

REDESCRIPTION OF *AULONOTHROSCUS LATICOLLIS* (RYBIŃSKI, 1897) (COLEOPTERA: THROSCIDAE)

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Abstract.— *Aulonothroscus laticollis* (Rybiński, 1897) is redescribed and illustrated based on newly collected material in the Białowieża Primeval Forest, Poland. Its female is described for the first time.



Key words.— Coleoptera, Throscidae, *Aulonothroscus laticollis*, redescription, sexual dimorphism, Poland.

Throscus laticollis was described by Rybiński (1897) from a single male specimen collected in southern Poland. This very rare species was only further recorded from Croatia (Reitter 1921) and two eastern provinces of Finland (Hellén 1939) but the confirmation of its occurrence in the Central Europe, as well as the modern description have not been available to date. Burakowski (1975) examining the type provided first diagnosis and illustrations of this species, transferring it to the genus *Aulonothroscus* Horn, because of the deep tarsal grooves on the metasternum.

This species has recently been collected several times in the Białowieża District by various Polish collectors (L. Borowiec, L. Buchholz, J. Gutowski, J. Kania, M. Ossowska) and their material produced among the large numbers of males, a hitherto unknown females, which are described below.

Specimens used for this paper are deposited in the following collections:

ISEZ – Instytut Systematyki i Ewolucji Zwierząt PAN, Kraków;

JG – J. Gutowski, private collection, Białowieża;

JK – J. Kania, private collection, Wrocław;

LB – L. Borowiec, private collection, Wrocław;

LBMO – L. Buchholz and M. Ossowska, private collection, Kraków;

MIZW – Muzeum i Instytut Zoologii, PAN, Warszawa.

Aulonothroscus laticollis (Rybiński)

Throscus laticollis Rybiński, 1897: 56; 1897a: 83; 1902: 11; 1902a: 5.
Hoyer 1897: 595; Reitter 1901: 60.

Triaxagus laticollis: Reitter 1921: 66.

Aulonothroscus laticollis: Burakowski 1975: 387, note 1; 1991: 80;
Burakowski, Mroczkowski and Stefańska 1985: 243 (distribution).

