment about 2.5 times as long as wide, 2<sup>nd</sup> segment half as long as, and somewhat narrower than 1<sup>st</sup>, slightly longer than wide; subsequent segments moderately transverse, funicle gradually widening toward apex. Pubescence of funicle moderately long, light, semi-erect. Club slightly more than twice as long as wide, asymmetrically ovate, rather strongly narrowed apically. Frons slightly narrowing posteriorly, almost flat, coarsely sculptured similarly to rostrum; depression at the transition of rostral dorsum to frons shallow. Eyes rather weakly and strongly asymmetrically convex, with narrowest curvature at posterior margins.

Pronotum 1.47–1.50 times as wide as long, weakly narrowing from obtuse posterior angles toward moderately deep constriction separating the more strongly narrowing apical third. Sides of pronotum very weakly rounded, base shallowly bisinuate, with medial part also slightly emarginate. Apical margin shallowly obtuse-angularly emarginate medially. Disc weakly convex, with apical constriction distinct along its entire length; two shallow depressions running also anterolaterally from the bases of 2<sup>nd</sup> elytral striae. Surface matt, very densely coarsely punctate, interstices between punctures microreticulate. Scutellum slightly longer than wide, almost hemispherically convex.

Elytra 1.42–1.50 times as long as wide, rather strongly evenly widening posteriorly, widest slightly behind mid-length, jointly rounded apically; rather strongly and evenly convex, deepest slightly before mid-length. Disc with weak to moderately deep transverse depression at the end of basal third. Striae rather wide and deep, with round punctures only narrowly separated. 1<sup>st</sup>, 2<sup>nd</sup>, and two lateral striae noticeably deepened toward apices, 9<sup>th</sup> and 10<sup>th</sup> intervals narrowed and convex at apices behind the distinct preapical prominences on 3<sup>rd</sup>–6<sup>th</sup> intervals. Bottom of striae moderately shiny on disc and matt on apical declivity. Intervals about 1.5 times as wide as striae on disc and noticeably narrowing on apical declivity, slightly convex or flat, matt, microreticulate, with single irregular row of large but shallow, partly subobliterate punctures and with minute punctures along sides.

Legs moderately long. All femora with sharp medium-sized tooth; fore femur about 1.2 times as wide as middle femur, with tooth not much larger than on latter. Fore tibia 6.0 times as long as wide, with outer margin shallowly concave in middle part, ending with weak obtuse angulation at apex clearly separated from the fine and short spines of apical comb both on anterior and posterior surfaces; mucro on fore tibia medium-sized, short, stout, curved inward (= medially). Inner margin of fore tibia moderately bisinuate, obtusely prominent proximal to mid-length (1.7 times as wide there as at base); outer margin with ill-defined narrow fold along most of its length designated by darker pigmentation, with ill-defined sulcus behind it and obtuse fold behind the sulcus. Middle and hind tibiae shorter, with straight outer margin finely carinate along entire length, and less prominent before mid-length inner margin; mucro on middle and hind tibiae half as wide as that on fore tibia. Tarsi moderately long and rather narrow; 1<sup>st</sup> segment of fore tarsus less than twice as long as wide, noticeably curved, noticeably compressed laterally and rather convex dorsally. 2<sup>nd</sup> segment as long as wide, as wide and about half as long as 1<sup>st</sup>, also slightly compressed laterally and convex dorsally; 3<sup>rd</sup> segment 1.3 times as long and 1.5–1.6 times as wide as 2<sup>nd</sup> segment, its lobes weakly rounded and narrower than 2<sup>nd</sup> segment. Claw-segment slender at base and moderately widening apically, by 2/3 of its length protruding beyond apex of 3<sup>rd</sup> segment. Claws moderately long and rather wide, with large wide, parallel, subcontiguous appendages in basal half.

Sides of meso- and metathorax matt, densely coarsely punctate. Venter nearly flat, 2<sup>nd</sup> ventrite about as long as 1<sup>st</sup> ventrite behind posterior margin of coxae; 3<sup>rd</sup> and 4<sup>th</sup> ventrites only slightly shorter, anal ventrite slightly longer than 4<sup>th</sup>, shallowly depressed along the weakly convex medial part. Punctuation of 1<sup>st</sup> ventrite moderately dense and coarse, that of rest ventrites sparser and finer, not deep; surface sparsely and rather delicately strigose upon fine irregular reticulation.

