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## Description of a larva of *Phloeostichus denticollis* Redtenbacher, 1842 (Coleoptera, Phloeostichidae)

by Jiří Kolibáč

**Abstract.** A larva of *Phloeostichus denticollis* Redtenbacher, 1842 is described and figured.

**Key words.** Coleoptera – Cucujoidea – Phloeostichidae – *Phloeostichus denticollis* Redtenbacher, 1842 – larva – morphology

### Introduction

*Phloeostichus denticollis* Redtenbacher, 1842 is the single European species of the primitive cucujoid family Phloeostichidae. Its larva was observed and described for the first time by WEISE (1897), unfortunately without illustrations. For approximately a hundred years, the larva has not been examined again. In their identification program, LAWRENCE et al. (1999) coded characters of the larva of that species using a slide with a larva collected by R. A. Crowson in Slovenia (“Bohinj Gorenicko, 30.vi.1960, under bark of dead beech”), however, again without illustrations. Curiously enough, Crowson himself did not use that specimen when preparing his communication about the Phloeostichidae in which some larvae of this new family were also described (SEN GUPTA & CROWSON 1969).

In this communication, the larva of *P. denticollis* is described and some body parts are illustrated for the first time.

### Larva of *Phloeostichus denticollis*

**Material examined.** Two specimens, probably 2nd instar: “Czechia, N Moravia, Beskydy Mts, Travný Nature Reserve: 49.33.19N - 18.31.18E - 939 m, 05.vi.2002, Jiří Kolibáč leg.”. Deposited in J. Kolibáč coll. (Moravian Museum, Entomology), container no. JKS-14.

**Description** based on two larvae of probably the second instar (body size 2.5 and 3 mm).

**B o d y** whitish, cuticle semitransparent. Head capsule and urogomphi sclerotized, yellowish. Thorax and abdominal segments I–VIII with relatively sparse and short pubescence. Urogomphi with several long hairs. Body outline in Fig. 11.

**H e a d.** Capsule relatively large, rectangular; its dorsal side sparsely ciliate (Fig. 1). Median endocarina and epicranial stem absent. Frontal sutures lyriform, strongly curved; their bases connected each other. Frontoclypeal suture absent. Stemmata present in pattern 3+2 (in upper row, 2 stemmata conspicuous but the third indistinct). On each side, two longitudinal pigmented spots present under stemmata, within capsule. Base of capsule emarginate at dorsal side. Gular sutures long, convergent (Fig. 2). Hypostomal

rods inconspicuous, probably absent. Divided tendon connecting maxilla with gular suture, shown in Fig. 2).

Mandibles symmetrical, their apex with two large teeth. The third tooth is smaller and situated under the two apical ones. Mola absent; prostheca large, comb-like (Fig. 3).

Labrum very small, with long setae along apical margin dorsally. Sclerotized plate occurs at base of labrum; it is connected by two thin tormal processes (Fig. 4).

Labium (Fig. 5) with conspicuous mentum and prementum. Labial palpi 2-segmented. Ligula minute, evenly rounded.

Maxilla with narrow elongate oblique cardo. Mala simple, without spines or denticles, with only several thick setae along inner margin (Fig. 6). Maxillary palpi 3-segmented.

Antenna 3-segmented, with small triangular sensory appendix (sensorium). Terminal segment with long setae (Fig. 7).

**T h o r a x .** Thoracic segments without distinct sclerites or sculpture and without pigmentation; dorsal and ventral side with very sparse pubescence. Prothorax as large as head capsule or a little smaller (i.e. shorter and narrower than capsule). Coxae of all three pairs of legs very widely separated (Fig. 8). Trochanters conspicuous, triangular. Claw (pretarsus) relatively large, with small, blunt denticle at inner side and two setae on this denticle.

**A b d o m e n .** Segments I to VIII with transverse rows of relatively short, fine hairs. Segments simple, with no appendages. Spiracles annular-biforous (Fig. 9). Spiracles in segment VIII functional, the same size as other abdominal spiracles, situated in dorsolateral position.

