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## A new species of *Brachysomus* from Poland (Coleoptera: Curculionidae: Entiminae)

MAREK WANAT<sup>1</sup> and MIECZYSLAW MAZUR<sup>2</sup>

<sup>1</sup>Museum of Natural History, Wrocław University, Sienkiewicza 21, 50-335 Wrocław, Poland;  
wanatm@biol.uni.wroc.pl

<sup>2</sup>Department of Invertebrate Zoology and Parasitology, Pedagogical University, ul. Podbrzezie 3,  
31-054 Kraków

ABSTRACT. *Brachysomus polonicus* n. sp. is described from two localities in SE Poland. It is most similar to *B. verae* KOŠTÁL and *B. zelichi* FORMANEK, both from Eastern Carpathians. A key to the species of *Brachysomus* recorded from Poland is given.

Key words: entomology, taxonomy, Insecta, Coleoptera, Curculionoidea, Curculionidae, Entiminae, *Brachysomus*, new species, key to species, Poland

The genus *Brachysomus* comprises about 35 apterous, terricolous species of minute adelognathan weevils distributed in Western Palaearctic. A considerable number of species are concentrated along lower altitudes of the Carpathians, many are very local and restricted to particular calcareous ranges or steppe and forest-steppe refuges in Central & Eastern Europe. Members of the group are probably all polyphagous, possibly even saprophagous, feeding on decayed leaves. Many have cryptic life habits and the basic method for their collecting is sifting litter and plant debris. Several species have been very recently discovered in Central Europe, or resurrected from synonymy after revisions of museal materials (KOŠTÁL 1991, 1991b, 1992; BENEDIKT 2001).

In 1993 and 1994 during our independent field research in one of the most valuable Polish refuges of xerothermophilous fauna & flora, the slopes of the Bug river valley in Gródek near Hrubieszów, we collected a considerable number of unknown *Brachysomus* specimens. They were completely different from *B. strawinskii*, for which that place is the type locality (CMOLUCH 1961). The

species was unlike any of those *Brachysomus* members hitherto known from Poland and adjacent countries. After long-lasting taxonomic investigation the species finally turned out new to science, and its description is given below. The species was recorded as *Brachysomus* sp. in the recently issued checklist of the weevils of Poland (WANAT & MOKRZYCKI 2005).