Aedeagus (Fig. 4) parallel-sided, about 4 times as long as wide, scarcely bent dorsoventrally, gradually rounded in apical 1/6, with narrowly rounded apex. Ventral surface mostly membranous, with narrow sclerotized lateral areas; dorsal wall also mostly membranous, with somewhat more heavily sclerotized lateral areas widening apically and meeting at sharp angle opposite (= beneath) sclerotized prepuccial area.

Body reddish brown with varyingly extensive black pattern. Head capsule, rostrum, underside of meso- and metathorax and basal part of venter always black; antennae reddish brown; disc of pronotum usually black with narrow reddish brown margins, but may be almost entirely reddish brown with weakly infusate medial part or with narrow black median line in basal half. Elytra with black pattern composed of varyingly contrasting transverse fasciae in anterior part and long stripe on 4–6<sup>th</sup> intervals behind an oblique narrow light band with wide white scales; in darkest specimens most of elytra black but basal and lateral margins and sutural interval always reddish brown. Usually elytra with reddish brown stripe on sutural intervals widening over 3<sup>rd</sup> interval behind mid-length and then outward behind preapical prominences. Legs mostly reddish brown with black pattern extending from dorsoposterior surface of femora, posterior surface and apices of tibiae, and apices of tarsi. Mesepimera and mesepisterna occasionally reddish brown, contrasting with neighbouring parts of underside. Vestiture moderately dense, composed of linear arcuate yellow and white scales touching or nearly touching with their apices the integument. Rostrum with moderately dense uniform finer setiform scales except at very base where denser fine white subrecumbent scales also present; similar scales clothing anterior part of frons and head capsule behind it; frons also with longer arcuate yellowish scales along eyes. Pronotum with moderately dense yellowish and white arcuate scales, latter usually condensed along midline in anterior half and, less distinctly, along sides and anterior margin. Elytra with mottled pattern of yellowish and white spots arranged in varyingly distinct two white bands composed of recumbent or subrecumbent white subulate scales: oblique one immediately before mid-length, and almost perpendicular to suture band on apical declivity, touching posteriorly preapical prominences. Legs with vestiture similar to that on elytra but rather uniform, forming no bands and with white scales condensed only on apices of femoral teeth. Apices of mesepimera with a spot of dense yellowish scales, contrasting with vestiture of rest of thorax sides. Venter sparsely clothed with arcuate seta-like white scales slightly denser at sides.

Female. Rostrum 1.79–1.92 as long as pronotum, at base half as wide as fore femur measured at base of femoral tooth, moderately and evenly curved, cylindrical, parallel-sided in basal part and widening from antennal insertions – quite slightly at one-third way to apex, then moderately; at apex 1.25–1.30 times as wide as at base. Dorsal surface of rostrum only in basal third matt, with one row of medium-sized, shallow, elongate punctures along median line and with another row along dorsal margin of antennal scrobe upon dense microreticulation; weakly lustrous median area not raised but deprived of

microreticulation, widening toward antennal attachments and then first narrowing apically, then extending over entire width of dorsum in apical one-fourth of rostrum. Antennae inserted at 0.46–0.47 way to apex. Fore tibia with inner margin only slightly less prominent proximal to mid-length than in male. Tarsi longer and wider; 3<sup>rd</sup> segment of fore tarsus wider than in male, 1.43 times as long and 1.78–1.93 times as wide as 2<sup>nd</sup>, its lobes weakly rounded and narrower than 2<sup>nd</sup> segment.

Body length 2.40–3.35, width 1.2–1.7 mm.

