REVIEW OF THE LONGITARSUS ASPERIFOLIARUM GROUP OF SPECIES
(COLEOPTERA: CHRYSOMELIDAE: ALTICINAE)

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Abstract

The Longitarsus asperifoliarum species group is reviewed. Four new species are described: L. hissaricus Lopatin, new species (Tadzhikistan), L. marguzoricus Konstantinov, new species (Tadzhikistan), L. tishchikini Konstantinov, new species (Kazakhstan), and L. violentoideus Konstantinov, new species (Armenia). Longitarsus afghanicus Lopatin is elevated to species status from its former status as L. asperifoliarum afghanicus. A key to the species and diagnostic characters for the group are provided. The setation of the apical and preapical abdominal tergites of females is recognized as a novel source of characters. Host plant and distributional data are included.

Longitarsus Latreille is the largest flea beetle genus; more than 700 species names are available worldwide. The Palearctic catalog of this genus recognizes more than 250 species (Heikertinger and Csiki 1939). A recently published list of Palearctic species described after 1939 contains 110 additional names (Gruev 1995). The majority of species of Longitarsus, in both larval and adult stages, are polyphagous, feeding on plants in several different families. Food plants of Longitarsus include some of the most important noxious weeds in the United States, and at least 3 species of Longitarsus have been released in North America as biological control agents of weeds. This paper treats a small group of southern Palearctic species that can be separated from the other Longitarsus species by the combination of the following characters: (1) the posterolateral callosities of the pronotum are poorly developed (low and wide) and do not form appendages as they do in all other species of Longitarsus and many other alticine genera (e.g., Aphthona Chevrolat); (2) the pronotum and elytra are dark brown or black with strong metallic green, bronze, or brass reflection; (3) the metafemora are black with metallic reflection; (4) the pro- and mesofemora are dark brown or reddish brown at least basally; (5) the tibiae are light brown; (6) the metatibiae are straight in lateral view, slightly widening apically; (7) the second antennomere is longer than the third and as long as the fourth; (8) the vertex is strongly shagreened; and (9) the median ridge of the metatibia is developed only in front of the apex. Weise (1887) suggested separating this group from the other species of Longitarsus by the
allel sided ventral groove. Bottom of groove membranous, with several well
developed longitudinal wrinkles. Apex ogival with acute denticle (Fig. 31).

Female unavailable for study.

Comments. This species was described as a subspecies of *L. asperifoliarum*.
The best characters to separate it from *L. asperifoliarum* are the sculpture of
the vertex (vertex is covered with wrinkles in the former and coarsely sha-
greened in the latter), the shape of the frontal ridge (much narrower in the
former), the color of the legs and antennae (first antennomere with a darker
base in the former), and the shape of the median lobe of the aedeagus (Figs.
31–32). It is apparent that these are species-level characters.

Type Material. Holotype δ: NE AFGHANISTAN, Nuristan, Bashgultal
Valley, 1100 m, 6.04.1953, J. Klapperich (HNHM). Paratype: the same data
as holotype (1 δ ILPC).

*Longitarsus asperifoliarum* Weise
Figs. 1, 2, 7, 10, 13, 17, 18, 23, 27, 33–39

*Longitarsus asperifoliarum* Weise 1887:334 (Type locality: “Kyndyr-Tau,”
West Tien Shan, environs of Tashkent, Uzbekistan. Depository of type
specimens unknown). Jacobson 1893:246 (distribution, Middle Asia).
Heikertinger 1914:258 (figures of δ genitalia, distinguishing features,
1977:212, 1984:322 (key, distribution, figures of δ genitalia, host
plants). Gruev and Döbler 1997:150 (checklist, Palearctic)

Distribution. Turkmenistan (Heikertinger 1914), Kazakhstan, Kirghizia,
North-West Afghanistan (Lopatin 1977, 1984), Uzbekistan (Nuratau) (Weise
1887, Jacobson 1893), (? A.K.) Caucasus (Gruev and Döbler 1997).


