

TWO NEW NASAL MITES
OF THE GENUS *PTILONYSSUS*
(MESOSTIGMATA : RHINONYSSIDAE) FROM TEXAS

BY

Greg. S. SPICER

405 Cedar Creek Ct., Fort Worth, Texas 76103 U.S.A.

INTRODUCTION

Texas has been the center for much of the published research on the nasal mites of North America. STRANDTMANN, CROSSLEY, PORTER, BROOKS, MITCHELL, GEORGE, CLARK, FAIN, WILSON, PENCE, and CASTO all have contributed to the literature concerning the nasal mites of Texas. In addition, PENCE has made a very comprehensive study of Louisiana nasal mites. Much remains to be done, however, since Texas has the largest avifauna of any state (more than 540 recorded species).

In this study 335 birds, comprising 74 species, have been examined. Of these, 62 were found to be parasitized with nasal mites, an infestation rate of 18.5 percent. Of the birds parasitized, 21 or 33.8 percent were infected with only one mite. Of the 16 species of Rhinonyssides collected, two are described here as new.

The birds came primarily from four Texas counties : Tarrant, Hood, Mason, and Gillespie. Many were collected with guns, a few by mist nets, some were found dead along the roadways, and several were donated by friends. Usually the birds were frozen until it was convenient to examine them.

The mites were collected by splitting the upper beak and examining the nares and turbinates. At first they were cleared by heating in a solution of chlorophenol for several minutes. Subsequently, the mites were mounted in Hoyers and covered with a 12 m.m., O-thickness coverslip. Later it was found that the mites cleared with less distortion when they were submerged in chlorophenol for several days at room temperature. The slides were placed on a slide warmer at 50-55°C. for 2-3 weeks, then rung with Zut's ringing compound. Specimens were examined with a phase contrast microscope capable of magnification up to 1000 diameters. An intergrated camera lucida was used to make the drawings. All measurements are in microns. The first number is the average, followed in parentheses by the ranges.

RHINONYSSIDAE Trouessart (1895)

PTILONYSSUS Berlese and Trouessart (1889)

Ptilonyssus vossi n. sp.

Type host : house wren (*Troglodytes aedon*), family Troglodytidae

Type material : Holotype female (F.W.M.S.H. no. 101), eleven paratype females and one paratype nymph from Fort Worth, Tarrant Co., Texas, 16 Oct. 1975 and five paratype females from the same locality, but 24 Oct. 1974 are deposited in the Fort Worth Museum of Science and History. A paratype female is deposited in the United States National Museum.

FEMALE (Figs. 1-6)

