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DESCRIPTION OF A NEW *PHALACROPSYLLA* AND  
NOTES ON *P. ALLOS* (SIPHONAPTERA: HYSTRICHOPSYLLIDAE)

R. B. Eads<sup>1</sup> and E. G. Campos<sup>1</sup>

ABSTRACT.—*Phalacropsylla morlani*, from New Mexico is described as new to science and figured. It is separable from the other species in the genus by the possession of 18 spines in the pronotal comb and by the distinctive shape and setation of the male distal arm of sternum IX. Other species in the genus have 14 to 16 spines in the pronotal comb. Host and distributional records for *P. allos* are given.

The description of *Phalacropsylla morlani* brings to six the number of known species in this montane genus. Other species are *P. paradisea* Rothschild 1915, *P. allos* Wagner 1936, *P. nivalis* Barrera & Traub 1967, *P. hamata* Tipton & Mendez 1968, and *P. oregonensis* Lewis & Maser 1978. Normal hosts of the *Phalacropsylla* are believed to be wood rats, *Neotoma* spp., and closely associated rodents and lagomorphs. A key is provided to aid in separating the species.

*Phalacropsylla morlani*, sp.n.  
(Figs. 1-2)

TYPE MATERIAL.—Holotype male ex *Ochotona princeps* (Richardson), Santa Fe, New Mexico, 10 Nov. 1958, H. B. Morlan, elevation ca 3048 m (10,000 ft). Morlan (pers. comm.) reports that a second male of this species with same collection data has been lost.

DIAGNOSIS.—*Phalacropsylla morlani* most closely resembles *P. allos* and *P. nivalis* in that there are no long, curved spiniforms preapically on the outer surface of the male st IX, as is the case with *P. oregonensis*, *P. hamata*, and *P. paradisea*. In *P. nivalis* there is a deep sinus in the caudal margin of the male fixed process. In *P. allos* there is a shallow sinus in the caudal margin of the male fixed process, but the margin is merely sinuate in *P. morlani*. The pronotal comb of *P. morlani* has 18 teeth; there are 16 in *P. allos*.

DESCRIPTION OF MALE.—*Head* (Fig. 1): Preantennal region with 2 slightly concave rows of bristles. Frontal row of 4 small, thin bristles with 3 fine intercalaries; ocular row of 4 much longer bristles; ca 5 thin bristles caudad of the ocular row. Maxilla narrow, acuminate distally extending to base of 4th segment of maxillary palpus; maxillary palpus extending almost to apex of coxa I. The 5-segmented labial palpus reaching beyond midportion of trochanter I. Postantennal region with bristles arranged 1-3-6 on one side, 2-3-6 on other, the caudal row with fine intercalaries; 16 or 17 fine hairs in an irregular row along the antennal fossa.

*Thorax*: Pronotum with a row of 7 large bristles separated by about same number of smaller ones per side; pronotal comb of 20 spines, all of approximately same length except for small ventralmost pair; second ventralmost pair appreciably wider than others. Mesonotum with a row of 6 large bristles and an equal number of fine intercalaries preceded by a row of 5 or 6 smaller ones and 15 to 20 short bristles scattered on cephalad margin; mesonotal flange with 3 pseudosetae per side. Mesepisternum with 2 subequal lateral bristles. Mesepimeron with 2 irregular rows of 2 bristles, caudal row of 6 or 7 long bristles with fine intercalaries, cephalad row of 5 or 6 smaller bristles. Metepisternum with a long bristle on subdorsal margin and a short one on the dorsal margin. Metepimeron with ca 5 lateral bristles arranged 2:2:1.

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*Legs:* Procoxa well provided with subequal bristles; dorsal  $\frac{1}{2}$  of anterior margin with row of short bristles; ventral  $\frac{1}{2}$  with 2 widely spaced long bristles, the ventral bristle reaching ca  $\frac{1}{2}$  length of profemur; subventral row of 6 long bristles extend well beyond trochanter. Profemur with row of short bristles on anterior margin, 2 submarginal bristles at distal third, and 2 irregular rows of ca 15 longer, thin, lateral bristles extending length of femur. Metacoxa outer surface without bristles on upper third, lower  $\frac{2}{3}$  with scattered bristles of unequal sizes, and an oblique row of 3 large bristles near ventral margin extending well below apex of trochanter; 3 large bristles near apex; inner surface of metacoxa with thin setae along anterior margin and submarginal, widening apically to include an oblique row of about 8 small spiniform bristles. Mesocoxa bristles on inner side limited to anterior margin with submarginal

bristles on apical half becoming progressively larger toward apex; 3 large median bristles on ventral margin. Metatibia with 3 bristles, 2 long and 1 short at apex of dorsocaudal margin, the longest of which extends well beyond first tarsal segment; above these bristles are 6 notches bearing subequal, stout bristles, from apex to base 2:3:2:2:2:1.

