

## DESCRIPTION OF THE FEMALE OF *RHADINOPSYLLA MEDIA* (SIPHONAPTERA: HYSTRICHOPSYLLIDAE)

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**Abstract:** *Rhadinopsylla media* Smit, 1957, previously was known from only 7 specimens, all males. Eighteen additional specimens of this species, including 12 females, were examined from northern Minnesota and Isle Royale, Michigan. The female of *R. media* is described and additions to the original description of the species are presented. Specimens of *R. media* are now known from Red Squirrels (*Tamiasciurus hudsonicus*), Short-tailed Weasels (*Mustela erminea*), and Red-backed Mice (*Clethrionomys gapperi*). The greatest number of specimens were collected from Red Squirrels during the winter months.

Prior to 1957, all eastern North American specimens of the genus *Rhadinopsylla* were referred to the single species *Rhadinopsylla fraterna* (Baker). Smit (1957) reexamined the North American material and concluded that *R. fraterna* included several species. He described *Rhadinopsylla media* Smit on the basis of 7 distinctive males taken from weasels (*Mustela* sp.) and Red-backed Mice [*Clethrionomys gapperi* (Vigors)]. There have been no further reports of this species since its original description by Smit.

The entomology collection of the University of Minnesota was found to contain 14 fleas identified as *R. fraterna* taken from Red Squirrels, *Tamiasciurus hudsonicus hudsonicus* (Erxleben), in Itasca County, Minnesota. Examination of these specimens showed them to be *Rhadinopsylla media* Smit. We submitted 1 male and 1 female from this accession to F. G. A. M. Smit, who compared the male with the holotype of *R. media* and found them to be conspecific.

Wilson & Johnson (1971) reported 4 female *Rhadinopsylla* from Red Squirrels and Short-tailed Weasels taken on Isle Royale, Michigan. They tentatively identified them as *Rhadinopsylla difficilis* Smit, but consideration of the locality [less than 250 mi. (400 km) east of the Minnesota locality] and host led us to suspect that they too might be *R. media*. Subsequent examination of these 4 females showed that they were also *R. media* Smit. We have, thus, examined 18 specimens of the poorly known *Rhadinopsylla media*, 12 of which represent the previously unknown female of the species.

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**Description:** ♀. Genal ctenidium as in ♂ (FIG. 1). Labial palp extending to about the distal 3/4 of fore coxa (FIG. 1). Longest apical seta of 2nd segment of hind tarsus extending to about middle of 4th segment (FIG. 2). Posterior margin of sternum VII with large sinus, greater in vertical distance than any other species from North America (FIG. 3); with 5-7 lateral setae on each side of sternum VII. Spermatheca of distinctive shape; hilla shorter in relation to total length than in closely related species, and bulga very broad and rounded (FIG. 3). Tergum VII with extended lobes above and below antesensilial bristles (FIG. 4), the 2 antesensilial bristles nearly equal in length. Tergum VIII with row of 3 or 4 setae below the spiracle; the spiracular fossa large (FIG. 4).

**Specimens examined:** (1) 1 ♀, Squaw Lake, Itasca Co., Minnesota, ex *Tamiasciurus hudsonicus hudsonicus* (Erxleben), 8.IV.1967; 2 ♀♀, 12.XI.1967; 2 ♀♀, 24.XI.1967; 2 ♀♀ and 2 ♂♂, 25.XI.1967; 1 ♀ and 2 ♂♂, 3.XII.1967; 2 ♂♂, 13.XII.1967. (2) 1 ♀, Isle Royale National Park, Keweenaw Co., Michigan, ex *Mustela erminea bangsi* Hall, 29.VIII.1968; 3 ♀♀, ex *Tamiasciurus hudsonicus regalis* A. H. Howell, 7.V-26.X.1968. One ♀ collected on 12.XI.1967 has been retained for the State University College Collection at Fredonia.

### DISCUSSION

*Rhadinopsylla media* is taxonomically closest to *R. difficilis* Smit. In the key by Hopkins & Rothschild (1962), females of *R. media* will key to *R. difficilis*. The sinus of sternum VII is similar to that of *R. difficilis*, but is shallower and averages somewhat greater in vertical distance. The spiracle of tergum VIII is also similar to that of *R. difficilis*, but the fossa is larger. This structure is intermediate in size between that of *R. difficilis* and that of *R. orama* Smit, as shown by Hopkins & Rothschild (1962), but in shape resembles that of *R. difficilis*. The posterior margin of tergum VII of *R. media* has larger lobes, both above and below the antesensilial bristles, than does the tergum of *R. difficilis*. The lower lobe of *R. media* is longer than any illustrated by Smit (1957) for North American species of this genus.

