PTILONYSSUS CONSTRICTUS, A NEW SPECIES OF AVIAN NASAL MITE (ACARINA, RHINONYSSIDAE) [1]

BY

Hedwig Geiger FORD [2], [3].

The genus *Ptilonyssus* was established by BERLESE and TROUESSART (1889) with *P. echinatus* as the type species. The genus is characterized by the small to medium size and elongated shape, the dorsal plate whole or divided, stigmata with an elongated, or very rarely, a circular or oval peritreme, chelae minute, gnathosoma terminal, and tritosternum usually lacking.

PEREIRA and CASTRO (1949), in their revision of the sub-family Ptilonyssinae Castro, 1948, divided the genus *Ptilonyssus* on the basis of the number and form of the dorsal plate(s) into seven subgenera : *Ptilonyssus*, *Travanyssus*, *Paraneonyssus*, *Rochanyssus*, *Vitznyssus*, *Rhinonyssoides* and *Flavionyssus*.

FAIN (1957) chose to include all the described species of the subfamily in the one genus, *Ptilonyssus*, without subgeneric designations, but divided the genus into four groups on the basis of the dorsal plate(s), namely : 1) *Ptilonyssus* with a single dorsal plate — the podosomal, 2) *Ptilonyssus* with two main dorsal plates — the podosomal and opisthosomal, 3) *Ptilonyssus* with two main dorsal plates — the podosomal and pygidial [FAIN (1959) has recently placed seven very closely related species in a sub-group, the « sairae » group], 4) *Ptilonyssus* with three main plates — the podosomal, opisthosomal and pygidial.

STRANDTMANN and WHARTON (1958) in their recent monograph raised the subgenera of PEREIRA and CASTRO (1949) to the level of genera, including the subgenus *Ptilonyssoides*, which PEREIRA and CASTRO had originaly placed under the genus *Neonyssus* ; thus they erected seven new genera in addition to the original *Ptilonyssus*.

Two female specimens and one nymph of a new species of *Ptilonyssus* Berlese and Trouessart, 1889 were isolated from the nasal cavity of an adult myrtle warbler,

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Dendroica coronata coronata (Linnaeus) ; two females and one male were taken from an adult female bobolink, *Dolichonyx oryzivorus* (Linnaeus) ; and one female specimen was found in the nasal cavity of an adult vesper sparrow, *Poocetes gramineus gramineus* (Gmelin). All hosts were collected from various localities in Michigan.

Although the classification of the Ptilonyssinae is still in a state of flux, the classification adhered to in this case is of no significance since the new species described herein is, in any event, a member of the genus *Ptilonyssus, sensu stricto.*

Ptilonyssus constrictus new species.

(Plates I, II)

FEMALE.

(Pl. I, fig. 1, 2, 4, 5).

Medium size, elongate mite with two dorsal plates, one large podosomal and one small pygidial plate. Body with many prominent cuticular striations. Legs moderately sclerotized, relatively small in proportion to body size. Idiosoma 719 microns, width (between coxae II and III) 329 microns. Base of gnathosoma to tip of palps 146 microns.

Dorsum : Podosomal plate 197 microns in length, 146 microns in width with 8 pairs of setae — four pairs of short, spinous setae located around the periphery of the anterior curvature, remaining setae minute and grouped centrally as figured (Fig. 1). Plate with fine punctations and alveolar areas as shown.

Pygidial plate 42 microns in length, 75 microns in width with one pair of posterior spinous setae and two pairs of minute setae arranged in a transverse row.

Two pairs of alveolar areas located posterior to podosomal plate. Stigmata located at level of coxa III and possessing a short anteriorly directed peritreme.

Fifteen pairs of spinous dorsal body setae present : two pairs at the level of the stigmata, two pairs of long (approximately 24 microns) and one pair of short setae at the posterior level of the podosomal plate, four pairs of relatively small opisthosomal setae located medially between the podosomal and pygidial plates, five pairs of relatively large setae located in a more lateral position, and one pair of large posterior setae. Dorsal body setae range in length from 5 microns to 23 microns.