*Abdomen:* Terga I-IV with apical spinelets: (1-0), (1-1), (1-1), and (1-0). Terga typically with a row of small bristles (1-5), followed by a row of larger bristles (4-7), alternating with smaller ones. Unmodified sterna with a vertical row of 1 to 3 bristles preceded by 1 or 2 smaller ones. Middle antepygial bristle ca  $2 \times$  length of ventral bristle and almost  $3 \times$  length of dorsal bristle.

*Modified abdominal segments:* St VIII roughly triangular, higher than greatest width, devoid of bristles except for 1 large

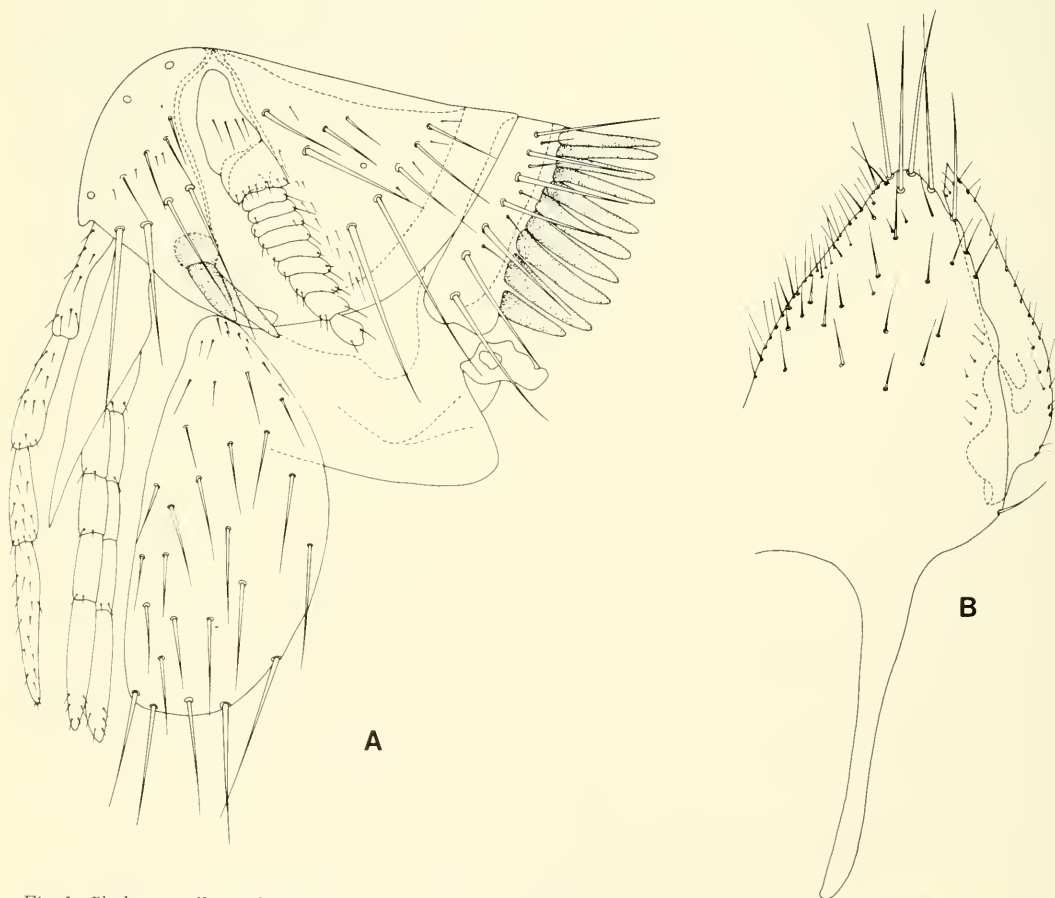


Fig. 1. *Phalacroscylla morlani*, male: A, head, prothorax and procoxa; B, clasper.