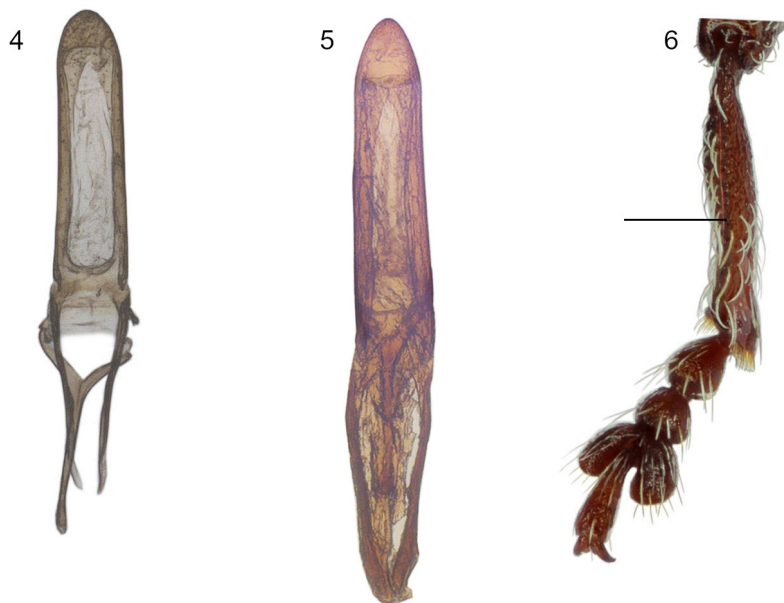
*Comparative diagnosis.* This species was compared in the original description with *A. cribratellus* Reitter, to which M.E. Ter-Minassian (1936) tentatively attributed the material of a larger (over 3.5 mm long) species from Primorskiy Territory in the ZIN collection (Figs 3, 5, 6) subsequently identified by the late Dr L. Dieckmann as distinct from *A. cribratellus*. *Anthonomus maculatus* is similar to this species reported also from Primorskiy Territory by A.B. Egorov (1976) but the latter is larger, often 3.7–3.9 mm long, with body and 3<sup>rd</sup> tarsal segment wider, claws longer and more strongly diverging, with teeth shorter, limited to their basal half, and not connate medially; tibiae with outer margin more sharply carinate (Fig. 6); elytral striae finer and less deep, intervals flat and matt, lacking fine granulation; vestiture of the elytra less mottled; the black transverse band more distinctly outlined, the basal half of the elytra usually reddish brown without black pattern, the rostrum usually reddish brown, and the aedeagus more narrowly rounded apically with wider, arcuate medially sclerotized lateral areas (Fig. 5). This large Far Eastern species is similar to *A. aino* Kôno figured in Kojima and Morimoto (1994) but is larger, has finer sculpture of the dorsal surface with finer elytral striae and flat intervals, and has more distinct pattern formed by denser vestiture. *Anthonomus maculatus* apparently is closer to *A. yuasai* Kôno (Kojima, Morimoto, 1994) which is smaller (2.8–3.4 mm long, after Kojima, Morimoto, 1994), but has similar dorsal pattern except that the black area behind the elytral mid-length is ring-shaped; *A. yuasai* is associated (not clear how closely from the revision by Kojima and Morimoto, 1994) and has the aedeagus structure very similar to that in *A. maculatus* – see Fig. 4 herein and Fig. 77 in the paper by Kojima and Morimoto. The record of *A. yuasai* from Primorskiy Territory is based apparently on the 3.5 mm long male in the ZIN collection taken by S.A. Belokobylskij in Monakino Village 29.VI.1993 and identified by A.A. Legalov as that in 2009.

*Material examined.* RUSSIA. *Buryatia*. Pribaikalskiy District: Yugovo, xero-mesophytic meadow in *Ulmus japonica* forest, 27.VI.2014 (E. Sofronova leg.), 1 male; 2 km N of Talovka Village, sweeping herbage under *Ulmus*, 27.VI.2015 (E. Sofronova leg.), 1 female; 2 km N of Mostovka Village, Selenga River left bank, 52°06'57.13" N, 107°01'39.54" E, *Ulmus japonica* forest: 27.VI.2014 (E. Sofronova leg.), 1 male, 2 females; as above, 27.VI.2015 (E. Sofronova leg.), 1 male; as above, 26.VI.2015 (E. Sofronova leg.), 1 male; as above, 28.VI.2015 (E. Sofronova leg.), 4 males; as above, beating branches of *U. japonica*, 19.VII.2018 (B. Korotyayev leg.), 1 specimen; Selenga River, 2.5 km NE of Il'inka Village, Senokosnyi I., 52°08'04.79" N, 107°20'23.66" E, beating *U. japonica*, 26.VII.2018 (B. Korotyayev leg.), 1 specimen. Selenginskiy District, Bilyutay Village, stepped margin of a pine forest, 21.VI.1971 (D. Kasparyan leg.), 2 males, 1 female (head and pronotum missing). Bichurskiy District, Bichura Village, *Ulmus pumila* grove, 30.VI.2016 (E. Sofronova leg.), 3 males, 2 females. MONGOLIA. *Tuv* (= Central) Aimag, Tola River, ENE of Mt. Dzamryn-Ula, 24.VI.1968 (A. Emeljanov leg.), 2 males, holotype and paratype (erroneously considered a female in the original description: apex of the aedeagus in the paratype protruding). *Dornod Aimag*. Numregin Gol River, 32 km SE of Mt. Salkhit, 16.VI.1976 (E. Gurjeva leg.), 1 male; Mt. Derkhin-Tsagan-Obo, 60 km ENE of Bajan-Burd, 21.VI.1971 (I. Kerzhner and G. Medvedev leg.), 2 males. *Ömnögov Aimag*. Sair Undyn-Gol, 25 km N of Mt. Khan-Bogdo, 23.VI.1971 (I. Kerzhner leg.), 1 male, 1 female. CHINA. *Liaoning Province*. "Manchuria, Langashi Vill." (in Cyrillic), 10–19.VI.1905 (no collector name; ex coll. A. Yakovlev), 1 female.