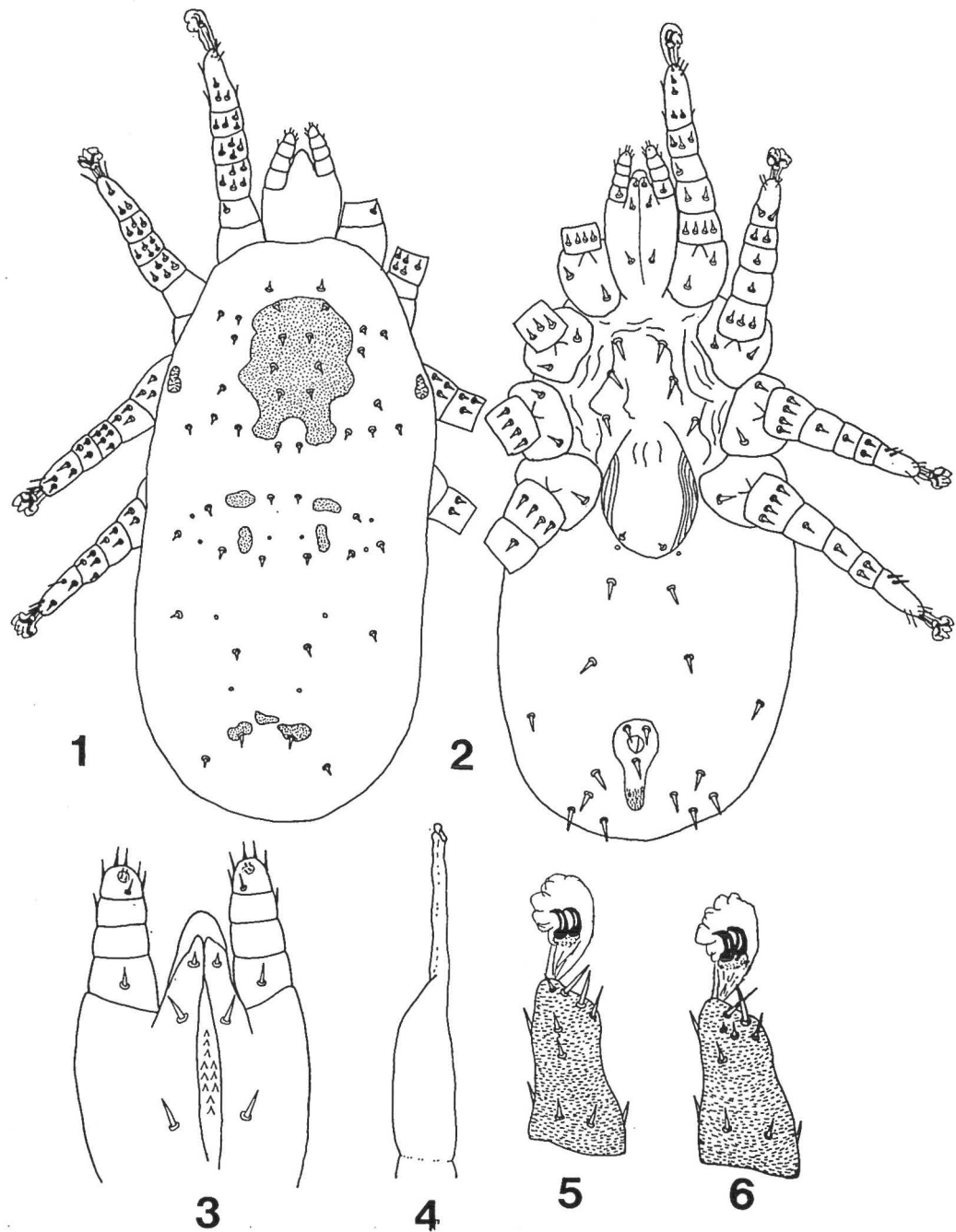
The idiosoma is 650 (500-750) in length and 370 (270-441) in width.

Dorsum : Podosomal plate is very irregular in shape, margins eroded, rounded anteriorly and bilobed posteriorly. The podosomal plate is 138 (120-144) in length and 130 (120-142) in width. The plate contains four pairs of setae. In addition, one pair of setae are located anteriorly; one pair posteriorly and seven pairs flanking the podosomal plate. Two pairs of small platelets are positioned posterior to the podosomal plate. The peritreme is 34 (30-36) in length and is found at the level of Coxa III. The opisthosoma has eight pairs of setae and six pairs of pores. Pygidial plates contain one pair of setae and vary from one to three in number, three being the most common. The margins are often so eroded it is difficult to determine the number of plates.

Venter : Sternal plate absent or very poorly sclerotized, with three pairs of large sternal setae. Genital plate large, 155 (144-163) in length and 86 (77-96) in width, bearing one pair of setae on and one pair of pores posterior to the plate. Seven pairs of spinose setae present on the ventral opisthosoma. Anal plate elongate, 123 (114-132) in length and 57 (52-60) in width, with three large setae, two anterior and one posterior to the anal opening; cribrum present.

Gnathosoma : The gnathosoma is 184 (156-192) in length and 99 (76-108) in width, the palps are 67 (66-70) in length. Two pairs of hypostomal setae and one pair of deutosternal setae are present. Deutosternal teeth range from ten to nineteen in number, the average being ten or eleven. The chelicerae is 143 (137-146) in length and 24 (23-26) in width.