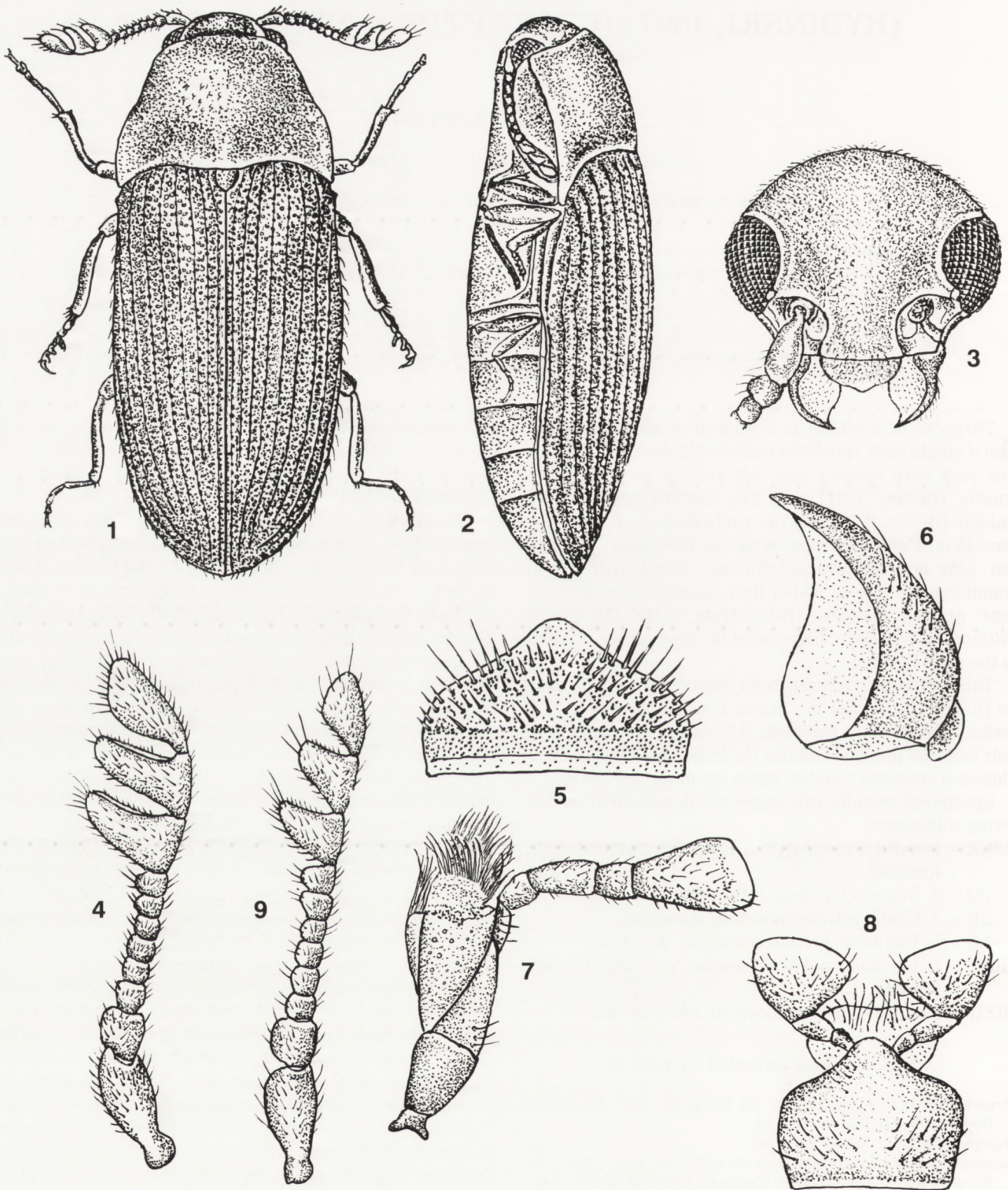
Diagnosis. This species is similar to *A. brevicollis* (Bonv.), but it is easily distinguished by larger body (length of *laticollis* 3.2–4.0 mm, of *brevicollis* 2.2–3.0 mm) and the frons smooth devoid of two narrow vertical listels seen

in *brevicollis*. The male of *A. laticollis* having strongly modified tarsi and unusually short and wide aedeagus is immediately distinguished from any species of *Aulonothroscus* Horn known the writer.

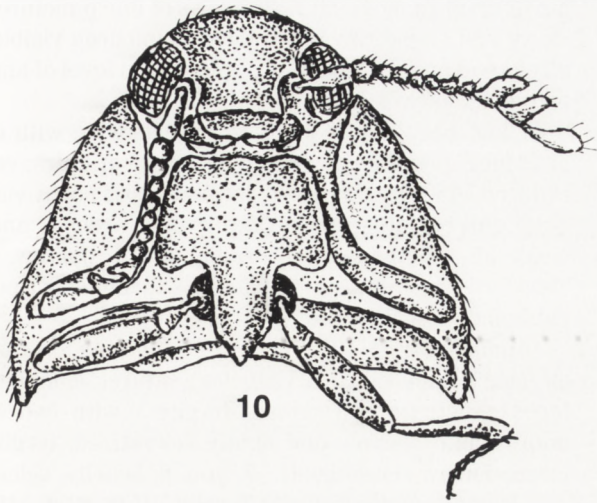
Description. Total length 3.2–4.0 mm; body elongate-oval, about 2.3 times as long as wide, distinctly convex dorsally and faintly ventrally (Figs 1, 2). Surfaces dull and densely clothed with inclined to suberect fine, short hairs.