*Distribution.* The species was originally described only from Tuv (= Central) Aimag in Mongolia, but is widely distributed in southwestern Buryatia (Russia), eastern Mongolia, and Northeastern China (**new country records**).

*Remarks.* The finding of *Anthonomus maculatus* in East Siberia as a supposed representative of the relict faunal complex is of a particular interest, and the *Ulmus japonica* stands at the Selenga River probably designate the northwestern limit of its range. A rare occurrence of this weevil on *U. japonica* in the lower Selenga River section probably implies its ability of infesting this tree in the absence of the main host, the Siberian elm.

*Host plants.* In the type locality and in the South-East Gobi only *Ulmus pumila* of the elms occurs, from which the longest series were taken in Buryatia, and it is probably the main host of *A. maculatus*, although it occurs also in fewer numbers on *U. japonica* at the northwestern limit of its distribution range. A series of paratypes of *Orchestes steppensis* Korotyayev, 2016 has labels identical with that of the specimen from Liaoning Province in China (Korotyayev, 2016); the only known host of *O. steppensis* is *Ulmus pumila*, which also supports the assumption that it is the main host of *A. maculatus*.



**Figs 4–6.** *Anthonomus* spp., aedeagus, dorsal view (4, 5), and female right middle tibia, dorsolateral view of outer surface, arrow pointing at lateral carina (6). 4 – *A. maculatus* Ter-Minassian, Buryatia; 5, 6 – *Anthonomus* sp.?? aff. *maculatus*, female, Russia, Primorskiy Territory. Photo by G.E. Davidian.

#### ***Anthonomus (A.) pomorum* (Linnaeus, 1821)**

*Material examined.* RUSSIA. *Evreyskaya Autonomous Province.* Raddevka on the Amur River, 1876 (Christoph leg.), 2 males; Radde railroad station, 29.V.1900 (G. Suvorov leg.), 1 male (ex coll. G. Suvorov). *Amur Province.* 100 km W of Svobodnyi, Korsakovo, thickets of trees and bushes along the Amur River, 7.VIII.1959 (I. Kerzhner leg.), 1 female; as above, but from Ulmus, 3.VIII.1959 (G. Zinoviev leg.), 1 female. *Khabarovsk Territory.* Lazo Distr., Sidima Village, on apple trees in a private orchard, 6.V.1984 (N. Dokuchaev leg.), 6 specimens. *Primorskiy Territory.* Vladivostok, IX.1876 (Christof leg.), 1 male; Vladivostok, Okeanskaya Station, 30.V.1926 (A. Mordvilko leg.), 1 ?female (head missing); as above, 3.VII.1937 (Stepanov leg.), 1 female; “Primorsk. Obl.” (= Primorskiy Territory), 1 female. MONGOLIA. *Dornod Aimag.* Numregin Gol River, 32 km SE of Mt. Salkhit, on *Malus baccata*, 17.VI.1976 (I. Kerzhner leg.), 1 female. SOUTH KOREA. *Gyeonggi-do Province.* Suwon, University Campus, 8.V.2000 (B. Korotyaev leg.), 1 female.