***Brachysomus polonicus* n. sp.**

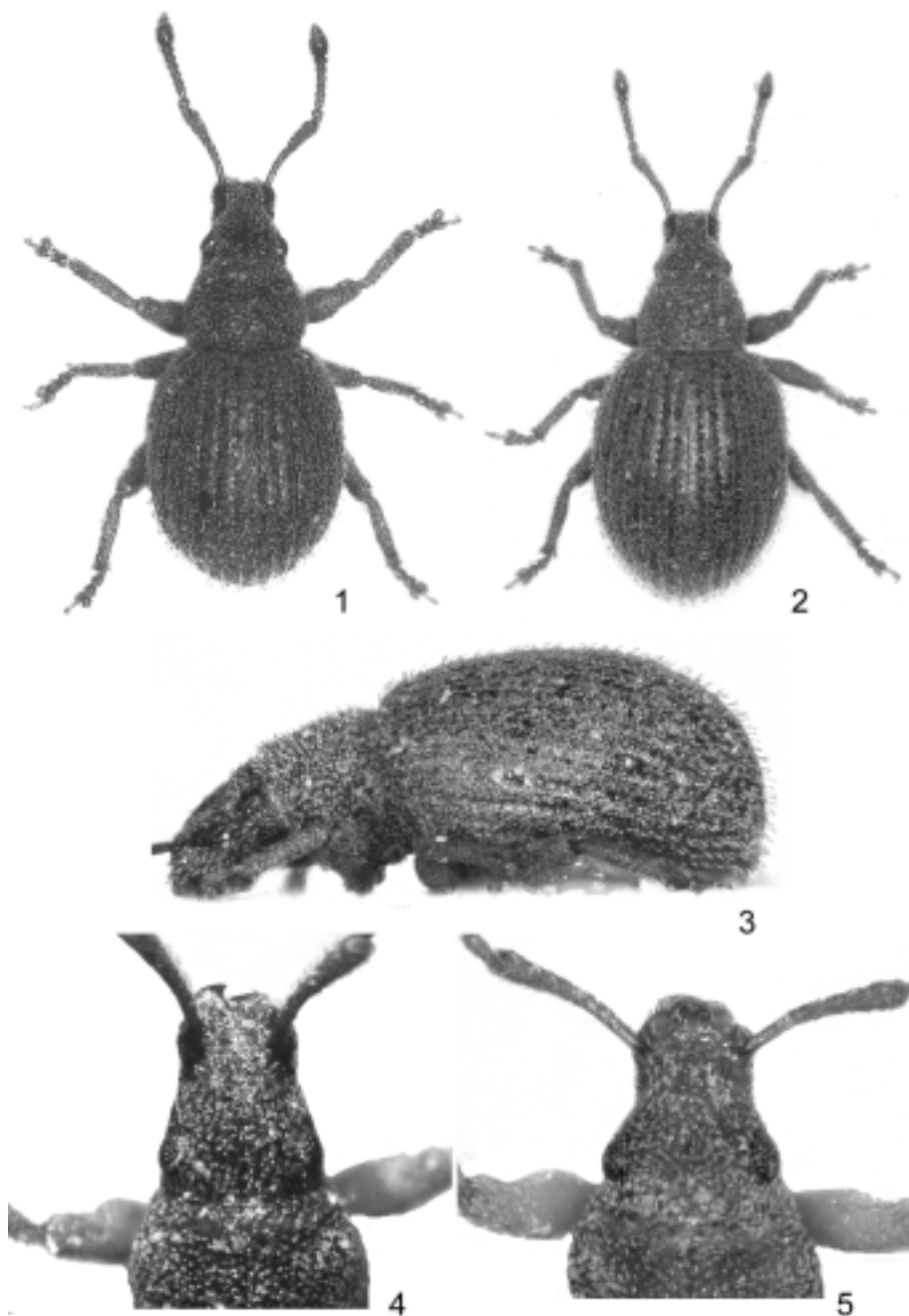
TYPE MATERIAL

Holotype (male): "PL, GB03, Gródek ad Hrubieszów, 7.6.1997, leg. M. Wanat" (coll. Museum of Natural History, Wrocław University - MNHW). Allotype f: same data as holotype (coll. MNHW). Paratypes (465 exs): Gródek near Hrubieszów (UTM: GB03): 24 V 1985, 5 exs, 25 V 1987, 1 ex., 26-27 VI 1997, 15 exs, 21 VI 2001, 127 exs - leg. et coll. M. Mazur; 26 V 1994, 39 exs, 27 V 1994, 59 exs, 28 V 1994, 24 exs - leg. L. Borowiec, coll. J. Kania (23 exs), leg. et coll. J. Szypuła (99 exs); 22 VI 1994, 38 exs, 23 VI 1994, 10 exs, 24 VI 1994, 7 exs, 25 VI 1994, 128 exs, 26 VI 1994, 4 exs - leg. et coll. M. Wanat (105 exs) & J. Szypuła (82 exs); 7 VI 1997, 1 ex. - leg. et coll. M. Wanat; Czumów near Hrubieszów (GB02), 24 VI 1994, 4 exs, leg. et coll. M. Wanat; Łuczyce near Przemyśl (FA31), 29 VI 1995, 3 exs., leg. et coll. J. Szypuła (1 ex.) & J. Kania (2 exs).

DIAGNOSIS

Among the members of the FORMÁNEK's (1905) '1st species group' (the *transsylvanicus* - species group by KOŠTÁL 1992), characterised by indistinct, broadly open antennal scrobes, and antennal pits well visible in dorsal view, *B. polonicus* seems to be closest related to *B. verae* KOŠTÁL (holotype and paratype examined, both males), from which it differs in thicker antennae, especially the funicle with the 1st segment isodiametric and the 2nd one less than 1.5 × longer than wide (the 1st one ca. 1.5 ×, the 2nd one almost twice as long as wide in *verae*), subconical rostrum (Fig. 4) levelled with the frons (concave on sides in dorsal view (Fig. 5), and with well visible in profile transverse impression separating rostrum from the frons in *verae*), longer protruding elytral setae, much longer and narrower aedeagus (3.5-4.0 × longer than wide, vs. 2.5 × in *verae*), not expanded in basal half as in *verae*. The same differences in regard of antennae and rostrum + head structure concern *B. mikati* KOŠTÁL, which additionally has stronger curved antennal scape, more elongate elytra and distinctly longer erect elytral setae.

Another related species is *B. zellichi* FORMÁNEK (holotype + 2 paratypes examined), having similar head structure and body vestiture. The new species differs from *zellichi* in thicker and regularly arched scape (angled in the middle in *zellichi*), scrobes not edged ventrally (distinct, complete edge present in *zellichi*), slightly smaller and lower positioned eyes, smaller body, relatively smaller elytra compared to pronotum, the latter less transverse.