The original descriptions indicate that *R. difficilis* is smaller than *R. media*, with total length for males given as 1-3/4 mm for *R. difficilis* and 2 to 2-1/2 mm for *R. media*. Total length of female *R. difficilis* is given as 2-1/2 mm. Females in our series of *R. media* average slightly more than 2-1/2 mm, but the

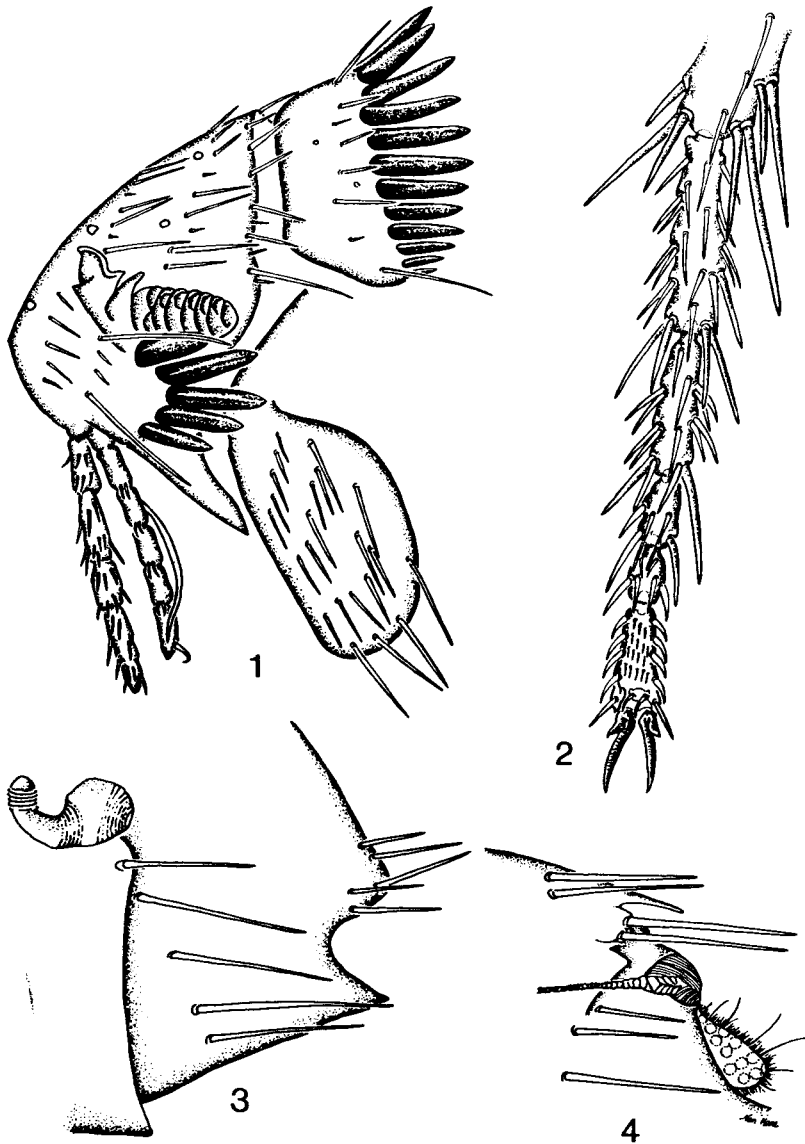


FIG. 1-4. *Rhadinopsylla media* ♀: (1) head and fore coxa; (2) segments 1-5 of hind tarsus; (3) sternum VII and spermatheca; (4) tergum VII and spiracular fossa.

difference appears insignificant, particularly since differences in preparation may slightly alter the size of mounted specimens.

The genal ctenidium of *R. media* is similar to that of *R. fraterna* (Baker). The 1st (uppermost) spine tends to be close to the 2nd spine, but about  $\frac{2}{3}$  the length of the 2nd. The 2nd and 3rd spines diverge widely and are about equal in length. The 4th and 5th spines are progressively smaller. One specimen has an even smaller 6th spine on 1 side. A line from the base of the lowest spine to the upper edge of the uppermost spine is approximately equal to the length of the longest spine.

Discovery of females of *Rhadinopsylla media* necessitates modification of the description of the species.

Smit (1957) stated that the labial palp of the male extends nearly to the end of the fore coxa. In the female, however, this structure extends only to about  $\frac{3}{4}$  of the length of the fore coxa. In the male, the longest bristle on the 2nd segment of the hind tarsus extends slightly beyond the apex of the 3rd tarsal segment. In the female, this bristle extends to about the middle of the 4th segment. Smit (1957) also stated that the metasternum bears only 1 large bristle, but all of our specimens, both male and female, have 2 metasternal bristles.

*Rhadinopsylla media* appears to be a winter flea whose true host is most likely the Red Squirrel. Short-tailed Weasels are important predators of Red Squirrels in this region, which probably ac-

counts for the occurrence of *R. media* on weasels.

The division of *R. fraterna* into 6 species by Smit was an important first step toward bringing the taxonomy of American *Rhadinopsylla* into a satisfactory arrangement. Unfortunately, members of this genus are comparatively rare in collections. Individual variation is difficult to evaluate from such limited collections, and it is possible that some of the described species represent subspecies of a single transcontinental species or individual variations within a single species. In the species under consideration, 7 males were previously known from the type-locality of Mingan, Quebec on the east coast of Canada and from Kicking Horse Canyon, British Columbia some 3000 mi. (4800 km) to the west. The specimens discussed herein represent a significant collection intermediate between the 2 previously known sites. Many more such collections are needed if we are to arrive at a

satisfactory understanding of the taxonomy and ecological relationships of this poorly known taxon.

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