*Distribution.* The species has an almost Trans-Palaearctic distribution (Alonso-Zarazaga et al., 2017), but is apparently introduced to the Far East as there is no material from inner regions of Asia (Middle Asia and East Siberia). It is recorded here from Mongolia for the first time. Dieckmann (1968) recorded a male specimen of *A. incurvus* from Raddevka collected by Christoph in the Senckenberg Naturhistorische Sammlungen Dresden, but the three large specimens from this locality in the ZIN collection are apparently conspecific with the series collected on apple trees in Khabarovsk Territory and with the female from South Korea.

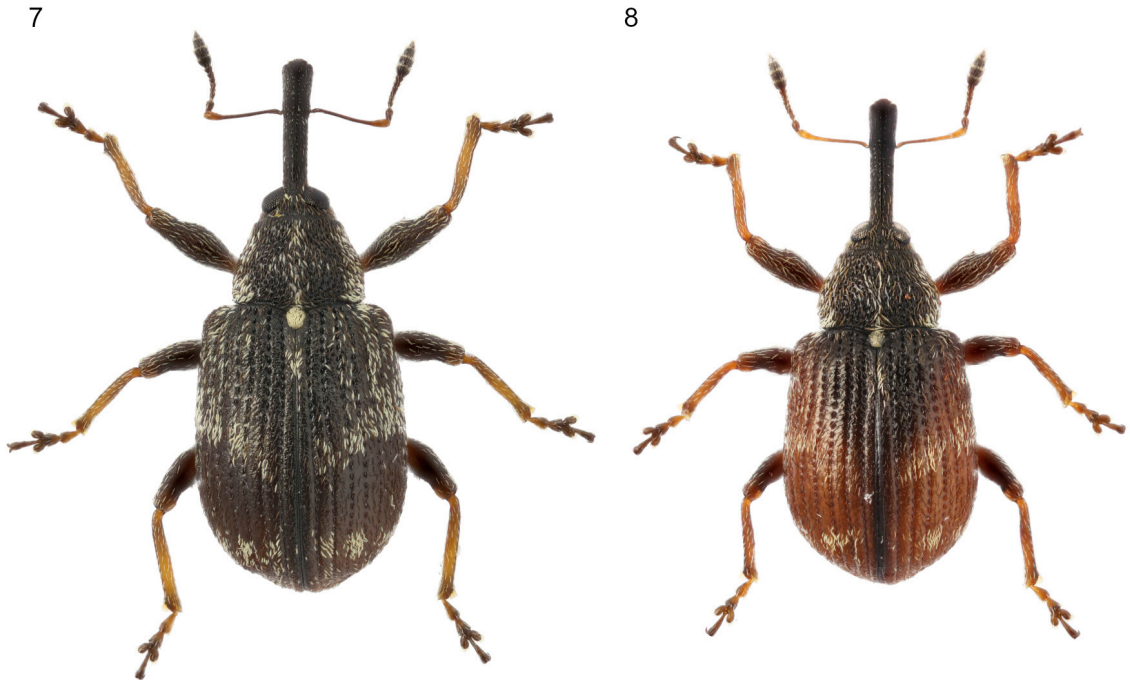
*Host plants.* Common on apple and pear trees and damages their cultivated forms in orchards.

#### ***Anthonomus (A.) sorbi* Germar, 1821**

(Figs 7, 8)

*Material examined.* RUSSIA. *Irkutsk Province.* Taishet District, Yurty Village, 8.VI.1912 (Mishin and Verkhovskiy leg.), 1 male; “Irkutsk” (Bokor; ex coll. Dr. Fodor in HNHM; donated to ZIN). *Buryatia.* Kabanskiy District: right bank of Selenga River, 1 km SW of Nikol’sk Village, 52°03’44.17” N, 106°52’14.69” E, on *Crataegus sanguineus*, 29–31.VII.2018 (B. Korotyaev leg.), 15 specimens; as above, but 4–6.VI.2019, 24 specimens; Kabansk Village vicinities, 52°03’46.5743” N, 106°39’32.9763” E, sweeping *C. sanguineus*, 4.VI.2019 (B. Korotyaev and E. Sofronova leg.), 8 specimens; Kabansk, on *Crataegus*, 29.VII.1959 (Kolmakova leg.), 1 male, 1 female. Mukhorshibirskiy District, Khilok River near Podlopatki Village, flood plain, sweeping branches of *Crataegus dauricus*, 7.VI.2019 (B. Korotyaev leg.), 1 specimen. *Yakutia.* Yakutsk, 1901 (Olenin leg.), 2 males. *Magadan Province.* Ola District, 15 km W of Talon Village, high flood plain of Tau River, on *Padus asiatica*, 5.VII.1975 (E. Matis leg.), over 100 specimens. MONGOLIA. *Tuv Aimag.* Nalaikha, 9.VI.1971 (I. Kerzhner leg.), 1 female; Songino, 24 km SW of Ulan-Bator, 1300 m, Nr. 504, 7.VII.1966 (Exp. Dr. Z. Kaszab), 3 males, 1 female; “Bugijn