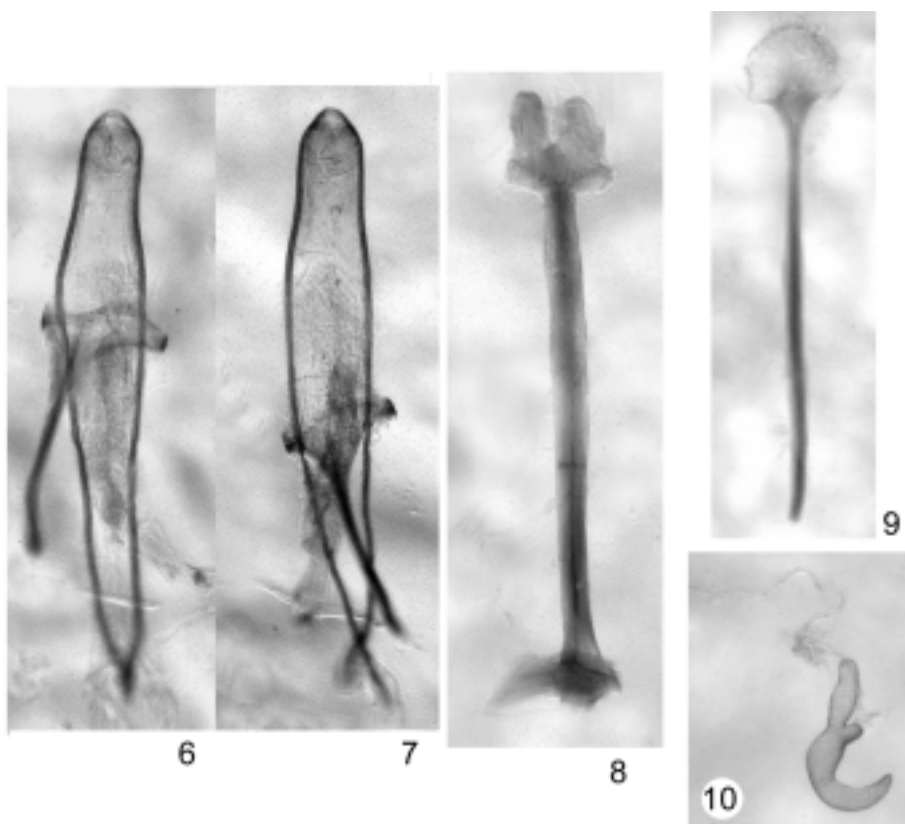
1-3. *Brachysomus polonicus* WANAT et MAZUR: 1 - holotype male, habitus; 2 - allotype female, habitus; 3 - allotype female, body profile; 4, 5. Head in dorsal view: 4 - *Brachysomus polonicus* WANAT et MAZUR, holotype male; 5 - *Brachysomus verae* KOŠTÁL, paratype male

The differences of *polonicus* from *B. carpathicus* KOŠTÁL (2 paratypes studied), with which it shares the structure of scrobes, concern shorter antennal segments and darkened club, much wider and subconical rostrum (in *carpathicus* rostrum is parallelsided on most length, thus distinctly "separated" in head outline), much smaller and more prominent eyes (weakly convex in *carpathicus*), slightly smaller elytra/pronotum proportions, and slightly shorter protruding elytral setae.

*B. polonicus* is also characteristic in having nearly always darkened antennal club (excepting only a few of the studied females), while all the other above mentioned species have the club testaceous and concolorous with the remainder of antenna.

#### DESCRIPTION

Body 1.65-2.35 mm long (head excluded), dull brown; legs and antennae lighter, testaceous, only antennal club darkened. Body vestiture consisting of



6-10. *Brachysomus polonicus* WANAT et MAZUR (paratypes): 6, 7 - aedeagus, variation; 8 - male 9th sternite; 9 - female 8th sternite; 10 - spermatheca

small, broad, subpentagonal, grey-brownish scales densely, but not completely covering integument; head and pronotum with minute, slightly forward directed erect scale-like setae; elytral intervals each with single row of raised, stout, cream setae slightly dilated apicad, about half as long as interval's width on elytral disc and slightly longer on elytral declivity; legs entirely covered with short, semirecumbent setae.

