History of the Flea Genus Micropsylla

WITH ONE NEW SPECIES

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The only valid species of the siphonapteran genus Micropsylla to this date is M. sectilis. This species was described in an article "New American Siphonaptera" by Jordan and Rothschild on page 314, Ectoparasites I, 1923. In this article the species was described as Rhadinopsylla sectilis from three females taken off Peromyscus (Deer Mouse) and Mus by A. Tate who collected the specimens during December of 1908 and March of 1909 at Kelowna, British Columbia, Canada.

In the short original description covering the female only the authors state that the new species is close to Rhadinopsylla sectilis. Baker, that the genal comb has four teeth, first and fourth teeth shorter than second and third, the first thinner than fourth; in between third and fourth the genal process which resembles the teeth of the comb, but which is narrower and flatter; this process reaching the apex of the third tooth or is shorter. Pronotal comb with sixteen spines. Abdominal tergites I to V with one apical spine on each side. VII sternite with a very narrow but deep sinus in the middle of the side. Spermatheca gradually narrowed, apex of deallic concave on the anal side. The original length is given as 1.8 to 2.1 mm.

During November of the same year (1923) Dunn and Parker of the Rocky Mountain Spotted Fever Laboratory issued their work on the fleas of Montana in U.S. Public Health Reports, Vol. 38, Pt. 2 and on page 2767 established a new genus, Micropsylla which was erected to hold an extremely small male flea taken off a field mouse. The new genus was said to be near Neopsylla and Rhadinopsylla, differing from the former mainly by having four pairs of spines on each fifth tarsal segment, and from the latter by the overlapping of some of the genal spines.

The small flea upon which the genus was based was called Micropsylla peromyscus and was designated as the genotype. The chief characteristic of the new species seemed to be 5 genal teeth vertically placed, the third one pale and overlapped by the second. The specimen was taken three miles west of Woodman, Montana, May 6, 1922 off a white-foot mouse.

During September of 1936 the species sectilis was again featured in literature when Wagner in his "Fleas of British Columbia" found in The Canadian Entomologist, Vol. LXVII lists this species on page 203 as Rectrofrontia sectilis and states that the American species are little known, then compares the description with specimens found in the Spencer Collection at the University of British Columbia, and notes the consideration with "The male not being described I give a drawing of its genitalia as well as of the genal comb, both of the male and the female." These illustrations are found on page 204.

During 1937 Dr. Karl Jordan in Novitates Zoologicae, Vol. 40 on page 270 reduced Micropsylla peromyscus D. and P. 1923 to a synonym of M. sectilis. It seems that Dunn and Parker had described the male of M. sectilis rather than the male of a new species, that they had mistaken the pale genal process for a genal spine, so the 5 genal teeth mentioned in their description. Dr. Jordan accepted the genus Micropsylla and moved sectilis into it.
During 1938 this writer sent to Dr. Karl Jordan of the Tring Branch of the British Museum a male and a female of a *Micropsylla* taken just east of the Cascade Mountains in central Oregon. The head was armed with four genal teeth. The writer asked Dr. Jordan to verify his determination of *M. sectilis*. After careful consideration Dr. Jordan returned the specimens as true *M. sectilis*. A male and female with 5 genal teeth were also sent to Dr. Jordan. These had been taken by the writer west of the Cascade Mountains. This pair was returned to the writer with the notation “*Micropsylla* sp. nov. This species with 5 genal spines is not *M. sectilis* J. & R. 1923, but the one erroneously recorded and figured by Wagner, from British Columbia.”

Above, then, is the evidence upon which the following paragraphs are based.

**Micropsylla** Dunn and Parker 1923

A western genus of fleas found in the Rocky Mountains and west to the Pacific ocean in the United States and Canada.