**Figs 7, 8.** *Anthonomus sorbi* Germar, dark and light coloured specimens, dorsal habitus, Buryatia. Photo by K.V. Makarov.

až achuj im Geb. Bogdo ul, 36 km SW von Ulan-Baator, 1650 m, No. 939, 10.VI.1968 (Exp. Dr. Z. Kaszab)", 1 female (left elytron missing) [donated to ZIN from HNHM; were misidentified as *A. rubi* by M.E. Ter-Minassian (Ter-Minassian, 1973)]. *Selenge Aimag*. Ero-Gol River near Dulan-Khan, 3–4.VIII.1975 (A. Emeljanov leg.), 1 male.

**Distribution.** This Trans-Palaeartic species is recorded herein for the first time from Mongolia (**new record**). Dieckmann (1968) reported it only from Europe and considered to be substituted in Siberia by a complex of close allies. Korotyaev (1980) recorded *A. sorbi* from Magadan Province where a long series was taken from *Padus asiatica*, the only species of *Padus* in that area (Khokhriakov, 1985). Egorov (1976) recorded *A. sorbi* from Yakutia and Magadan Province (the latter based on the material from Talon Village listed above) and added a record from Primorskiy Territory; he also referred to Ter-Minassian's (1936) record of this species from Primorskiy Territory but she did not report it from Siberia or the Far East. Legalov (2010) included *A. sorbi* in his list of the weevils from Asian part of Russia only based on the publications by Egorov (1976) and Egorov and Basarukina (1981); in the latter paper the species was recorded from Sakhalin I. but there is no record from Khabarovsk Territory in any of these papers.

**Host plants.** Dieckmann (1968: 459) reports only *Crataegus* sp. based on the examined specimens with host data but cites Hansen's (1965) record from Denmark on *Prunus padus* (= *Padus avium*). No *Crataegus* is known in Magadan Province (Khokhriakov, 1985). One specimen in Buryatia was probably also swept by B.A. Korotyaev from *Padus avium*.

#### ***Anthonomus (A.) terreus* Gyllenhal, 1836**

**Material examined.** RUSSIA. *Buryatia*. Pribaikalskiy District: 2.5 km NE of Il'inka Village, Selenga River, Senokosnyi I., 52°08'04.79" N, 107°20'23.66" E, sweeping *Fragaria* sp., 25–28.VII.2018 (B. Korotyaev leg.), 1 specimen; 2 km N of Talovka Village, sweeping *Rosa* sp., 27.VI.2015 (E. Sofronova leg.), 1 specimen. Kabanskiy District: right bank of the Selenga River, 1 km SW of Nikol'sk Village, 52°03'44.17" N, 106°52'14.69" E, sweeping *Rosa* spp., 29–31.VII.2018 (B. Korotyaev leg.), 12 specimens; as above, but 4–6.VI.2019, 22 specimens; Kabansk Village vicinities, 52°03'46.5743" N, 106°39'32.9763" E, sweeping *Rosa* spp., 4.VI.2019 (B. Korotyaev leg.), 2 specimens. *Zabaikalskiy Territory*. Krasnochikoiskiy District, 3 km W of Zhindo Village, right bank of Chikoi River, 49°56'24.8463" N, 107°54'52.2001" E, sweeping *Rosa* spp., 9–11.VI.2019 (B. Korotyaev leg.), 4 specimens.