Rostrum 0.83-0.92 as long as wide at its base, distinctly narrowing apicad, on most length forming uniform cone with head, on less than distal half parallel-sided (Fig. 4); apical part strongly declining, flattened or concave, labral margin heavily emarginate; dorsum with complete, broad and very shallow median furrow; antennal pits large, dorsal, forming typical 'otiorhynchine' pterygia open posteriad, poorly outstanding from rostrum outline when viewed from above; scrobes of 'otiorhynchine' type, indefinite, broadly open and not margined, almost entirely covered with punctures and scales; disc and sides of rostrum with very dense, irregular, scalariferous punctures.

Antennae short and stout; scape regularly arched; funicular segment 1 subisodiametric, segment 2 distinctly narrower,  $1.15-1.35 \times$  longer than wide, segments 3-7 all wider than long, the 7th one up to  $1.50 \times$ ; club nearly always darker than funicle, small, as long as four distal funicular segments combined,  $1.65-1.75 \times$  longer than wide; funicular setae relatively long, but weakly protruding.

Eyes minute, ca. 8 ommatidia per diameter, round, seemingly elongate due to crescentic impressions adjoining their front margins, strongly convex, based very low on head profile (almost in the mid-rostrum height level, see Fig. 3). Frons evenly convex in cross-section, levelled with rostrum surface; punctures on the frons confluent into several indistinct and irregular sulci (more distinct in males).

Pronotum 0.71-0.79 as long as wide, rounded at sides, widest in about middle; apical constriction very weak, on dorsum marked with slight, completely transverse depression; disc very weakly convex, its sculpture irregularly reticulate due to almost adjoining, somewhat polygonal puncturation, punctures double ommatidium in average size; prescutellar fovea absent; pronotal base lower than that of elytra (Fig. 3).

Elytra short, regularly rounded, in both sexes  $1.25-1.35 \times$  longer than wide, moderately convex along disc (Figs 1-3); striae narrow, weakly impressed, partially obscured by scales; intervals 3-4  $\times$  wider than striae, flat, with shiny, impunctate integument.

Ventral side of thorax coarsely punctured, in the middle of metasternum punctures transversely confluent; intermesocoxal septum prominent. Ventrite 1 densely punctured, its posterior margin bi-sinuate; ventrites 2-5 shiny, much finer punctured.

Legs short, robust; femora distinctly swollen; tibiae thick, cylindrical, protibia  $0.82-0.88$  as long as pronotum; tarsi very short, basal segment isodiametric, the 2nd one strongly transverse, onychium thin, exceeding 3rd segment by ca. 0.5 length; claws connate.

Male. Body length 1.65-2.00 mm. Rostrum slightly shorter compared to pronotum (length ratio 0.69-0.73). Frons usually slightly narrower than apex of rostrum,  $1.79-1.93 \times$  wider than septum between antennal pits. Elytra smaller,  $2.59-2.79 \times$  longer, and  $1.56-1.64 \times$  wider than pronotum (Fig. 1). Ventrite 1 slightly concave in the middle. Sternite 9 as in Fig. 8. Aedeagus relatively soft,  $3.5-4.0 \times$  as long as wide, variably widened in basal half, with narrowed apical half, rounded apically (Figs 6, 7).

Female. Body length 1.80-2.35 mm. Rostrum/pronotum length 0.72-0.77. Frons usually slightly wider than apex of rostrum,  $1.67-1.88 \times$  wider than septum between antennal pits. Elytra larger,  $2.77-3.11 \times$  longer and  $1.69-1.78 \times$  wider than pronotum (Fig. 2). Ventrite 1 gently convex. Ovipositor very long. Spiculum ventrale shaped as in Fig. 9. Spermatheca with enlarged, long bulbus (Fig. 10).

#### BIONOMICS

In both known localities *B. polonicus* seems to be strictly confined to open xerothermophilous grasslands developed on loess soils. Although occurring in Gródek on the same slopes with *B. strawinskii*, the new species prefers much drier places, with less developed vegetation, and only exceptionally both these species can be collected on the same square meter. During wet days *B. polonicus* can be sometimes found in number walking on bare loess steeps and ground, or aggregated in pits dug by men. During hot days the weevils hide in soil crevices or under broad leaves adjoining the ground, of plants like *Verbascum* (often *V. phoeniceum* L.) and *Plantago* spp. It has never been collected by sweeping vegetation. Such habits evidently suggest nocturnal activity of the beetles.

#### ETYMOLOGY

Named after Poland, the source country for entire type series.