Description. Body slightly convex. Length 1.84–2.20 mm, width 0.90–1.02
mm. Color dark brown with strong bronze reflection. Antenna and leg brown-
ferruginous, antennomeres 5–11 slightly darker. Metathorax dark brown with
bronze reflection. Rest of legs reddish brown. Vertex strongly shagreened, with
well developed supraorbital puncture above orbital sulcus surrounded by few
deep punctures. Antennal callus poorly developed, not higher than vertex,
delineated from vertex by shallow, extremely fine groove. Surface of antennal
callus moderately shiny, lacking sculpture. Midfrontal and suprafrontal sulci
absent. Frontal ridge high and convex in lateral view, moderately wide (dis-
tance between antennal sockets larger than diameter of antennal socket).
Anterofrontal ridge attached to end of frontal ridge, in middle as high and thick
as frontal ridge (Fig. 1). Second antennomere slightly longer than third, as
long as fourth. Pronotum length/width ratio 1.47, slightly wider basally. Lateral
side convex, forming oblique denticle nearly in middle, maximum width nearly
in middle. Anterolateral callosity well developed, anteriorly slightly lower than
posteriorly. Lateral margin narrowly explanated, explanations wider apically.
Posterolateral callosity poorly developed, low, wide. Punctures elongate, deep,
poorly defined, 1.5–2.0 times as large as interspaces. Interspaces slightly sha-
greened (Fig. 2). Scutellum widely rounded on top. Elytron usually with well
developed humeral callosus, maximum width behind middle. Apex narrowly
rounded, without well developed angle (Fig. 7). Punctures as large as those on
pronotum, their diameter slightly less than interpunctal distance. Interspaces
minutely shagreened. Male metatibia curved in dorsal view. First metatarso-
mere of male 1.22 times longer than rest of tarsomeres together. Second me-
Figs. 1, 2. *Longitarsus asperifoliarum* Weise. 1) head, frontal view; 2) pronotum.
tatarsomite of male 1.33 times longer than fourth and 1.71 times longer third. Metatibial spur smaller than third metatarsomere. Tarsal claw thin, lacking denticle. Median lobe of aedeagus slightly constricted in front of middle with deep, wide ventral groove. Bottom of groove membranous, with several well developed longitudinal wrinkles. Apex widely rounded with moderately wide denticle (Figs. 33–39). Preapical abdominal tergite of female with few long setae medially. Distal half of preapical abdominal tergite sparsely covered with tiny microtrichia, basal half without pores (Fig. 13). Apical abdominal tergite covered with long setae. Few tiny microtrichia situated in middle and in lateral corners near spiracles (Fig. 13). Receptacle of spermatheca (Figs. 17–18) longer than pump. Inner and outer sides of receptacle convex. Vertical part of pump extremely short (lower part of horizontal portion of pump touches inner side of receptacle), well delineated from receptacle and from horizontal part of pump. Spermatic duct basally at right angle to receptacle with no loop away from receptacle, apically with a few simple coils. Tignum slender, straight, slightly widening posteriorly (Fig. 23). Vaginal palpus slender, posteriorly slightly curved medially, broadly rounded at apex (Fig. 27). Apical sclerotization obtuse.

**Variability.** Shape and proportions of spermatheca vary significantly within the populations (Figs. 17–18). Specimens from Kazakhstan have antennal calus as shagreened as basal part of vertex. General shape of median lobe and ventral grooves varies significantly (Figs. 33–39).

**Comments.** Weise (1887) compared this species with *L. fuscaenas* Redtenbacher. Based on specimens of *L. asperifoliarum* from “Tashkent (Staudinger, Reitter), Turkmenien (Reitter-Leder); and Buchara (Staudinger)” Heikertinger (1914:259) provided figures of the male genitalia and discussed the differences between this species and *L. violentus* Weise. However, he did not mention wether he examined type specimens. In 1893 Jacobson described a new variation of *L. asperifoliarum* that he called *defectus* from Uzbekistan part of Zeravshan mountain ridge. He reported it as being smaller and lacking humeral cali. We were unable to find any specimens labeled as *defectus* in the collection of Zoological Institute (St. Petersburg).