Head subspherical (Fig. 3), deeply retracted into prothorax, densely punctate. Eyes broadly separated, obovate, slightly convex and finely faceted, without dividing sclerite. Frons smooth; frontoclypeus considerably extending laterally, anteriorly obtuse. Labrum (Fig. 5) free, about 0.5 times as long as broad, rounded laterally, prominent at apex; upper surface slightly convex and setose. Mandibles (Fig. 6) symmetrical; each 1.5 times longer than basal width; with single apex and sparse setae laterally on dorsal surface; upper surfaces with longitudinal carina, laterally delimiting concave glabrous area receiving lateral edge of labrum in repose. Antennal insertion exposed, located on head ventral surface, separated from eye by a socket and directed anterolaterally; antennal groove receiving antennal scape extends below eye. Antenna (Figs 4, 9) 11-segmented, short and extending posteriorly to the lateral edge of prothorax; club flattened, loose, asymmetrical, 3-segmented; club segments in repose are housed in cavities on prothoracic hypomeron. Maxilla (Fig. 7) longitudinal, divided into a basistipes, dististipes and distinct cardo; lacinia slender and membranous basad, distinctly hairy along inner edge; galea with basi- and distigalea differentiated, with tuft of filaments apically; palp 4-segmented, its terminal palpomere slightly expanded and obliquely truncate apically. Labium (Fig. 8) free; mentum broad, tapering apically and posteriorly; palp 3-segmented, last segment setose, broad and expanded at apex; ligula membranous, bilobed with filaments anteriorly.

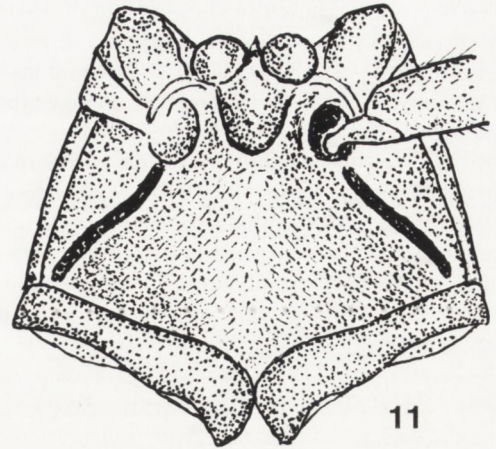
Prothorax (Figs 1, 10) transverse, subtrapezoidal, about 1.6 times as wide as long; anterior angles obtuse;



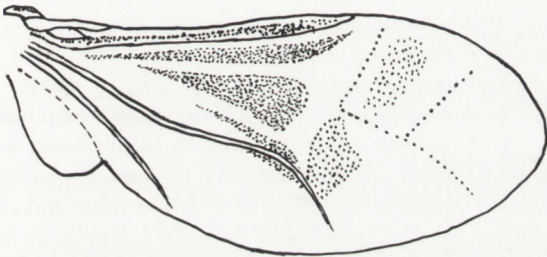
Figures 1-9. *Aulonothroscus laticollis*: 1-8. Male. 9. Female. (1) Dorsal view; (2) lateral view; (3) head, frontal view (4) antenna; (5) labrum; (6) mandible; (7) maxilla, ventral; (8) labium, ventral; (9) female antenna.