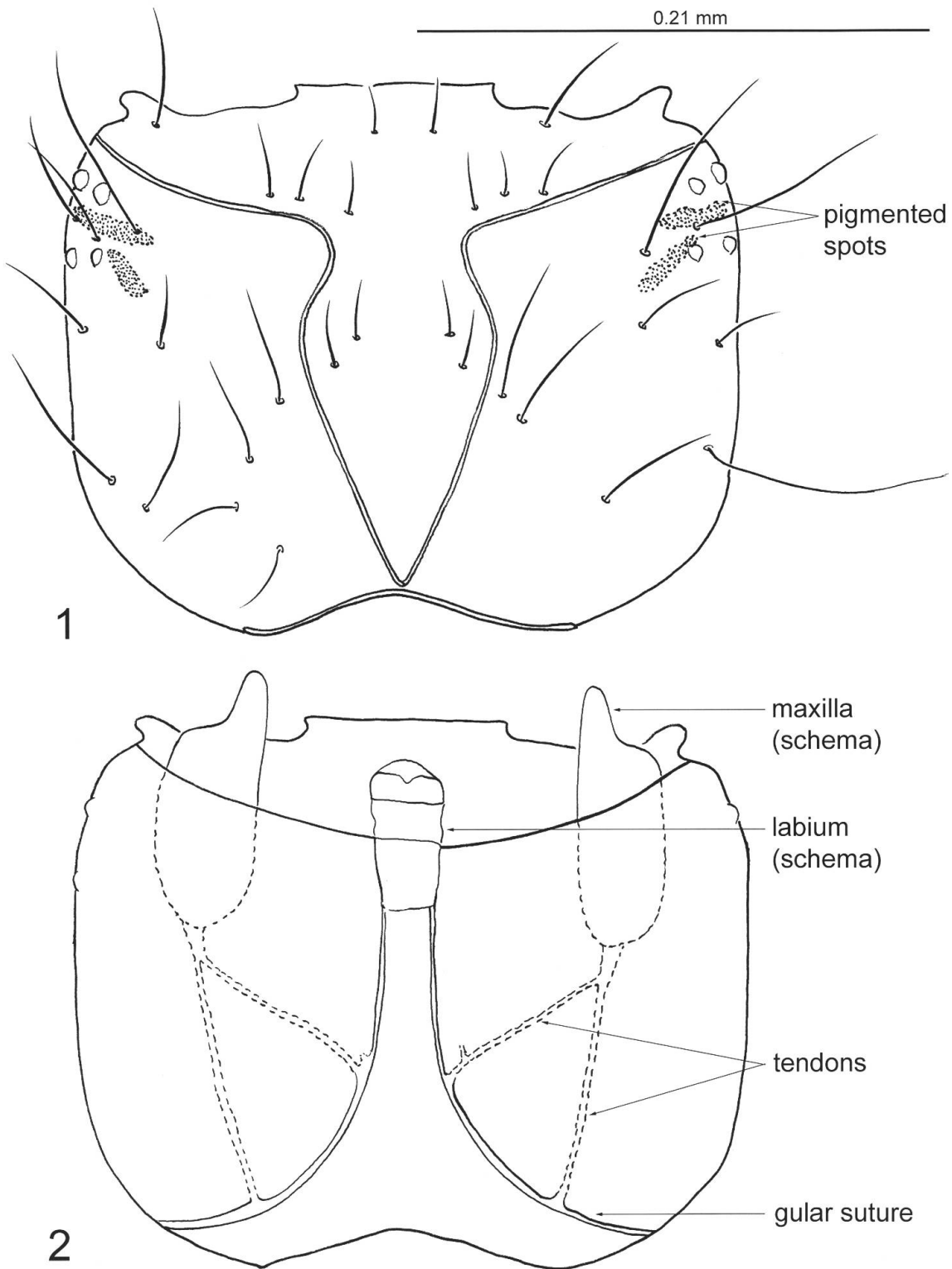
Segment IX with weakly sclerotized dorsal disc from which urogomphi grow outwards. Urogomphi well sclerotized, sharp and hooked, without apodeme or spurs with the exception of a blunt projection at the outer margin near apex. Pit or notch between urogomphi absent, urogomphi widely separated. Each urogomphus with one extremely long and several moderately sized hairs (Fig. 10).

**Biology.** Both the larvae were found under bark scales on a drying maple tree (*Acer pseudoplatanus*), associated with dead adults. Live adults were regularly observed in this tree in winter (December to February), often at temperatures below zero Celsius with snow cover. The adults also live under bark scales or directly under loose bark.