Gruev and Döberl (1997) mistakenly interpreted the type locality of *L. asperifoliarum* as Altai Mountain. They also mentioned Caucasus as a part of this species range. However, it was described from West Tien Shan and was never collected outside of Middle Asia. Specimens from Tadzhikistan previously identified as *L. asperifoliarum* (Lopatin 1977, 1984) belong to *L. hissaricus*.


*Longitarus hissaricus* Lopatin, **new species**
Figs. 3, 4, 8, 11, 40–42

**Description.** Body slightly convex. Length 1.90–2.04 mm, width 0.96–1.03 mm. Color dark brown with strong bronze reflection. Antenna and leg brown-ferrugineous, antennomeres 5–11 slightly darker. Metafemur dark brown with
Figs. 3, 4. *Longitarsus hissaricus* Lopatin. 3) head, frontal view; 4) pronotum.
bronze reflection. Apices of pro- and mesofemora light brown. Rest of legs reddish brown. Vertex strongly shagreened, with well developed supraorbital puncture above orbital sulcus, surrounded by deep punctures. Antennal callus poorly developed, not higher than vertex, not delineated from vertex. Surface of antennal calli moderately shiny, lacking sculpture. Midfrontal and suprafrontal sulci absent. Frontal ridge high and convex in lateral view, moderately narrow. Anterofrontal ridge attached to end of frontal ridge, in middle as high and thick as frontal ridge (Fig. 3). Second antennomere slightly longer than third, as long as fourth. Pronotum width/length ratio 1.36, slightly wider basally. Lateral side convex, with oblique denticle, maximum width nearly in middle. Anterolateral callosity well developed, slightly lower anteriorly. Lateral margin narrowly explanated, explanations wider apically. Posteriorlateral callosity low, wide. Punctures elongate, deep, poorly defined, 1.5–2.0 times as large as interspaces. Interspaces covered with small, longitudinal wrinkles (Fig. 4). Scutellum widely rounded on top. Elytron usually with poorly developed humeral callus; maximum width behind middle. Apex broadly rounded with well developed denticle (Fig. 8). Punctures as large or slightly larger than those on pronotum, their diameter slightly less than interpunctal distance. Interspaces minutely shagreened. Male metatibia curved in dorsal view. First metatarsomere of male 1.18 times longer than rest of tarsomeres together. Second metatarsomere of male 1.18 times longer than fourth and 1.85 times longer than third. Tarsal claw thin, lacking denticle. Metatibial spur as long as third metatarsomere. Median lobe of aedeagus slightly constricted in front of middle with deep, wide ventral groove. Bottom of groove membranous, with several well developed longitudinal wrinkles. Basal part of median lobe with nearly longitudinal wrinkles laterally. Apex triangular with poorly developed denticle (Figs. 40–42).

Female unknown.

Variability. Specimens from Senglok mountain ridge in Tajikistan have elytral punctures as large or larger than interspaces.


Comments. Longitarsus hissaricus is most similar to L. asperifoliarum. It was included in Lopatin’s Chrysomelidae of Middle Asia and Kazakhstan (1977) as L. asperifoliarum. Longitarsus hissaricus can be distinguished from L. asperifoliarum by the elytral apex being broadly rounded with a well developed angle (Fig. 8), metatibial spur as long as third metatarsomere, and the median lobe of aedeagus with the apex forming almost no denticle and the lateral sides distinctly straight (Figs. 40–42).