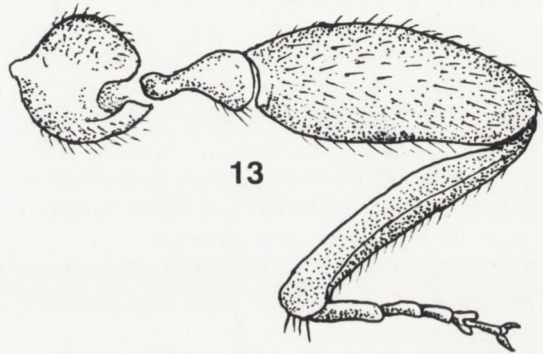
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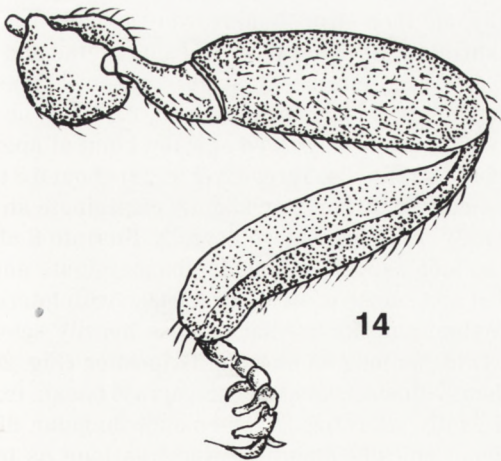
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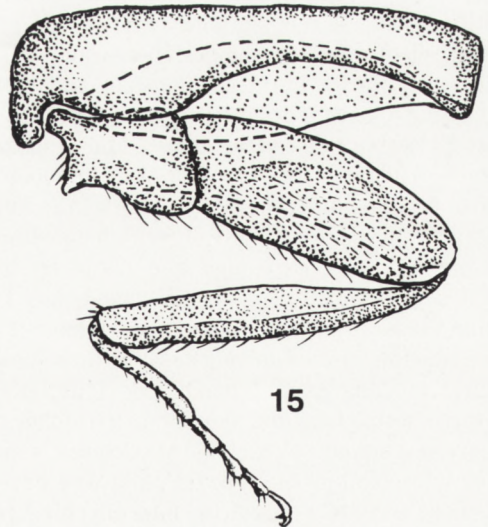
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lateral margin sinuate; hind angles prominent, embracing bases of elytra. Disc moderately convex medially; basal region elevated at middle, with a pair of large sublateral impressions; pronotal punctures larger than those on head. Hypomeron slightly impressed mesally and posteriorly forming large cavity receiving antennal club and just below another one for the fore legs in repose (Fig. 2). Notosternal suture straight, slightly open anteriorly to receive apex of scape and pedicel, the remaining groove is located along the suture. Prosternum (Fig. 10) 1.5 times as wide as long, slightly prominent anteromedially forming a plate bearing a pair of posterior cavities for reception of procoxae; prosternal process moderately broad, subparallel, partially covering coxae from below, its subtriangular apex fitting into mesosternal cavity.

Mesosternum (Fig. 11) about 0.5 times as long as wide, with anteroadmedian cavities supporting procoxae from behind; anterolateral angle shallowly concave receiving midfemur in repose; the median cavity moderately deep and slightly transverse; mesosternal process broad with apex rounded. Metasternum (Fig. 11) about 0.5 times as long as wide with well developed transverse suture and oblique, deep and sharply defined groove housing metatarsus, the groove begins adjacent to midcoxa and slightly curving inwardly terminates at the posterior angle of metasternum; intercoxal process narrow, acute apically. Metendosternite (Fig. 21) with long and narrow stalk, laminae located out on lateral arms; anterior process broad and short, shallowly emarginate; anterior tendons broadly separated.

Legs (Figs 13–15) moderately long and slender, rather densely pubescent; femora and tibiae somewhat flattened, of subequal length but femora considerably thicker; front and midcoxa small and spherical, obliquely grooved for reception of their respective trochanters; frontcoxae meeting at middle, midcoxae separated by a broad process; trochanters long, oblique apically; tibial apex rounded provided with spinelike setae, shallowly emarginate at outer surface to receive first tarsomere; posterior surface of fronttibia and anterior surfaces of meso- and metatibia flattened fitting femora. Tarsal formula 5-5-5 in both sexes; tarsomere 1 longest, 4 distinctly bilobed. Midtarsus of male short, about 0.3 times as long as tibia; tarsomeres 1–3 setose, 4–5 glabrous; tarsomere 1 as long as the following two combined; tarsomere 3 ventrally with hooked process, 4 and 5 membranous, expanded and distinctly bilobed; tarsal claws unequal, the posterior claw being 4 times longer than the anterior one. Midtarsus of female (Figs 26, 27) longer, about 0.7 times as long as tibia, tarsomeres 1–4 setose; first as long as 2–4 combined, 4 flattened and bilobed; tarsomere 5 long and slender, twice longer than 4; claws short and simple. Metacoxae transverse, separated by narrow intercoxal process; coxal plate well developed, broad mesally, arcuately narrowing laterally; hindtrochanter with short process at base.