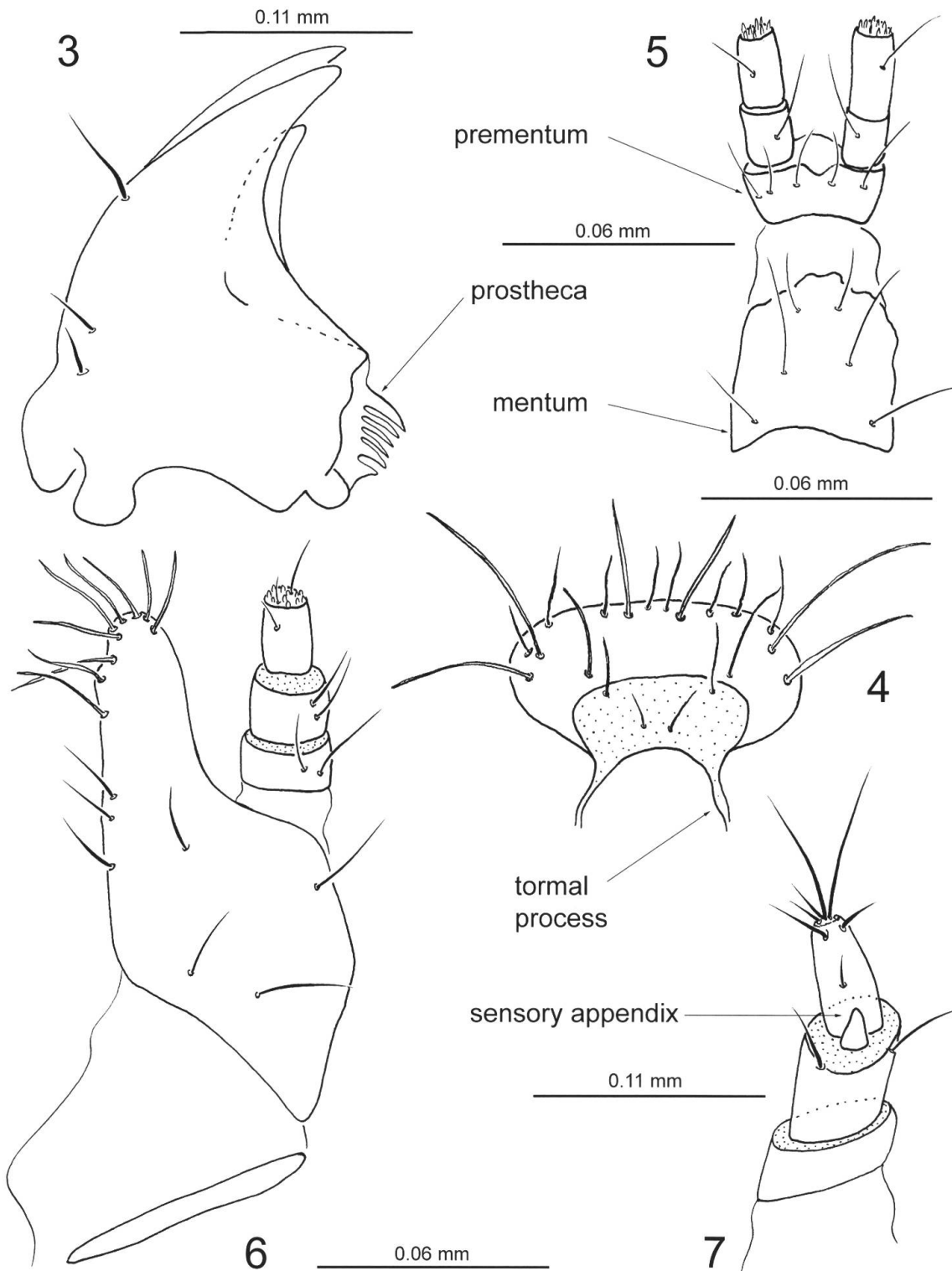
The larva of *P. denticollis* probably feeds on the fine humid detritus containing the mycelia of fungi. Such detritus was found in the gut of the examined specimens.