**Remarks.** The taxonomy of this species remains obscure. In the Palaeartic Catalogue (Alonso-Zaraza et al., 2017) the ranges of *A. rubi* and *A. terreus* are given as widely overlapping in the Eastern

Palearctic, mostly because the extensive material collected in Mongolia by the late Prof. Z. Kaszab was split in the publication by M.E. Ter-Minassian (1972) between three forms: *A. rubi* (Hbst.), *A. rubi* var. *desbrochersi* Fst., and *A. terreus*, even within one sample (e.g., that from Mt. Bogdo-Ula south of Ulan-Bator: No. 508 of the Prof. Z. Kaszab Expedition of 1966, in which all the three forms were distinguished) depending on the degree of the development of the scaly elytral pattern and its preservation in the specimens. No specimen of *Anthonomus* of the *A. rubi* group with uniform elytral vestiture is present in the voluminous material from Siberia east of the Altay Mountains in the ZIN collection, which supports the suggestion by A.A. Legalov to consider *A. terreus* an Eastern Palearctic subspecies of *A. rubi* (Legalov, 2010) – then *A. czekanovskii* Ter-Minassian, 1936 would be a junior synonym of *A. terreus* as it was originally proposed by Legalov (2010) and not that of *A. rubi* as it is considered now. Only the presence of *A. terreus* in Italy contradicts its subspecific rank and requires further study of the interrelations of *A. rubi* and *A. terreus*.

There are two additional forms close to *A. terreus*. One is *A. transiliensis* Ter-Minassian, 1936, now among the synonyms of *A. rubi* (Alonso-Zarazaga et al., 2017) although it has elytral pattern typical of *A. terreus*; it is largely worn in the syntypes and overlooked in the original description but well developed in most of the numerous specimens in the ZIN collection. *Anthonomus transiliensis* is distributed south of *A. rubi* range in Kazakhstan from its western boundary on the Ural River to the southeasternmost part of the country and rarely occurs also in the mountains of Kyrgyzstan near Lake Issyk-Kul and in Tajikistan; it was found also in southwestern Mongolia [Khovd Aimag, Ulyastain-Gol River, 20 km N of Bulgan, 30.VI.1980 (G. Medvedev leg.), 1 male, 1 female]. Dieckmann (1968) did not mention *A. transiliensis* but had examined the syntypes of another one-coloured rufous form, *A. terreus* var. *uniformis* Faust, 1890, described from the very remote localities – Orenburg near the western, and Kopal in Southeastern Kazakhstan at the eastern boundary of *A. transiliensis* range, and Shanghai in Eastern China, where only *A. terreus* may occur in native landscapes. It is also not unlikely that an introduced *A. rubi* with reduced or worn vestiture might have been collected in Shanghai as a 2.5 mm long chestnut-brown teneral male of *A. rubi* with quite uniform fine elytral vestiture and well-developed sharp denticles on the middle coxae was collected by N.L. Orlov (ZIN) in the northernmost Mountain Fansipan in Vietnam at the elevation of 1300–1500 m 26.V–5.VI.1999. *Anthonomus uniformis* may be a senior synonym of *A. transiliensis*; although Dieckmann stated that no scaly pattern is present in any of the syntypes, J. Faust had examined extensive material from Siberia and might notice the traces of the pattern typical of *A. terreus* and often indistinct in small and worn specimens. The host range of this form is almost same as in *A. rubi* and *A. terreus* (see Host plants chapter); no area of the sympatry of *A. transiliensis* with either *A. rubi* or *A. terreus* is known which apparently favours considering it a subspecies of one of them, depending on the decision on the status of the latter form.

There is also a form very similar to *A. terreus* and *A. transiliensis* in Tuva (southwestern East Siberia) which is sympatric with the former but usually smaller and paler, yet darker than *A. transiliensis*. It is very common in the steppe areas where no Rosa bushes are present and occurs only on one species of *Potentilla*, *P. multifida* L. Beetles are often swept from flowering non-rosaceous plants, e.g., *Saussurea* sp. (Asteraceae) and *Caragana spinosa* (L.) Vahl ex Hornem. (Fabaceae), but probably only feed on flowers which is usual in anthophilic weevils (e.g., *Cleopomiarus* and *Sibinia* spp.). Typical *Anthonomus terreus* is also very common in Tuva and adjacent area of Krasnoyarsk Territory but occurs only on *Rosa* spp., and the beetles show no tendency of diminishing their size or depigmentation of the integument. The range of this Tuvian form is located completely within the range of *A. terreus* which is a reason to consider the two forms sympatric species with different hosts.

