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Two New Species of *Bovicola* (Mallophaga: Trichodectidae)

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ABSTRACT: Two new species of *Bovicola* are described and illustrated: *B. multispinosa* collected off *Pseudois nayaur* in Nepal and *B. fulva* off *Ammotragus lervia* in Texas.

Two series of *Bovicola* Ewing sent to us by Dr. Christian Weisser, Zoologisches Institut, University of Heidelberg, Federal Republic of Germany, and Dr. Danny B. Pence, Texas Tech University, Lubbock, Texas, have been found to represent new species. It is our purpose here to describe and illustrate these species.

Bovicola ***multispinosa*** n. sp.
(Figs. 1–3)

Male: As in Fig. 3. Total length 1.63–1.65 mm. Head width at temples 0.40–0.42 mm, length 0.31–0.33 mm; anterior margin slightly concave; basal antennal segment enlarged. Prothorax width 0.36–0.39 mm. Abdomen width 0.42–0.44 mm; with 6 pairs of spiracles; pleural and tergal plates faint but defined. Chaetotaxy with numerous short setae as shown in Fig. 3; cluster of longer setae on each side of tergite II. Ranges of setal counts on abdomen: tergite I 6–8, II–V 50–60, VI 45–55, VII 40–50, VIII 35–40, IX 34–42; sternite II 55–60, III–VII 50–70, VIII 35–40. Terminal abdominal segment with elongated protuberance. Genitalia prominent, 0.73–0.75 mm long, 0.07 mm wide, with pair of long slender parameres as shown in Fig. 2.

Female: As in Fig. 1. Total length 2.12–2.15 mm. Head width at temples 0.52–0.53 mm, length 0.40–0.41 mm; anterior margin flattened; antennae with somewhat enlarged basal segment. Prothorax width 0.45–0.48 mm. Abdomen width 0.55–0.57 mm; much as for male, except for larger pleurites and denser chaetotaxy as shown in Fig. 1. Ranges of setal counts on abdomen: tergite I 7–9, II 70–80, III 75–85, IV–V 85–95, VI–VII 90–105, VIII 70–85, IX 30–34; sternite II–VII 70–85; subgenital plate 55–65.

Holotype male and allotype female from *Pseudois nayaur* Hodgson (Artiodactyla: Bovidae), 20 miles north of Dhorpatan, Nepal, 13 April 1975, collected by P. Wegge, and deposited in the collection of the U.S. National Museum. Paratypes, 40 of both sexes, same data as holotype, with specimens distributed to other major collections.

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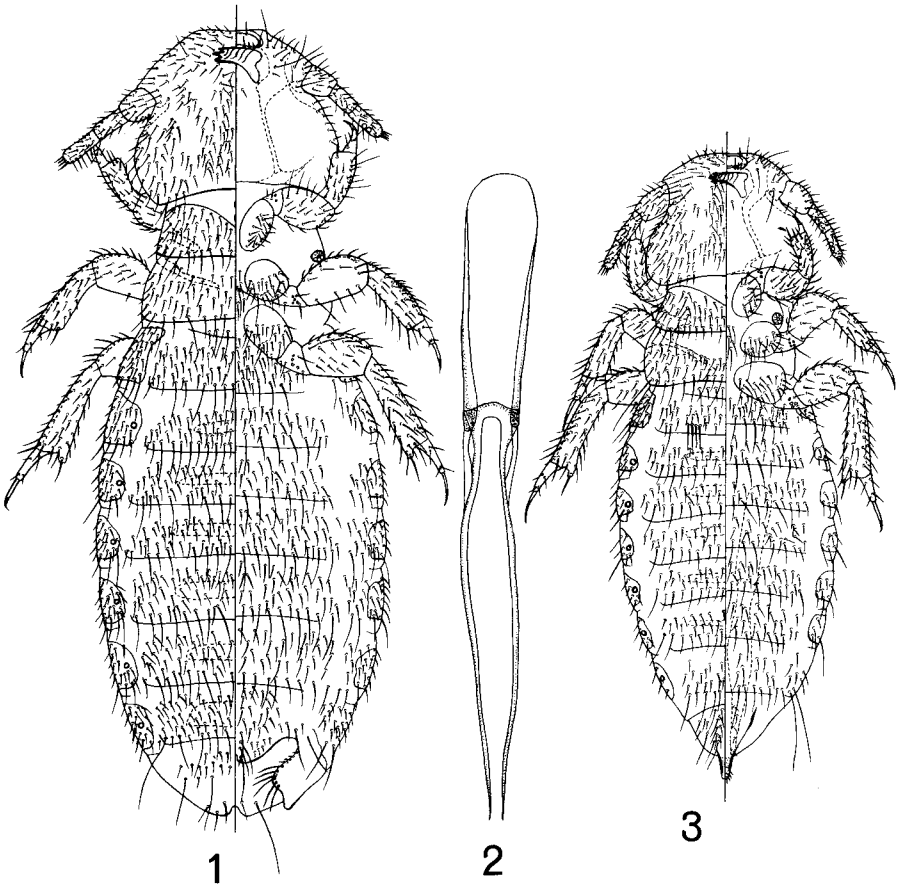