Legs : Leg IV is the longest. The length of the legs are : Leg I 322 (289-348), Leg II 287 (255-314), Leg III 274 (260-279), Leg IV 336 (314-368). Setae are large and spinose. Ambulacra well developed, claws stout and hooked.



FIGS. 1-6. — *Ptilonyssus vossi* n. sp. 1) female dorsum; 2) female venter; 3) venter of female gnathosoma; 4) female chelicera; 5) venter of female tarsus I; 6) dorsum of female tarsus I.

MALE-UNKNOWN
DEUTONYMPH

The idiosoma is 588 in length and 270 in width.

Dorsum : The podosomal and pygidial plates are lacking or not visible. The peritreme is 26 in length. Setae are the same as the female, but there are no pores present.

Venter : The genital plate is barely visible, the anal plate and ventral setae are identical to the female.

Gnathosoma : The gnathosoma is 168 in length and 84 in width. Setae and palps similar the female. Chelicerae was not visible. There are eight deutosternal teeth present.

Legs : Leg IV is the longest. The length of the legs are : Leg I 270, Leg II 225, Leg III 221, Leg IV 274. The chaetotaxy is similar to that of the female. Claws and ambulacra are not well developed.

DIAGNOSIS

Ptilonyssus vossi n. sp. is closely related to three other mites collected from wrens (Troglo-dytidae), *P. troglodytis* Fain (1964), *P. salpinctis* George (1961), and *P. thryothori* Pence (1972). *Ptilonyssus vossi* n. sp. can be distinguished from these other species by the shape of the podosomal plate, the presence of seven pairs of ventral opisthosoma setae (*P. troglodytis* has six pairs; *P. salpinctis* has eight pairs; *P. thryothori* has seven pairs), eight pairs of dorsal opisthosoma setae (*P. troglodytis* has seven pairs; *P. salpinctis* has eleven pairs; *P. thryothori* has nine pairs), and the greater number of pygidial plates. This mite is named in honor of William J. Voss, Curator of Science, Fort Worth Museum of Science and History.

***Ptilonyssus melissae* n. sp.**

Type host : purple finch (*Carpodacus purpureus*), family Fringillidae

Type material : Holotype female (F.W.M.S.H. no. 102), and nine paratype females from Diamond-A Ranch, Hood Co., Texas, 7 March 1975 and two paratype females from Fort Worth, Tarrant Co., Texas, 1 March 1975 collected by Mr. and Mrs. Robert E. Lee are deposited in the Fort Worth Museum of Science and History. A paratype female is deposited in the United States National Museum.

FEMALE (Figs. 7-12)

The idiosoma is 494 (436-534) in length and 236 (175-264) in width.

Dorsum : The podosomal and opisthosomal plates are large and well developed, with many muscle insertions. The podosomal plate is 183 (168-190) in length and 171 (168-180) in width,

with seven pairs of setae and two pairs of pores. One pair of setae are large and spinose. The podosomal plate is flanked by four pairs of setae. Peritreme is 19 (17-22) in length and is found at level of Coxa III. The opisthosomal plate is 192 (158-204) in length and 149 (137-158) in width with a reticulate pattern and three pairs of setae. This plate is flanked by four pair of setae with two pairs of setae posterior to the plate.

Venter : Sternal plate is 92 (86-96) in length and 73 (70-79) in width, lightly sclerotized with irregular margins. Three pairs of large sharptipped setae and two pairs of lyrifissures are on the plate. One pair of metasternal setae are present. Genital plate is 91 (86-98) in length and 60 (53-66) in width, with one pair of setae on and one pair of pores just posterior to the plate. Seven pairs of setae and one pair of pores are on the ventral opisthosoma. Anal plate is 78 (72-105) in length and 53 (48-60) in width, with two setae anterior and one setae posterior to the anal opening ; cribrum present.

Gnathosoma : The gnathosoma is 130 (125-134) in length and 57 (54-62) in width, the palps are 53 (49-56) in length. One pair of hypostomal setae and one pair of deutosternal setae are present. Deutosternal teeth range from four to five in number. Chelicerae is 56 (54-61) in length and 7.5 (7.2-8.4) in width.