*Distribution* (after Dieckmann, 1968; Alonso-Zarazaga et al., 2017). Northern Italy, Russia [eastern part of West Siberia, East Siberia and Russian Far East as far northward as Yakutia (Ter-Minassian, 1936, as *A. czekanovskii*: Legalov, 2010) and Kamchatka (Korotyaev, 1976, 1980)], Eastern Kazakhstan, Mongolia, Northern China, North and South Korea, Japan.

*Host plants*. Host plants range of *A. terreus* in Siberia is same as in *A. rubi*: in Tuva it occurs only on *Rosa* spp., in Buryatia – on *Rosa* spp. and *Fragaria* sp., and in Kamchatka – on *Rosa* spp. (authors' data). In Mongolia a long series was collected by the late E.L. Gurjeva in Arkhangai Aimag at the elevation of 1350 m on *Pentaphylloides fruticosus* on which the first author repeatedly collected also *A. rubi* in St. Petersburg suburbs in a private garden where this plant is introduced. *Anthonomus transiliensis* was collected in numbers in Southern Kazakhstan in the Kamenskoe Gorge at the elevation of 1200–1300 m near Almaty

7 and 29.VI.1934 by E. Samoylovich on *Rosa* sp. and on a cultivated *Fragaria* sp., and 21.VII.1934, on a *Potentilla*. In Glubokaya Shchel' Gorge at the elevation of 1100 m near Almaty, V. Shaidurov collected *A. transiliensis* 14.VI.1936 on a *Rosa* species with yellow flowers. On a bank of the Kamenka River in Kazakhstan E. Samoylovich collected a series of this form 29.VI.1934 on *Geum* sp.

### **Subgenus *Furcipes* Desbrochers des Loges, 1868**

#### ***Anthonomus (F.) rectirostris* (Linnaeus, 1758)**

*Material examined.* RUSSIA. Buryatia. Pribaikalskiy District: 4 km ENE of Il'inka Village, flood-plain forest with *Ulmus japonica*, 29.VI.2015 (E. Sofronova leg.), 1 specimen; 2 km N of Mostovka Village, Selenga River left bank, 52°06'57.13" N, 107°01'39.54" E, sweeping foliage and beating branches of *Padus avium*, 17–20.VII.2018 (B. Korotyayev and E. Sofronova leg.), 2 specimens. Kabanskiy District, Kabansk Village vicinities, 52°03'46.5743" N, 106°39'32.9763" E, sweeping *P. avium*, 4.VI.2019–2018 (B. Korotyayev and E. Sofronova leg.), 3 specimens. MONGOLIA. Dornod Aimag. Numregin Gol River, 32 km SE of Mt. Salkhit, on *P. avium*, 16.VI.1976 (E. Gurjeva leg.), 5 specimens.

*Distribution.* Trans-Palaeartic species; recorded from Mongolia for the first time.

*Host plants.* Oligophagous on species of the genus *Padus* (Dieckmann, 1968).

### **Subgenus *Pterochalybs* Ter-Minassian, 1936**

#### ***Anthonomus (P.) subchalybaeus* Reitter, 1915**

*Material examined.* MONGOLIA. Dornod Aimag. Numregin Gol River, 32 km SE of Mt. Salkhit, 16.VI.1976 (E. Gurjeva leg.), 1 specimen.

*Distribution.* A southern Far Eastern species; recorded from Mongolia for the first time.

*Host plants.* No data.

## **Discussion**

The investigation of the weevil genus *Anthonomus* in the flood-plain forests with *Ulmus japonica* in Western Transbaikalia has made an important contribution to the knowledge of these relict communities where plants of the family Rosaceae constitute a considerable part of the species diversity (Butina, 2009). Five out of the six species revealed in these habitats are associated with the three life forms of Rosaceae – trees (*Padus avium*), bushes (*Crataegus sanguineus*, *C. dauricus*, *Rosa* spp.), and herbs (*Potentilla bifurca*). Most of the widely distributed *Anthonomus* species associated with the commonest Palaeartic trees and bushes have been found; no *Sorbus* and *Alnus* occur in the studied area, and thus *Anthonomus conspersus* Desbr. associated with the former and *A. undulatus* Gyll. probably associated with the latter are missing from the list. *Pinus sylvestris* occurs only in a few localities and little collecting was made on it which may also explain the absence of the almost Trans-Palaeartic *A. phyllocola* (Hbst.) in our material.

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