Figs. 1–3. *Bovicola multispinosa*: 1, dorsal-ventral view of female; 2, male genitalia; 3, dorsal-ventral view of male.

Bovicola hemitragi (Cummings, 1916) found on *Hemitragus jemlaica* (Hamilton-Smith), the Himalayan Tahr, and *B. multispinosa* found on *P. nayaur*, the Bharal or Blue Sheep, are closely related; these 2 hosts occupy different ranges in Nepal, and lice were examined from each species of host collected in Nepal. *Bovicola multispinosa* is much larger in all dimensions and has many more setae than does *B. hemitragi*. The male of *B. multispinosa* has at least 10 more setae on each of tergites III–VIII and sternites III–VII; the female has at least 10–20 more setae on each of tergites II–VIII and sternites III–VI.

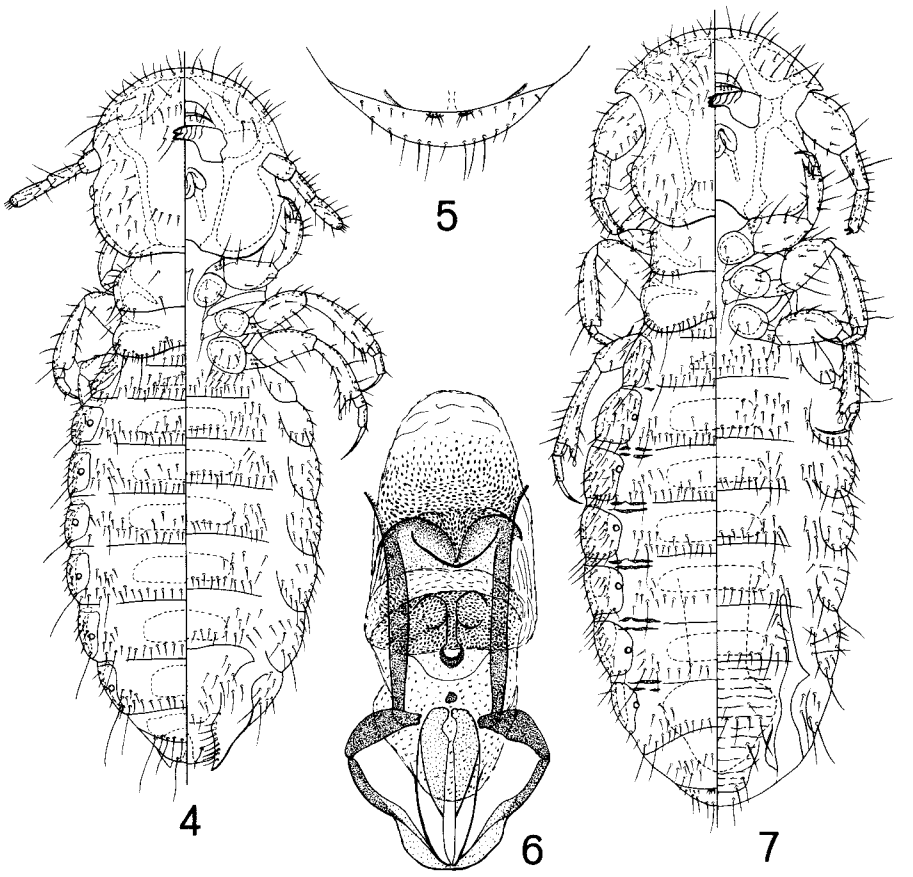

Fig. 4. *Bovicola*, probably *B. neglecta*, from *Ammotragus lervia*, dorsal-ventral view of female. Figs. 5–7. *B. fulva*: 5, dorsal male terminal abdominal segments; 6, male genitalia; 7, dorsal-ventral view of male.

Bovicola ***fulva*** n. sp.
(Figs. 5–7)

Male: As in Fig. 7. Total length 1.94 mm. Head width at temples 0.48–0.49 mm, length 0.45 mm; anterior margin broadly rounded; basal antennal segment greatly enlarged. Prothorax width 0.36–0.38 mm. Abdomen width 0.66 mm; with 6 pairs of spiracles; pleural plates prominent, tergal and sternal plates faint but defined; tergites and sternites, except on terminal segment, with row of small setae on posterior margin and few scattered anterior setae as shown in Fig. 7. Dorsal terminal abdominal segments as shown in Fig. 5. Genitalia 0.52 mm long, 0.29 mm wide, with fused para-

meres and endomeres as in Fig. 6; prominent sac with complicated structures.

Female: Apparently inseparable from that of *B. neglecta* Keler, 1942. Specimen from same host individual with *B. fulva* as shown in Fig. 4, this most likely representing *B. neglecta*.