### Discussion

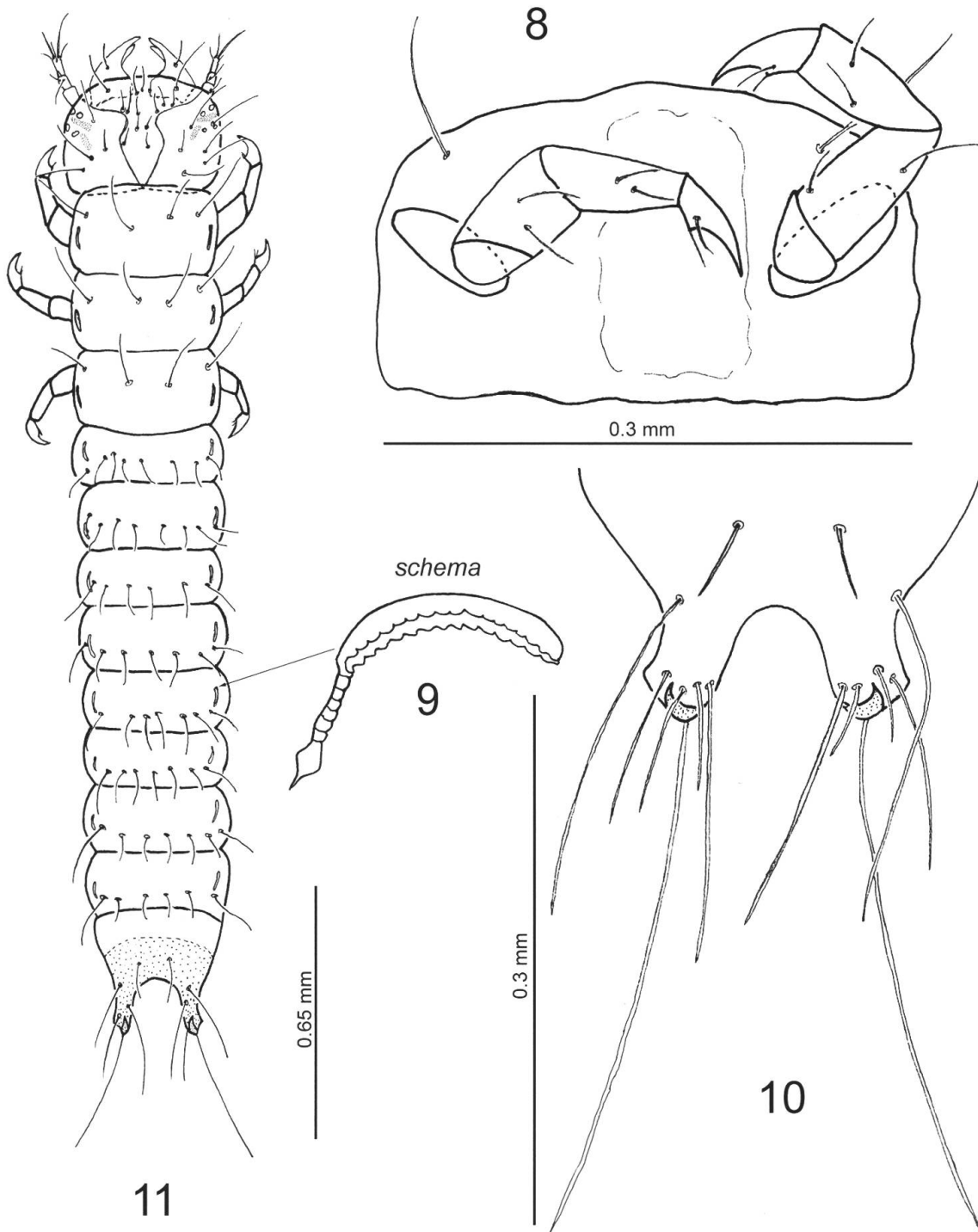
The presented description more or less agrees with the character states listed on CD-ROM by LAWRENCE et al. (1999). In comparison with my description, there are several differences: head capsule narrower than thorax, hypostomal rods short but present, 1 or 2 stemmata in lower row. However, all these differences refer to vague characters (ratio of head to thorax on a slide or a conserved specimen) or to microscopic body parts in which observation of structures is complicated and perhaps also affected by the age of the larva (hypostomal rods).



Figs 1–2. *Phloeostichus denticollis*, larva: 1, head capsule dorsally; 2, head capsule ventrally.



**Figs 3–7.** *Phloeostichus denticollis*, larva: 3, left mandible dorsally; 4, labrum; 5, labium; 6, right maxilla; 7, left antenna dorsally.



**Figs 8–11.** *Phloeostichus denticollis*, larva: 8, prothorax ventrally; 9, abdominal spiracle; 10, detail of urogomphi dorsally; 11, body outline dorsally.

The larvae studied show features that are probably primitive cucujiform, for example: bidentate (or tridentate) mandibles, prostheca present, stemmata in 3+2 pattern, widely separated coxae, pretarsus with two setae, well developed hooked urogomphi, spiracles annular-biforous. One surprising feature is the absence of the mandibular mola which is present in other described Phloeostichidae larvae (SEN GUPTA & CROWSON 1969).

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