and 2 small bristles near midpoint of ventral margin; anterior margin fairly straight, evenly rounded at juncture with dorsal margin; dorsal and ventral margins join at blunt, evenly rounded, caudal apex. Immobile process large and well provided with bristles, especially on dorsal margin; caudal margin with 5 large bristles toward bluntly rounded juncture with dorsal margin; caudal margin sinuate but without pronounced sinus dividing process into lobes. Movable process of clasper ca  $5 \times$  as high as width at infrafoveal region, candle shaped, apex reaching almost as high as immobile process; anterior margin fairly straight, with a few scattered, marginal to submarginal setae; distal half of posterior margin fairly straight, basal half convex; thin bristles along most of the posterior margin, thickest on basal  $\frac{2}{3}$ . Manubrium long and slender, about  $20 \times$  as long as

broad at midpoint; anterior margin straight, posterior margin convex at midpoint.

St IX v-shaped, proximal arm much shorter than distal arm, and fish tailed at apex as with other species in the genus; distal arm ca  $4 \times$  as long as greatest width, a crescentic row of 8 subequal, spiniform setae toward apex, followed by a marginal row of thin bristles extending ca  $\frac{3}{4}$  distance to base. Lightly sclerotized dorsal expansion of distal arm not discernible in holotype.

#### DISCUSSION

Within the genus, *P. allos* has been recovered most frequently and from the widest geographical range. Described from specimens off *Neotoma cinerea*, Logan, Utah, it has subsequently been reported from California, Montana, New Mexico, and Wyoming. We have taken *allos* from March to August