Holotype male from *Ammotragus lervia* (Pallas) (Artiodactyla: Bovidae), Palo Duro Canyon, Armstrong County, Texas, November 1977, collected by Gary G. Gray, and in the collection of the U.S. National Museum. Paratypes, 5 males, same data as holotype.

Bovicola neglecta and *B. fulva* are both off *A. lervia*, the Aoudad or Barbary Sheep. The male of *B. neglecta* is 1.71 mm long, while that of *B. fulva* is distinctly larger. The genital sac of the male genitalia of *B. neglecta* is without evident internal structure; the sac of the male of *B. fulva* has complicated prominent internal structures (Fig. 6). Further, the male of *B. neglecta* possesses a pair of prominent median dorsal lobes near the posterior end of the abdomen; these lobes are not found on *B. fulva*, but are represented by flattened seta-bearing structures (Fig. 5).

There are other examples of 2 similar species of Mallophaga on the same species of hoofed animals, and apparently the species described here has been overlooked to date. There were 33 males of *B. neglecta* collected at the same time as *B. fulva*; in addition, 37 females and 38 immatures were collected, but we are unable to separate them to species. *Bovicola neglecta* has been previously recorded off hosts maintained in 5 zoological gardens. The animals from which the series reported here was collected originated initially from the McKnight Ranch in eastern New Mexico in 1957–58. Animals on the McKnight Ranch came from 2 sources: the St. Louis Zoo, St. Louis, Missouri, and the Hearst Estate, San Simeon, California.

Recently, Moreby (1978) reviewed the species of trichodectids found on horses, asses, zebras (Perissodactyla) and the aoudad (Artiodactyla) and resurrected the genus *Werneckiella* Eichler for this species group of *Bovicola*. While we accept his conclusion that there is some diversity among species in the genus *Bovicola* as characterized by Werneck (1950), we concur with the generic classification proposed by Werneck for the reasons he gave.

Literature Cited

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