Scutellum subtriangular, as long as wide, flat, finely punctured and setose. Elytra (Figs 1, 2) 1.7 times as long as wide and 3.0 times as long as pronotum, almost paral-

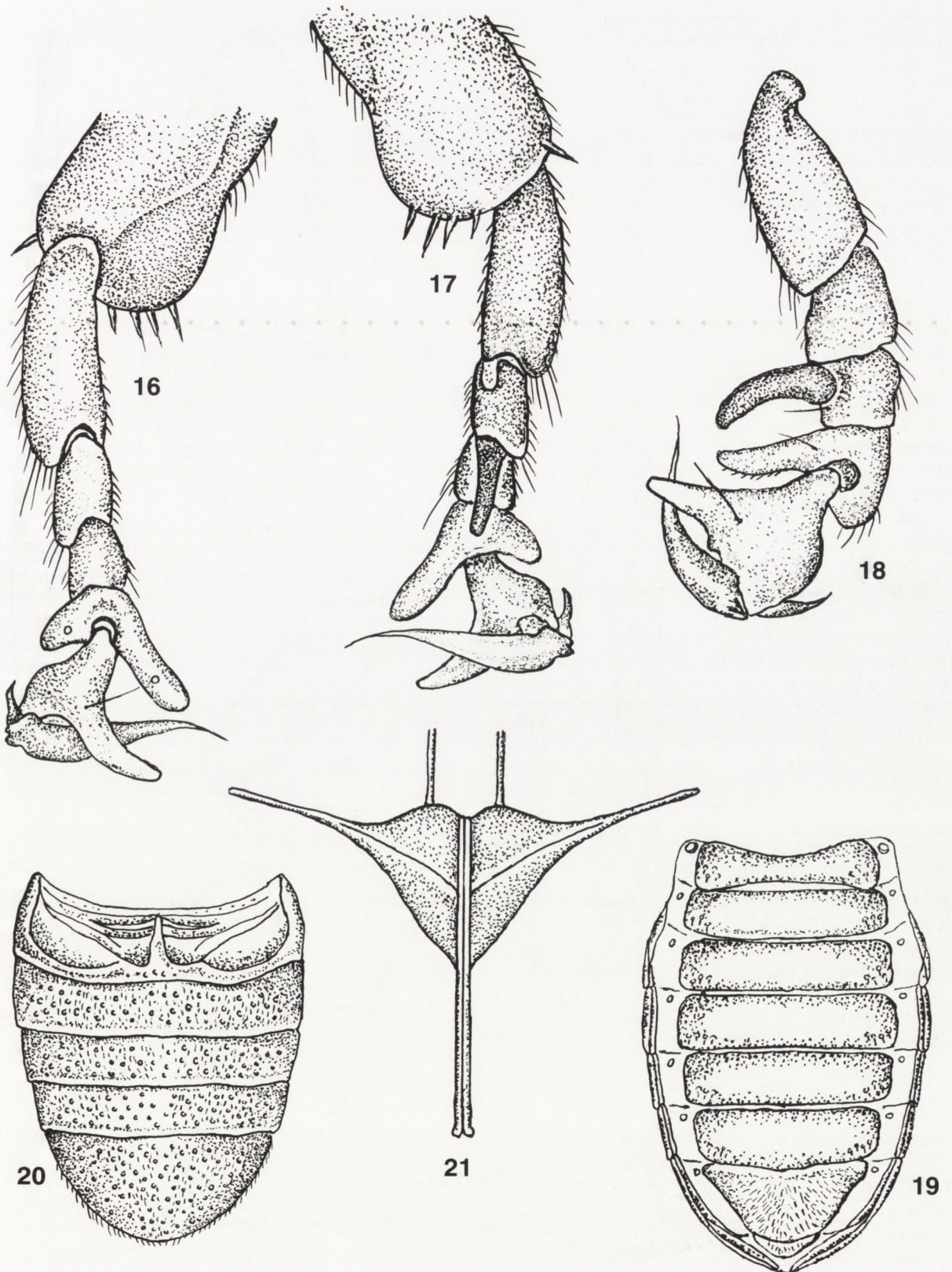
lelsided, gradually narrowing posterad, jointly rounded at apex. Elytron with 9 impressed, distinctly punctuate striae; intervals almost flat with 2 rows of fine punctures anteriorly and single row posteriorly; epipleuron visible laterally, broad at base, abruptly narrowing at level of hindcoxa, incomplete at very apex.