#### KEY TO SPECIES OF *BRACHYSOMUS* OCCURRING IN POLAND

1. Protruding setae on elytra about as long as maximum interval's breadth or longer, straight erect ..... 2.
- Protruding setae on elytra inconspicuous, triangular scale-like, at most half as long as maximum interval's breadth, curved down ..... 5.
2. Sides of pronotum with a band of broad, short-oval, whitish scales, sharply contrasting with the darker sides of disc covered with piliform, testaceous scales. Elytra strongly convex; erect setae dense, nearly as long as 1.5 interval's breadth, equally and relatively thick on entire length; intervals with numerous comma-like, simple, recumbent scales. Parthenogenetic. Eurytopic, common throughout Poland ..... ***B. echinatus* (BONSDORFF)**
- Sides of pronotum not distinctly lighter than sides of its disc, at most with condensed scales of similar shape. Elytra less inflated; erect setae different. .... 3.

3. Recumbent scales on the body bifurcate; erect setae on elytra sparse, spatulate. Pronotum strongly narrowing basad, with distinct subapical constriction and transverse depression along basal margin. Antennae slender; scape slightly sinuate. Parthenogenetic. Forest undergrowth and litter. In the vicinity of Przemyśl (SE Poland); moreover only 150 years old record from Upper Silesia, and another doubtful one from the vicinity of Warsaw ..... ***B. hirtus* (BOHEMAN)**
- Recumbent scales on the body simple; erect setae on elytra much denser, piliform. Pronotum weaker narrowing basad, with obsolescent subapical constriction, flat along basal margin. Antennae much thicker; scape gently arched or angled ..... 4.
4. Elytra black, almost completely devoid of recumbent scales; erect setae hair-like, whitish, distinctly longer than maximum interval's breadth. Antennae unicolorous. Legs slender; protibia with minute apical spine. Occurrence in Poland doubtful, no records in the last 100 years, old ones possibly based on misidentifications ..... ***B. villosulus* (GERMAR)**
- Elytra dull brown to testaceous, with numerous, variable in shape, recumbent or semirecumbent scales along all intervals; erect setae denser, shorter and thicker, about as long as maximum interval's breadth. Antennal club usually darkened. Legs robust; protibia without apical spine, at most with prominent tuft of setae. Uncommon in South and Central Poland, in the North only along the Vistula river, mostly in xerothermic habitats ..... ***B. setiger* (GYLLENHAL)**
5. Raised scale-like setae on elytra about half as long as interval's breadth. Head with rostrum subconical; pterygia distinct; scrobes obsolescent, not margined. Eyes minute and prominent, 7-8 ommatidia per length. Xerothermophilous, on loess soils. Two localities in SE Poland ..... ***B. polonicus* n. sp.**
- Raised scale-like setae on elytra 3-4 × shorter than maximum interval's breadth, not much longer than recumbent scales. Rostrum well separated from head outline; pterygia absent; scrobes distinct, with sharp ventral margin. Eyes larger and less convex, 10-12 ommatidia per length ..... 6.
6. Recumbent scales on elytral intervals rounded, numerous, well covering integument; raised scale-like setae barely longer, broadly triangular, well visible only when elytra are viewed in profile. Antennal funicle thicker, its 2nd segment subisodiametric, the 3rd evidently transverse. Aedeagus at most 2.5 × longer than wide, gently narrowing and rounded apically. Xerothermophilous, on loess soils. Only in Poland (two localities in Lublin Upland and Roztocze) and Ukraine (MAZUR 2002) ..... ***B. strawinskii* CMOLUCH**
- Recumbent scales on elytral intervals distinctly elongate, much finer and sparser, leaving integument largely uncovered; raised setae about twice as long, narrowly triangular. Antennal funicle more slender, its 2nd segment elongate, the 3rd isodiametric. Aedeagus at least 3.5 × longer than wide, tapering from base or from mid-length, pointed apically ..... 7.

7. Aedeagus widest in about the middle, usually slightly asymmetrical at base, tapering and sharply pointed apically, in profile angled in the middle, apically straight. Elytra bluntly rounded apically. Occurrence in Poland uncertain, the only old records from Silesia should be confirmed .... ***B. subnudus* (SEIDLITZ)**
- Aedeagus widest at base, tapering and bluntly-pointed apically, in profile weakly, regularly curved, with slightly downcurved apex. Elytral apex slightly acute in dorsal outline. Forest undergrowth and litter. Known only from the vicinity of Przemyśl (SE Poland) ..... ***B. dispar* PENECKE**

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