Legs : Leg I is the longest. The length of the legs are : Leg I 280 (270-294), Leg II 218 (210-225), Leg III 210 (206-216), Leg IV 256 (245-270). The setae on Coxa IV is large and spinose. Ambulcra well developed, claws stout and hooked.

MALE-UNKNOWN

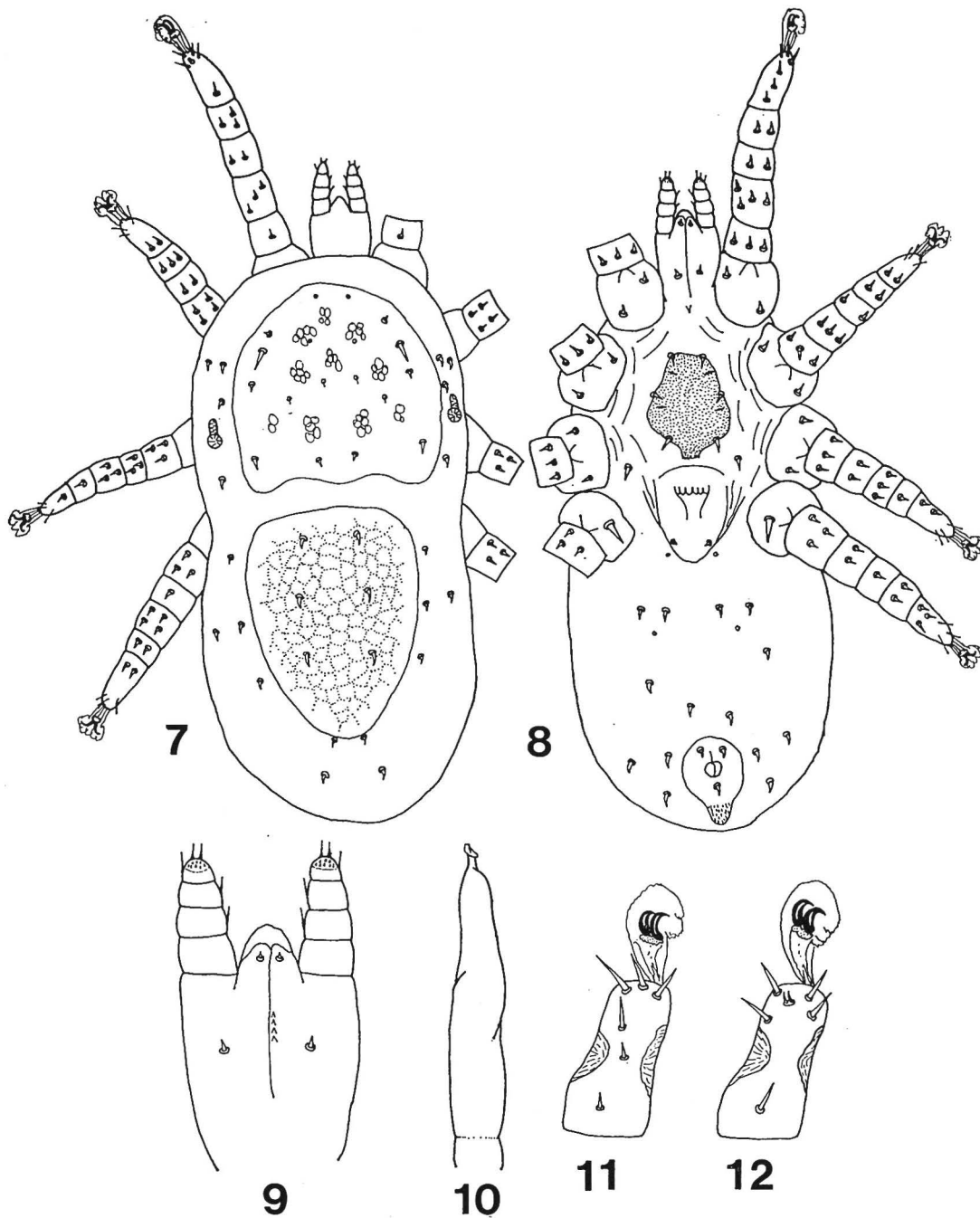
NYMPH-UNKNOWN

DIAGNOSIS

Ptilonyssus melissae n. sp. is similar to *P. morofskyi* Hyland (1961), but can be distinguished by the presence of seven pairs of setae on the ventral opisthosoma (three pairs in *P. morofskyi*), one pair of hypostomal setae (three pairs in *P. morofskyi*), one pair of metasternal setae and two pairs of lyrifissures (lacking in *P. morofskyi*). This mite is named in honor of the collectors' (Mr. and Mrs. Robert E. Lee) daughter, Melissa Jean Lee.

Ptilonyssus sairae Castro (1948)

New host records : 2 ♀ from the Nashville warbler (*Vermivora ruficapilla*), Forth Worth, Tarrant Co., Texas, 19 April 1975. 1N from an orange-crowned warbler (*Vermivora celata*), Welge Ranch, Gillespie Co., Texas, 31 March 1975. 2 ♀ from the painted bunting (*Passerina ciris*), Fort Worth, Tarrant Co., Texas, 15 April 1972. 4 ♀ and 1 ♂ from the rufous-crowned sparrow (*Aimophila ruficeps*), Diamond-A Ranch, Hood Co., Texas, 7 March 1975. 6 ♀ from the American goldfinch (*Spinus tristis*), Diamond-A Ranch, Hood Co., Texas, 7 March 1975. 3 ♀



FIGS. 7-12. — *Ptilonyssus melissae* n. sp. 7) female dorsum ; 8) female venter ; 9) venter of female gnathosoma ; 10) female chelicera ; 11) venter of female tarsus I ; 12) dorsum of female tarsus I.

from the Harris sparrow (*Zonotrichia querula*), Neiholtz Ranch, Hood Co., Texas, 16 Nov. 1974. 8 ♀ from the grasshopper sparrow (*Ammodramus savannarum*), Cleveland Ranch, Tarrant Co., Texas, 3 May 1975.