Type Material. Holotype ♂: Tajzikistan, Hissar mountain ridge, Zimchurud, 1300 m, 31.III.1957, leg. I. Lopatin, feeding on Eremostachys labiosa (ZMAS). Paratypes: the same labels as holotype (2♂ ILPC); Tajzikistan, Kondara, 2000 m, 8.VII.1955, leg. I. Lopatin (♂ ILPC); Takob, 1700 m, 3.V.1986, leg. I. Lopatin (♂ ILPC); Vahsh mountain ridge, near Childara, 12.V.1988, leg. I. Lopatin (♂ ILPC); Senglok mountain ridge, 2000 m, 6.V.1991, leg. A. Konstantinov (3 ♀ AKPC, 3 ♀ USNM); Hissar mountain ridge, Dzhamani, 12.V.1991, leg. A. Konstantinov (3 ♀ USNM); Hissar mountain ridge, Hodzha-Obigarm, 2500 m, 11.V.1991, leg. A. Konstantinov (3 ♀ AKPC, 3 ♀ USNM); Afghanistan, V.1967, leg. Umarov (♂ AKPC).

Longitarsus margazaricus Konstantinov, new species
Figs. 5, 6, 9, 12, 14, 19, 20, 24, 28, 43-48

Description. Body slightly convex. Length 1.90–2.22 mm, width 0.96–1.10 mm. Color black with dark bronze reflection. Antenna and leg brown-ferru-
Figs. 5, 6. *Longitarsus marguzoricus* Konstantinov. 5) head, frontal view; 6) pronotum.
gineous, base of first antennomere and antennomeres 5–11 slightly darker. Metafemur black with bronze reflection. Pro- and mesofemora dark brown, except apices which are dark yellow. Tibiae dark yellow. Vertex strongly sha-
greened, with well developed supraorbital puncture above orbital sulcus. Antennal callus poorly developed, as high as vertex, not delineated from vertex by grooves. Surface of antennal callus moderately shiny, lacks any sculpture. Midfrontal and suprafrontal sulci absent. Frontal ridge high and convex in

Figs. 7–9. Elytral apex. 7) Longitarsus asperifoliarum; 8) Longitarsus hissaricus Lopatin; 9) Longitarsus marguzoricus Konstantinov.

Figs. 10–12. Metatarsus of male. 10) Longitarsus asperifoliarum; 11) Longitarsus hissaricus Lopatin; 12) Longitarsus marguzoricus Konstantinov.
lateral view, moderately narrow, slightly wider posteriorly (Fig. 5), but narrower than in *L. violentus*. Anterofrontal ridge attached to end of frontal ridge, in middle as high as frontal ridge, slightly thicker than frontal ridge. Second antennomere slightly longer than third, as long as fourth. Pronotum length/width ratio 1.34 to 1.41, slightly wider basally. Lateral side convex, maximum width in front of middle. Anterolateral callosity well developed, slightly lower anteriorly, forming acute angle (Fig. 6). Lateral margin narrowly explanated, forming oblique angle before middle, explanations wider apically. Posterolateral callosity low, and wide. Punctures, poorly defined, shallow, moderately large, 1.5 to 2 times larger than interspaces. Interspaces strongly shagreened. Scutellum widely rounded on top. Elytron with well developed humeral callus; maximum width behind middle. Apex almost flat with denticle (Fig. 9). Punc-
tures as large or larger than punctures on pronotum, their diameter 1.5–2.0 times greater than distance between them. Interspaces minutely shagreened. Male metatibia slightly concave in dorsal view. First metatarsomere of male 1.04 times longer than rest of segments together. Second metatarsomere of male nearly as long as fourth and 2 times longer third. Metatibial spur as long as third metatarsomere. Tarsal claw thin, lacking denticle. Median lobe of aedeagus widening anteriorly with deep, wide ventral groove. Bottom of groove membranous, with several well developed longitudinal wrinkles. Apex widely rounded with moderately wide denticle (Fig. 43, 45). Preapical abdominal tergite of female without long setae. Distal half of preapical abdominal tergite densely covered with short setae, basal half with few large pores (Fig. 14). Apical abdominal tergite covered with long setae. Several microtrichia situated in middle of this tergite. Lateral corners of this tergite lack microtrichia (Fig. 14). Receptacle of spermatheca (Figs. 19–20) longer than pump. Inner side of receptacle convex, outer side nearly straight. Vertical part of pump short, well delineated from receptacle and from horizontal part of pump. Spermathecal duct basally pointed in direction opposite to receptacle, forming almost no loop away from receptacle; apically making a few coils. Tignum slender, slightly curved, slightly acute posteriorly (Fig. 24). Vaginal palpus slender, posteriorly straight, broadly rounded at apex (Fig. 28). Apical sclerotization short, obtuse.