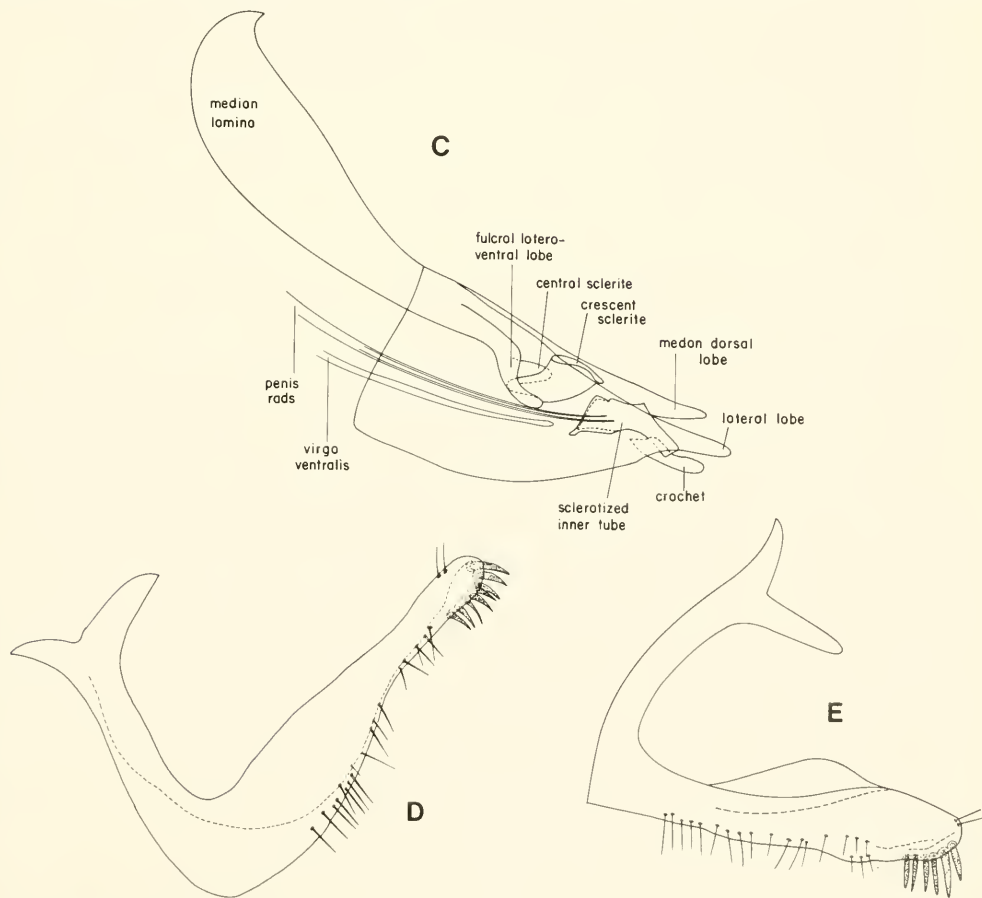


Fig. 2. *Phalacropsylla* spp., males: C, *morlani* aedeagus; D, *morlani* IX sternum; E, *allos* IX sternum.

in Larimer Co., Colorado, during year-round rodent trapping on the Weaver Ranch in 1977 as follows: 1 male ex *N. mexicana* 6 Aug.; 1 female ex *Reithrodontomys megalotis* 8 May; 1 male ex *Peromyscus difficilis* 5 March; 1 female ex *P. difficilis* 4 April; 1 male ex *P. difficilis* 8 May; 1 male ex *P. difficilis* 9 May; 1 female ex *Peromyscus maniculatus* 7 May; 1 male ex *P. maniculatus* 7 Aug.

The Weaver Ranch is 20 km N of Ft. Collins, Colorado, on U.S. 287. The relatively treeless, foothills habitat varies in elevation from ca 1600 m on the prairie to 1900 m at the highest point on the ridge, bisecting the ranch from north to south. The dominant

shrub on the rocky slopes is mountain mahogany, *Cercocarpus montanus*.

Stark and Kinney (1969) have reported the recovery of 49 *P. allos* from California from 25 *N. cinerea* nests and 17 from 13 *N. cinerea* from shallow caves in the Lava Beds National Monument, Siskiyou Co. None were taken from 9 surface nests or 6 *N. cinerea* trapped on the surface. A single specimen was recovered from a *P. maniculatus* obtained at ground level. More recently, Dr. B. C. Nelson (pers. comm.) has collected *allos* in numbers from *N. cinerea* nests in the same caves: 21 males, 15 females, 9 Dec. 1976; and 1 male, 31 Jan. 1980.

Key to the species of *Phalacroscylla*  
(Female of *morlani* unknown)

- 1. Male ..... 2
- Female ..... 7
- 2. Fixed process of clasper divided caudally by a deep sinus ..... 3
- Fixed process of clasper without pronounced sinus, posterior margin sinuate ..... 4
- 3. Two long, curved spiniforms present preapically on inner surface of distal arm of st IX ..... *hamata*
- No long, curved spiniforms on inner surface of distal arm of st IX ..... *nivalis*
- 4. Long, curved spiniforms present preapically on inner surface of distal arm of st IX ..... 5
- Without long, curved spiniforms preapically on inner surface of distal arm of st IX ..... 6
- 5. Apex of movable process extending about to apex of fixed process ..... *paradisea*
- Apex of movable process extending less than 2/3 height of fixed process .... *oregonensis*
- 6. 16 teeth in pronotal comb ..... *allos*
- 20 teeth in pronotal comb ..... *morlani*
- 7. Caudal lobe of st VII longer than broad ..... 8
- Caudal lobe of st VII broader than long ..... 9
- 8. Caudal lobe of st VII ca 1.5 × as long as broad ..... *nivalis*
- Caudal lobe of st VII ca 1.9 × as long as broad ..... *allos*
- 9. Caudal lobe of st VII 3.5 × as broad as long ..... *hamata*
- Caudal lobe of st VII less than 2 × as broad as long ..... 10
- 10. Caudal lobe of st VII rectangular, broadly rounded at apex ..... *paradisea*
- Caudal lobe of st VII more triangular, apex bluntly pointed and deflected ventrally ..... *oregonensis*

ACKNOWLEDGMENTS

This species is named for the collector, Harvey B. Morlan, sanitarian director,

USPHS (Ret.), who has contributed greatly to our knowledge of vector-borne diseases. Gary O. Maupin, VBVDD, and W. S. Archibald, formerly of VBVDD, were involved in the

collection of the *P. allos* in Larimer Co., Colorado. Dr. R. E. Lewis, Iowa State University, was consulted concerning the taxonomic status of *P. morlani*.

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