Head: A genal comb of four or five stout black teeth; above these a row of three stout bristles, all extending beyond the end of the shortest genal teeth; then most anterior a row of five medium bristles. Postantennal region of head armed with three distinct rows of medium bristles. The genal comb does not always have overlapping teeth, the overlapping generally occurs only in the presence of five teeth when crowding may cause the most dorsal of the five to sometimes slightly overlap the tooth next to it. No eye. Frons with tip.

The Pronotal comb consists of 16 or 18 normal black teeth.

Modified segments: Antepygidial bristles absent in male, two in female. At posterior margin of pygidium a tassel like organ. Spermatheca gradually narrowed, apex of tail concave on the annal side. VII sternite of female with apical margin sinuate.

**Key to the Species of Micropsylla**

1. Genal comb with four black teeth ........ *M. sectilis*
2. Genal comb with five black teeth ........ *M. goodi* sp. nov.

**Micropsylla sectilis** Jordan and Rothschild 1923

This species can be distinguished from the following, which is described as new, by the presence of but four black genal teeth in the genal comb and the structure and shape of the modified abdominal segments.

The following description is based upon a male and a female examined by Dr. Karl Jordan and verified as true *M. sectilis* and six other females in the collection of the writer.

Pronotal teeth number sixteen in both male and female.

Male: Process P of the clasper with the upper and lower borders about parallel, apex somewhat hooked, at lower junction with finger F a small bristle; along the middle of dorsal border two bristles and slightly lateral to them a long stout bristle; apically a few minute ones. Finger gracefully concave along its entire posterior border, apex notched anteriorly; anterior border parallel with posterior border; armed with three small bristles on posterior border. IX sternite long, slender and gradually pointed; posteriorly and apically with about six very definite bristles, the lower the longest, anteriorly with a few small bristles along entire border. Tassel at posterior border of pygidium flared at apex and armed upon sides with a long bent bristle posteriorly and a short straight bristle anteriorly. Pygidium extending from tassel to point where antepygidial bristles should be had the male of this species possessed them.

Female: Apical margin of the VII sternite deeply sinuate, the lower lobe relatively narrow when compared with the long upper slanting lobe. Spermatheca typical. Pygidium covering entire area from antepygidial bristles to tassel and stylet.

Length: The original description gave the length of the female as 1.8 to 2.1 mm. for the three. No length has been issued for the male. The writer’s specimens average, male 1.2 mm., female, 1.8 mm.

Range: East of the crest of the Cascade Mountains in Oregon, Washington and British Columbia and apparently as far east as the east base of the Rocky Mountains. Not listed by Fox in his Fleas of the Eastern United States.

Host Preference: The few records available for this species leads the writer to believe this flea favors the Deer Mouse as a host.

Seasonal Distribution: This species seems to be a winter flea.

Deposites: The two specimens verified by Dr. Jordan bear the writer’s numbers 648 and 650 and are deposited in the United States National Museum.
Records

From *Peromyscus* sp. and *Mus* sp. (Deer Mouse and Mouse) (By A. Tate)
Kelowna, British Columbia, Oct. 1908, Mch. 1909—3 females

*Peromyscus* sp. (Deer Mouse) (Rocky Mountain Laboratory Staff)
Woodman, Montana, May 6, 1922—1 male.

The writer’s Records

From *Peromyscus maniculatus gambell* Baird (Gambel’s Deer Mouse)
Sisters, Oregon, March 19, 1937—1 female
Mitchell, Oregon, March 5, 1940—1 female
Shaniko, Oregon, December 8, 1940—2 females

Accidental Occurrences

*Onychomys leucogaster fuscogriseus* Anthony (Grasshopper Mouse)
Narrows, Oregon, December 11, 1936—1 female

*Thomomys quadratus quadratus* Merriam (The Dalles Pocket Gopher)
Sisters, Oregon, March 19, 1937—1 male.

*Citellus moillis canus* Merriam (Gray Sage Rat)
Shaniko, Oregon, March 3, 1940—2 females

*Micropsylla goedli* new species

This species is close to *M. sectilis* J. and R. 1923 from which it can be distinguished by the presence of five normal black teeth in the genal comb of both male and female, and by the structure and shape of the modified abdominal segments.