Variability. The median lobe of the aedeagus is a main source of species level characters in Longitarsus. It is considered to be a conservative structure.
with faint variability. However in *L. marguzoricus* it varies in the shape of the apex which sometimes is more narrow and has narrower denticle (Figs. 43–48).

**Comments.** It is possible that this species represents *L. asperifoliarum* var. *defectus* Jacobson (1893) however we were unable to find any specimens previously identified as this taxon. Jacobson described this variety as being small and without humeral calli. *Longitarsus marguzoricus* is larger than *L. asperifoliarum* and has well developed humeral calli. *Longitarsus marguzoricus* is similar to *L. violentus* Weise and *L. violentoides* sp. nov. It can be separated from *L. violentoides* by the few deep setiferous pores basally on the last ab-

dominal tergite of female (Figs. 14): spermathecal duct making almost no loop away from receptacle, apically forming 2 extremely similar coils (Figs. 19–20); the apex of the median lobe of the aedeagus with wide but well developed denticle (Figs. 43–48); and median lobe of the aedeagus longer, widening anteriorly. From *L. violentus* it can be separated by the larger median lobe, anteriorly widening and the absence of microtrichia on the lateral part of the apical abdominal tergite of female.

**Type material.** Holotype ♂: Tadzhikistan, Zeravshanskii mountain ridge, s. Padrut, Marguzorskie Lakes, 18.V.1991, leg. A. Konstantinov (USNM). Paratypes: the same labels as holotype (6 ♂, 2 ♀ AKPC), (6 ♂, 2 ♀ USNM), (1
Figs. 43–52. Median lobe of aedeagus. 43–48) Longitarsus marguzoricus Konstantinov; 49, 50) L. tishechki Konstantinov; 51, 52) L. violentoides Konstantinov.


Longitarsus tishechki Konstantinov, new species
Figs. 49-50

Description. Body slightly convex. Length 1.64–1.80 mm, width 0.84–0.88 mm. Color dark brown with bronze reflection. Antenna and leg brown-ferrugineous, base of first antennomere and antennomeres 5–11 slightly darker. Metaphemur dark brown with bronze reflection. Bases of pro- and mesofemora light brown. Rest of legs reddish brown. Vertex strongly shagreened, with well
developed supraorbital puncture above orbital sulcus surrounded by smaller punctures. Antennal callus poorly developed, not as high as vertex, not delineated from vertex. Surface of antennal calli moderately shiny, lacking sculpture. Midfrontal and suprafrontal sulci absent. Suprafrontal sulcus shallow. Frontal ridge high, convex in lateral view, moderately narrow. Anterofrontal ridge attached to end of frontal ridge, in middle as high but thinner than frontal ridge between antennal sockets. Second antennomere longer than third, same length as fourth. Pronotum width/length ratio 1.27, slightly wider basally. Lateral side convex, maximum width nearly in middle. Anterolateral callosity well developed, slightly lower anteriorly. Lateral margin forms poorly developed, triangular denticle in front of middle, narrowly explanated, explanations wider apically. Posteralateral callosity poorly developed, low, wide. Punctures round, small, shallow, poorly defined, 1.5–2.0 times smaller than interspaces. Interspaces strongly shagreened. Scutellum widely rounded on top. Elytron with well developed humeral callus, maximum width behind middle. Apex broadly rounded. Punctures much larger than those on pronotum, their diameter 1.5–2.0 times larger than distance between them. Interspaces shiny, minutely shagreened. Male metatibia slightly curved in dorsal view. First metatarsomere of male 0.96 times longer than rest of tarsomeres together. Second metatarsomere of male as long as fourth and 1.57 times longer third. Tarsal claw thin, lacking denticle. Metatibial spur two times shorter than third metatarsomere. Median lobe of aedeagus slightly constricted in middle, with deep, extremely wide ventral groove. Bottom of groove membranous, with several longitudinal wrinkles. Apex triangular with narrow denticle (Fig. 49).