Wing (Fig. 12) 2.4 times as long as wide with distinct anal lobe, posterior margin with fringe of hairs; venation reduced, devoid of cross-veins and cells; costa visible at base only, cubitus strong and evenly arched, anal vein weak but distinct; darker radial stripe narrow, medial stripe, two narrow and one larger subcubital stripes near cubitus darker than the radial one.

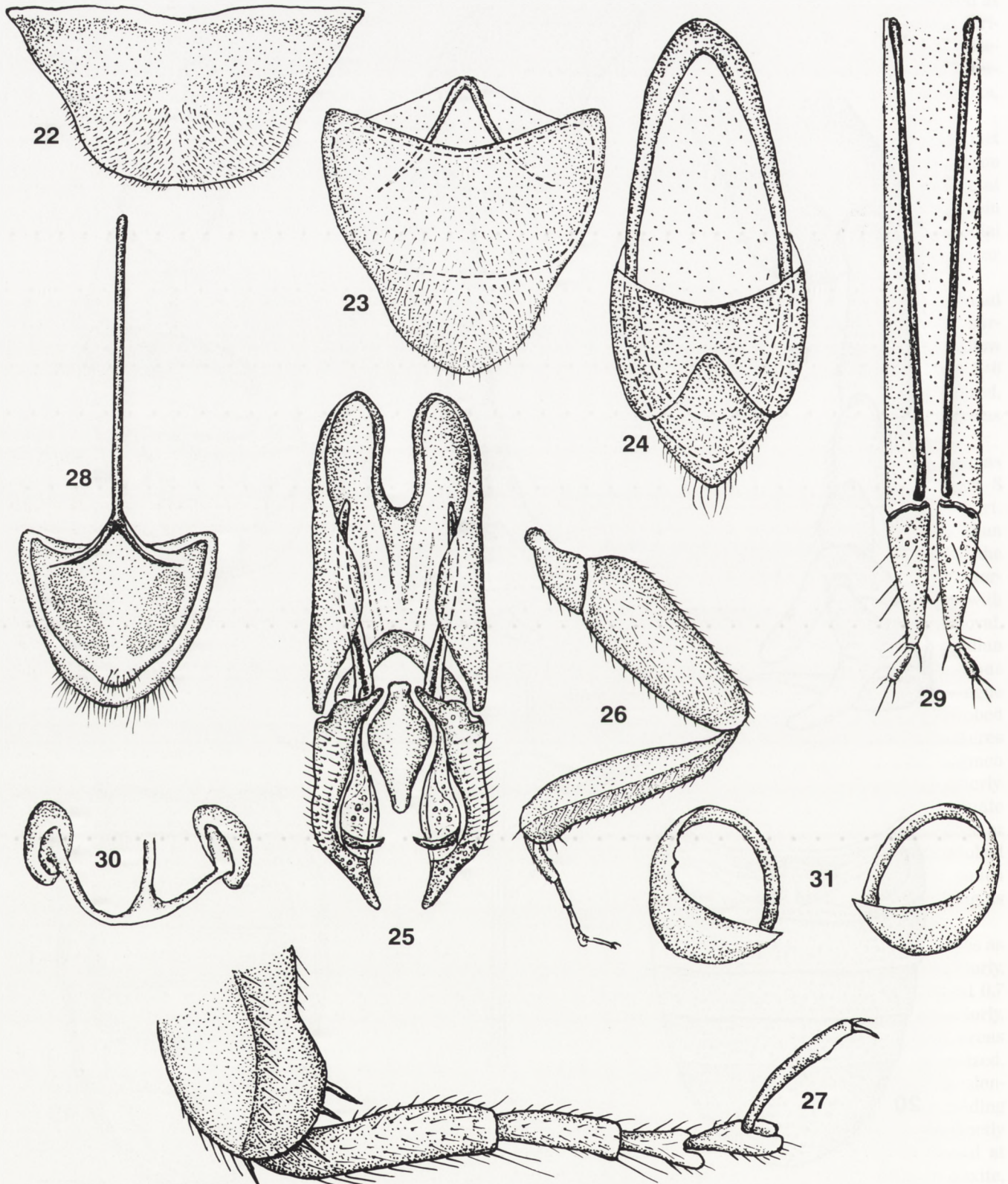
Abdomen (Figs 19, 20) about 1.1 times as long as broad at base composed of 5 ventrites; sutures complete; surfaces punctuate and setose. Tergite 1 with two shallow impressions, narrow and lightly sclerotized; tergites 2–6 large, feebly sclerotized, 7 and 8 heavily sclerotized, setose and rounded apically. Tergite 7 (Fig. 22) 0.5 times as long as wide, subtriangular, densely pubescent.