The following description is made with 70 specimens before the writer, all personally collected west of the Cascade Mountains in Oregon and Washington. Of these 70, 30 are males, 40 females. A pair of these sent to Dr. Karl Jordan during 1938 were returned with the notation that they represented a new species.

Fronotal teeth number 16 in the male, 18 in the female.

Male: Although the male of this species is larger than that of the preceding species, the clasper is smaller although very similar in shape. The upper and lower borders are parallel, the apex somewhat hooked; at lower junction with the finger a small bristle; along the middle of dorsal border
two bristles and slightly lateral to them a long stout bristle (position of which varies slightly with individual); apically a few small bristles. The finger is much shorter and broader than in the preceding species and the apex is nicely rounded and without a notch; armed with a few small bristles posterior and apically. IX sternite distinctly different from preceding, being in the shape of a stout hook, armed apically and posteriorly with some small bristles; anterior face with three small bristles. Tassel at posterior border of pygidium not flared at apex; armed upon sides with long curved bristle posteriorly and shorter, straight bristle anteriorly. The pygidium differs from that in the preceding species in that it does not entirely fill the space between the tassel and the point where antepygidial bristles should be had the male of this species possessed them.

Female: The apical margin of the VII sternite is not so deeply or narrowly sinuate as in the preceding species but the relative size of the lower and upper lobe is about the same. Shermanotheca is typical. The pygidial area of this species differs from that in the preceding species in that it covers only about half the space between the tassel and stylet to the posterior and antepygidial bristles to the anterior.

Length: Males average 1.6 mm., females 2.00 mm.
Variation: There is little variation in the 70 specimens at hand. In one instance a male has six genital teeth on one side. In two specimens there are two apical spinlets on a tergite; one, four bristles in the lower genital row.
Range: West of the crest of the Cascade Mountains to Pacific ocean in Oregon, Washington and British Columbia.
Host Preference: Of the 70 specimens at hand 60 are from Deer Mouse (Peromyscus), which seems to be the favored host.
Seasonal Distribution: With few exceptions this is a winter species.

Records
From Peromyscus maniculatus austreus (Deer Mouse)
Spencer Collection, University of British Columbia
August 11, 1928 at Vancouver, British Columbia, Canada.

The Writer's Records
(Only those records are included which establish range)
From Peromyscus maniculatus rubidus Osgood (Ruddy Deer Mouse)
Huber, Oregon, March 2, 1935—1 male
Forest Grove, Oregon, March 12, 1937—1 male, 1 female
Salem, Oregon, January 14, 1938—1 male, 1 female
Gaston, Oregon, December 11, 1938—1 female
Odel, Oregon, January 15, 1939—1 male, 1 female
Gold Beach, Oregon, June 18, 1939—2 females

From Peromyscus maniculatus oreas Bangs (Washington Deer Mouse)
Carson, Washington, August 17, 1935—1 female
Washougal, Washington, February 23, 1940—1 female

From Microtus townsendi Bachman (Townsend Meadow Mouse)
Newberg, Oregon, February 22, 1939—1 male, 2 females

From Microtus canicaudus Miller (Gray-tailed Meadow Mouse)
Forest Grove, Oregon, March 22, 1939—1 male
Gaston, Oregon, December 5, 1940—1 female

Accidental Occurrences

From Sciurus douglasi douglasi Bachman (Douglas Pine Squirrel)
Gaston, Oregon, March 7, 1932—1 female

From Citellus douglasi Richardson (Gray Digger)
Wheatland, Oregon, March 6, 1939—1 female.

An Apology and a Correction
Although the source from which the information was gathered seemed unimpeachable, Dr. William JeUisson wishes his name retracted from the statement on page 3, Pacific University Bulletin, Volume 37, No. 8.