Female unknown.

Variability. The male paratype has elytra lighter than specimen the holotype.

Comments. Longitarus tishechkinii is most similar to L. asperfoliarium from which it can be distinguished by its smaller size, shorter metatibial spur, absence of the supracalinal sulci, and extremely wide ventral groove of the median lobe.


Longitarus violentoideas Konstantinov, new species

Figs. 15, 21, 25, 29, 51, 52

Description. Body slightly convex. Length 1.58 mm, width 0.78 mm. Color black with strong copper reflection. Antenna and leg brown-ferrugineous, first antennomere and antennomeres 6–11 slightly darker. Metafemur black with bronze reflection. Pro- and mesofemora dark brown. Middle of tibiae brown. Vertex strongly shagreened, with single, well developed supraorbital puncture above orbital sulcus. Antennal callus poorly developed, not higher than vertex, not delineated from vertex by grooves. Surface of antennal callus moderately shiny, lacking sculpture. Midfrontal and suprafrontal sulci absent. Frontal ridge high and convex in lateral view, moderately narrow, but wider than in L. violentoideas. Anterofrontal ridge attached to end of frontal ridge, in middle as high and as thick as frontal ridge. Second antennomere slightly longer than third, as long as fourth. Pronotum length/width ratio 1.48, slightly wider basally. Lateral side convex, with maximum width in front of middle. Anterolateral callosity well developed, slightly lower anteriorly. Lateral margin nar-
rowly explained, explanation wider apically. Posterolateral callosity poorly developed, low, wide. Punctures poorly defined, shallow, moderately small, 1.5 to 2.0 times smaller than interspaces. Interspaces covered with wrinkles. Scutellum widely rounded on top. Elytron with poorly developed humeral callus and maximum width behind middle. Apex broadly rounded. Punctures much larger than those on pronotum, their diameter 1.5–2 times larger than distance between punctures. Interspaces minutely shagreened. Male metatibia straight in dorsal view. First metatarsomere of male 1.10 times longer than rest of segments together. Second metatarsomere of male as long as fourth and 2 times as long as third. Metatibial spur smaller than third metatarsomere. Tarsal claw thin, lacking denticle. Median lobe of aedeagus parallel sided, with deep, wide ventral groove. Bottom of groove membranous, with several well developed longitudinal wrinkles. Apex widely rounded with moderately wide denticle (Figs. 51–52). Preapical abdominal tergite of female with few moderately long setae. Distal half of preapical abdominal tergite sparsely covered with short setae; basal half without pores (Fig. 15). Apical abdominal tergite covered with long setae. Microtrichia situated in middle (Fig. 15). Receptacle of spermatheca (Fig. 21) only slightly longer than pump. Inner side of receptacle convex, outer side nearly straight. Vertical part of pump short, well delineated from receptacle and from horizontal part of pump. Spermathecal duct basally directed opposite to receptacle making almost no loop away from receptacle, apically forming 2 extremely similar coils. Tignum slender, straight, pointed posteriorly (Fig. 25). Vaginal palpus slender, posteriorly slightly curved medially, broadly rounded at apex (Fig. 29). Apical sclerotization obtuse.