Male terminalia. Tergite 8 (Fig. 22) 0.5 times as long as wide, trapezoidal, broadly rounded apically; sternite 8 (Fig. 23) shallowly emarginate anteriorly with short, arched process. Tergite 9 (Fig. 24) slightly broader than long, posterior margin deeply emarginate apically, the outer part on both sides free while medially fused with tergite 10; anterior corner connected by a short process with sides of sternite 9. Sternite 9 (Fig. 24) slender and suboval, liguliform posteriorly, about 3 times as long as median width, sclerotized laterally with flexible membranous median part, densely pilose posteriorly. Tergite 10 tongue shaped, flat and pilose apically. Aedeagus (Fig. 25) trilobed type, flattened horizontally; tegmen including parameres about as long as combined length of ventrites 3–5; tegmen 2.2 times as long as wide, deeply emarginate anteriorly. Paramera about 3 times as long as wide, slightly arcuate laterally and then strongly narrowing apically, rounded at apex; surfaces with lateral rows of short setae and hooked acute process; parameral struts present. Penis much shorter than paramera, pear shaped, 2.5 times as long as wide, stout basally, narrowed apically, blunt at apex.

Female terminalia. Tergite 8 (Fig. 28) about 0.8 times as long as wide, subtriangular, slightly emarginate anteriorly, posteriorly rounded, setose dorsally. Sternite 8 about 0.7 times as long as wide, triangular, biemarginate anteriorly, rounded and setose posteriorly; surface with lateral areas of spinulae; anterior medial process heavily sclerotized, about twice as long as sternite. Ovipositor (Fig. 29) slender, about 7 times as long as wide across baculi, excluding baculi lightly sclerotized; coxites subtriangular, distinctly narrowing apically, about 3.5 times as long as broad at base; styli subcylindrical, about 0.3 times as long as coxite, slightly enlarged and setose apically. Bursa copulatrix with a pair of sclerotized annular processes (Fig. 30); one pair of accessory glands (Fig. 31) bearing two lateral ducts join a common duct which opens into the vagina.



Figures 16–21. *Aulonothroscus laticollis*, male. (16) Apex of midtibia and tarsus, dorsal; (17) same, ventral; (18) midtarsus, lateral; (19) abdomen, dorsal; (20) abdomen, ventral; (21) metendosternite.



Figures 22-31. *Autonothroscus laticollis*. 22-25. Male. 26-31. Female. (22) Tergite 8; (23) sternite and tergite 8, ventral; (24) sternite 9 and tergite 9-10; (25) aedeagus. (26) mid leg; (27) mid tibia and tarsus; (28) sternite and tergite 8; (29) ovipositor; (30) processes in bursa copulatrix; (31) spermathecal accessory glands.