Remarks : The classification used here for the *Ptilonyssus sairae* complex is that of PENCE and CASTO (1976). They found that most of the morphological characteristics used to determine species in the *sairae* complex were unstable and subject considerable variation. Their system synonymizes many closely related forms into one species, *Ptilonyssus sairae*.

Ptilonyssus morofskyi Hyland (1962)

New host record : 1 ♀ from the Harris sparrow (*Zonotrichia querula*), Neiholtz Ranch, Hood Co., Texas, 27 Jan. 1975.

SUMMARY

In a survey of the nasal mites of Texas, U.S.A., a parasitism rate of 18.5 percent was found. Two new species are described : *Ptilonyssus vossi* from the house wren (*Troglodytes aedon*), and *P. melissae* from the purple finch (*Carpodacus purpureus*). New host records are recorded for *P. sairae* from the Nashville warbler (*Vermivora ruficapilla*), orange-crowned warbler (*Vermivora celata*), painted bunting (*Passerina ciris*), rufous-crowned sparrow (*Aimophila ruficeps*), American goldfinch (*Spinus tristis*), Harris sparrow (*Zonotrichia querula*), and grasshopper sparrow (*Ammodramus savannarum*) ; *P. morofskyi* from the Harris sparrow (*Zonotrichia querula*).

RESUMEN

En un estudio de los acaros nasales en pájaros del estado de Texas, E.U.A., un porcentaje de parasitismo de 18.5 % fue descubierto. Dos especies nuevas se haran de conocer : *Ptilonyssus vossi* en *Troglodytes aedon* y *P. melissae* en *Carpodacus purpureus*. Por primera vez se nota la presencia de *P. sairae* en *Vermivora celata*, *V. ruficapilla*, *Passerina ciris*, *Zonotrichia querula*, *Aimophila ruficeps*, y *Ammodramus savannarum* ; otro nuevo recordoes el *P. morofskyi* en *Zonotrichia querula*.

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