**Variability.** Some specimens have the vertex less shagreened than others.

**Comments.** *Longitarsus violentoides* is most similar to *L. violentus*. It can be separated by smaller body size; pronotal punctures 1.5–2.0 times smaller than interspaces; poorly developed humeral callus; elytral punctures much larger than pronotal punctures, their diameter 1.5–2.0 times larger than distance between them; male metatibia straight in dorsal view; median lobe of aedeagus more robust with widely rounded apex; spermathecal duct pointed in the direction opposite to receptacle, making 2 nearly identical coils; and lateral parts of the apical abdominal tergite of female lacks of microtrichia.

**Type Material.** Holotype ♂: Armenia, Tsakhadzor, alpine meadow, 2500–3200 m, 22.V.1988, leg. A. Konstantinov (USNM). Paratypes: The same data as holotype (♂ AKPC), (♀ ZMAS), (♀ USNM), (♀ IZEA).

*Longitarsus violens*us Weise
Figs. 16, 22, 26, 30, 53–60


**Description.** Body slightly convex. Length 2.4 mm, width 1.04 mm. Color dark brown with strong bronze reflection. Antenna and leg light brown or reddish-ferrugineous, first antennomere and antennomeres 5–11 slightly darker. Metafemur dark brown with strong bronze reflection. Pro- and mesofemora basally brown, apically reddish brown. Vertex strongly shagreened, with single, well developed supraorbital puncture above orbital sulcus. Antennal callus poorly developed, not higher than vertex, not delineated from vertex by grooves. Surface of antennal calli moderately shiny, lacking sculpture. Mid-
Figs. 53–60. Median lobe of aedeagus of *Longitarsus violentus* Weise. 53, 54) Svyatogorsk region, Russia; 55) Samara region, Russia; 56, 57) Altai, Russia; 58) Naryn, Uzbekistan; 59) Kharog, Tadzhikistan; 60) Baikal Lake, Siberia, Russia.
frontal and suprafrontal sulci absent. Frontal ridge high, convex in lateral view, moderately narrow (distance between antennal sockets slightly greater than diameter of antennal socket). Anterofrontal ridge attached to end of frontal ridge, in middle as high and as thick as frontal ridge. Second antennomere slightly longer than third, as long as fourth. Pronotum length/width ratio 1.42, slightly wider basally. Lateral side slightly convex, with maximum width nearly in middle. Anterolateral callosity well developed, slightly lower anteriorly. Lateral margin narrowly explanated, explanation wider apically. Posterolateral callosity poorly developed, low, wide. Punctures, poorly defined, shallow, moderately large, as large as interspaces. Interspaces strongly shagreened. Scutellum widely rounded on top. Elytron with well developed humeral callus, maximum width behind middle. Apex broadly rounded. Punctures as large as those on pronotum, their diameter slightly smaller than distance between them. Interspaces minutely shagreened. Male metatibia slightly concave in dorsal view. First metatarsomere of male 1.05 times longer than rest of segments together. Second metatarsomere of male 1.17 times longer than fourth and 2 times longer than third. Metatibial spur smaller than third metatarsomere. Tarsal claw thin, lacking denticle. Median lobe of aedeagus parallel sided, with deep, wide ventral groove. Bottom of groove membranous, with several well developed longitudinal wrinkles. Apex more or less flat, with moderately wide denticle (Figs. 53–59). Preapical abdominal tergite of female lacking long setae. Distal half of preapical abdominal tergite densely covered with short setae, basal half without pores (Fig. 16). Apical abdominal tergite covered with long setae. Microtrichia situated in middle and in lateral corners near spiracles (Fig. 16). Receptacle of spermatheca (Fig. 22) only slightly longer than pump. Inner side of receptacle convex, outer side nearly straight. Vertical part of pump short, well delineated from receptacle and from horizontal part of pump. Spermathecal duct basally pointed in same direction as receptacle, making loop away from receptacle forming several coils apically. Tignum slender, straight, pointed posteriorly (Fig. 26). Vaginal palpus slender, posteriorly slightly curved medially, broadly rounded at apex (Fig. 30). Apical sclerotization acute.