Type material. Holotype ♂: "Throscus nov. sp. Kłaj 25/5/ laticollis mihi [underside]/ Galicya zach. Kłaj M. Rybiński/ 17/5333/ ex coll. Rybiński Inst. Zool. P.A.N. Kraków 34/57/ Aulonothroscus laticollis (Rybiński) det. B. Burakowski 1969/ Holotype". Aedeagus is dissected and placed on the same pin in a drop of Canada balsam.

Remarks. In general the holotype agrees well with original description, but the actual length of body is 3.4 mm instead of 4 mm as provided by Rybiński. The illustrations provided by Rybiński (1902 and 1902a) disagree with the holotype showing midtarsi simple as in female, while these are modified as described above.

Other material examined. Poland, Puszcza Białowieża (Białowieża Primeval Forest): Białowieża, 25 V 1912, (as *Throscus brevicollis*), coll. Sz. Tenenbaum (1♂MiZW); Section No. 370, *Tilio-Carpinetum*, 10 VI 1959, leg. H. Szczepański (1♂MiZW); Rezerwat Krajobrazowy (Reservation Landscape Forest), 21 VI 1991 (2♀JK); Section 368A, *Tilio-Carpinetum*, 21 V 1993 (1♂JG); Section No. 521D/B, *Calamagostrio-Piceetum*, 21 V 1993, 1 male, 4 VI 1993, 2 males, coll. JG; Białowieża National Park: 15–27 VI 1991 (3♀LB); Section No. 402, *Quercetum-Betuletum*, 23 VI 1991 (1♀JK); Section No. 314/340, *Circaeo-Alnetum*, 11 VI 1994 (3♂, 2♀LBMO); Section No. 399C, *Tilio-Carpinetum*, in Moericke trap, 7, 21 V 1993 (2♂JG); Section No. 288C/318A, *Calamagostrio-Piceetum*, in Moericke trap 1 VI–2VIII 1994 (13, 1 JG).

Distribution. As currently known, besides its type locality, this species is known only from Croatia (Reitter 1911) and two eastern provinces of Finland (Hellén 1939). The locality in the Białowieża region is the only one in the Central Europe. This species is not mentioned in the key (Lochse 1987) or the checklist (Lucht 1987) to the central European species of Throscidae.

Biology and ecology. The bionomics is almost unknown, except that this species has been collected by beating lower vegetation. It was several times taken in Moericke's pitfall traps in forest stands. Rybiński (1897) states in the original description, that the type specimen had been found on *Pinus silvestris*. This species is very rare and local, and it can be found mostly in primeval forests. The beetles inhabit a variety of mixed forests. In Białowieża the specimens were collected in a mixed forests with a dominance of *Quercus*, *Carpinus*, *Betula*, *Tilia* and *Pinus*. Adults have been collected from May through July, and were most frequently taken in biotopes of *Calamagostrio-Piceetum* and *Tilio-Carpinetum* and occasionally in *Circaeo-Alnetum*.

These beetles are extremely compact, the head withdrawn into the prothorax, and when disturbed, are capable to retract their appendages and remain motionless for some time. They possess the power of leaping where lying on their bark like the manner of *Trixagus dermestoides* (L.) (Burakowski 1975). Mechanism of leaping is connected with a considerable mobility of the articulation between the prothorax on the posterior part of the body. It appears

as a straight upward hop in consequence of sudden stroke of prosternal process into the mesosternal fossa. The beetles are strong flyers, especially the male during making researches of the female, these falling into Moericke traps which were located 1 m above ground.

The mating of *A. laticollis* seems to differ from that of *Trixagus dermestoides* (L.) as observed by Burakowski (1975) where a male is not climbing a female, but stands on the substratum, drawing its body obliquely and little behind to female. Judging from the aedeagus type and the midtarsal modification of male of *A. laticollis* the copulation in that species occurs probably with the male firmly mounted on the female dorsum.

Larvae and their habitat remain unknown, but it seems, that the larvae probably are soil inhabitants, and feed on the external stratum of ectotrophic mycorrhizal roots of trees, similar as larva *T. dermestoides* (L.) (Burakowski 1975).

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