**Variability.** Specimens from Ural region have thin and shallow but quite visible supracallinal sulcus. In specimens from Kharog Botanical Garden (Tadzhikistan) antennal calli are not separated from vertex, but their surface is slightly raised above vertex; and interspaces of elytra covered with tiny, poorly developed punctures. Specimens from Naryn have shiny vertex lacking any wrinkles or punctures. Specimens from Altai have punctures on pronotum much smaller than those on elytra. A few specimens from Irkutsk region have less developed humeral callus. Median lobe is quite variable in this species. The shape of ventral groove varies from almost parallel sided in middle and abruptly narrowing at base to gradually narrowing basally (Figs. 53, 55–60). The shape of the apex varies in the same way as in *L. marguzoricus*.

**Comments.** In the original description Weise compared this species with his previously described *L. asperfoliarum* and mentioned that he had at least 2 specimens, one of which was male. Heikertinger studied several specimens of *L. violentus* from Caucasus, Turkmenia, Kirgizia, Kazakhstan, and Mongolia, including the syntypes (Heikertinger 1914:259). He provided figures of the male genitalia and discussed the differences between this species and *L. asperfoliarum*.

*Longiarus violentus* can be separated from most of the species of the *asperfoliarum* group by the presence of lateral microtrichia on the last abdom-
inal tergite of female (Fig. 16) and by the slender median lobe of aedeagus having a less convex apical part in lateral view (Figs. 53–60).


**Key to Longitarsus asperifoliarum Species Group**

1(2) Pronotal surface strongly shagreened, dull .............................................. **L. tishechkini** Konstantinov

1’ Pronotal surface weakly shagreened, shiny .................................................. 2

2(1) First antennomere with base darker than apex ........................................ 3

2’ First antennomere with base as dark as apex ............................................. 6

3(2) Tibiae yellow. Lateral margin of pronotum without denticle in front of middle .................................................................................................................. **L. afghanicus** Lopatin

3’ Tibiae light brown or reddish ferrugineous. Lateral margin of pronotum with denticle in front of middle ................................................................................. 4

4(3) Last abdominal tergite of female with lateral microtrichia (Fig. 16). Median lobe of aedeagus slender, apical part less convex in lateral view (Figs. 53–60) .............................................................................. **L. violentus** Weise

4’ Last abdominal tergite of female without lateral microtrichia (Figs. 14–15). Median lobe of aedeagus more robust, apical part more convex in lateral view (Figs. 43, 45, 51) ............................................................................. 5

5(4) Last abdominal tergite of female with few deep setiferous pores basally (Fig. 14). Spermathecal duct basally pointed in direction opposite to receptacle making almost no loop away from receptacle, apically forming 2 extremely similar coils (Figs. 19–20). Apex of median lobe of aedeagus with wide but well developed denticle (Figs. 43, 45, 47, 48) .............................................................................................. **L. marguzoricus** Konstantinov

5’ Last abdominal tergite of female without deep setiferous pores basally (Fig. 15). Spermathecal duct basally pointed in direction of receptacle making loop away from receptacle, apically forming irregular coils (Fig.
21). Apex of median lobe of aedeagus with poorly developed denticle (Fig. 51). ........................................... L. violontoides Konstantinov
6(1) Elytral apex broadly rounded with well developed angle (Fig. 8). Metatibial spur as long as third metatarsomere. Median lobe of aedeagus with apex forming almost no denticle, and lateral sides nearly straight (Figs. 40, 41) .................................................. L. hissaricus Lopatin
6' Elytral apex narrowly rounded without well developed angle (Fig. 7). Metatibial spur smaller than third metatarsomere. Median lobe of aedeagus with apex forming moderately well developed denticle and lateral sides slightly constricted nearly in middle (Figs. 33, 35, 37–39) .............. L. asperifoliarum Weise

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