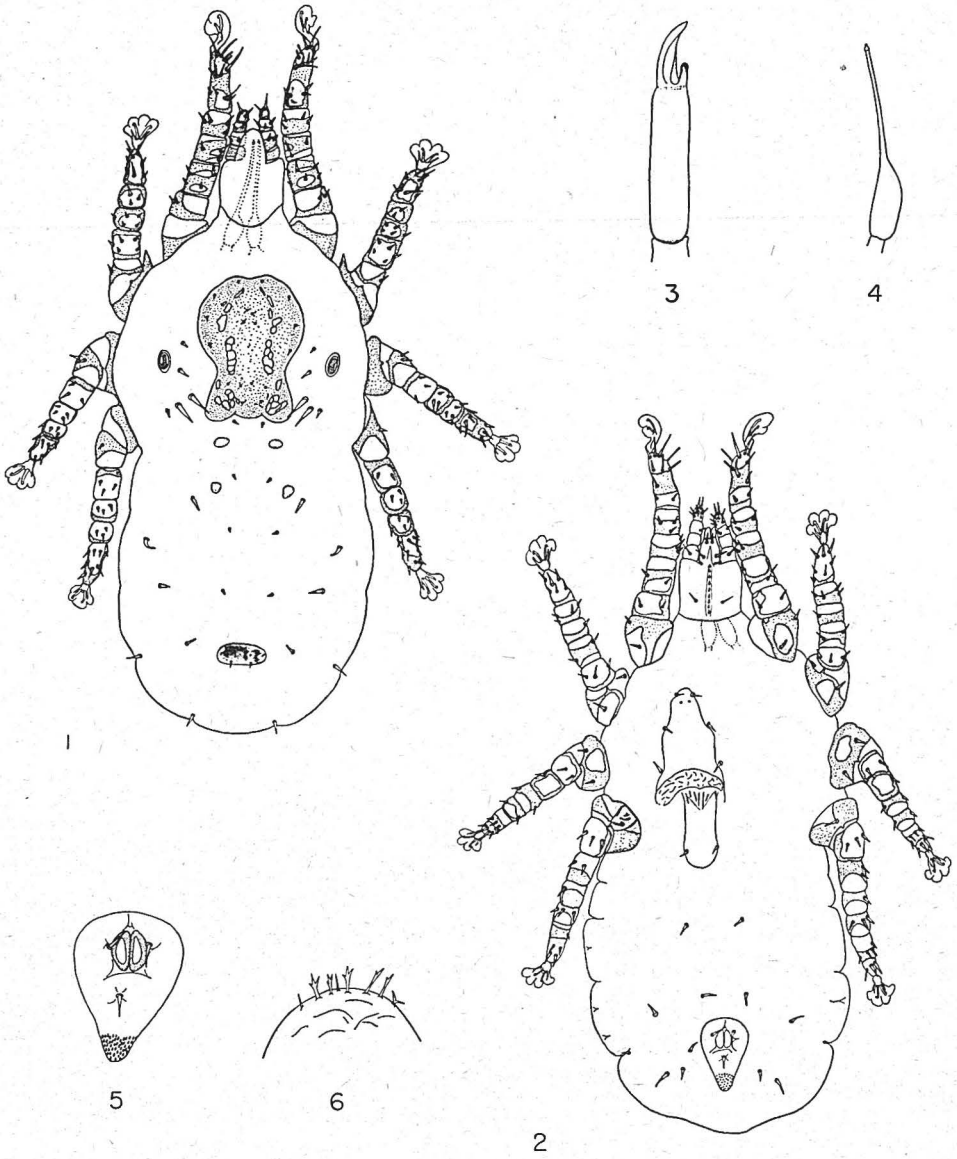
Venter : Venter with three plates, sternal, genito-ventral and anal. Sternal plate 141 microns in length and 75 microns in width with three pairs of large spinous setae located immediately off the plate. One pair of sternal pores present on plate.

Genito-ventral plate tongue-shaped, 94 microns in length, 47 microns in width, with one pair of spinous setae on posterior third of plate. A well defined internal sclerotic bar located on either side of genito-ventral plate.

Anal plate pyriform with cribrum posterior to anal pore (Fig. 5). Anal pore

flanked by a pair of large spinous setae and followed by a single posterio-median spinous seta.

Six pairs of spinous body setae present on opisthosoma, four pairs lateral, and two pairs median. One unpaired seta lateral to anal plate. Ventral body setae range in length from 11 microns to 17 microns.



Ptylonyssus constrictus n. sp.

FIG. 1, female, dorsal view ; FIG. 2, *id.*, ventral view ; FIG. 3, mâle, chelicera ; FIG. 4, female, chelicera ; FIG. 5, *id.*, anal plate ; FIG. 6, mâle, tectum.

Gnathosoma : Gnathosoma elongate. Chelicerae 149 microns in length, bulbous at base, narrowing abruptly and terminating in a pair of minute chelae (Fig. 4). Bulbous portion of chelicerae 55 microns in length. Chelae 5 microns in length. Ventral aspect of gnathosoma with four pairs of spinous setae : three pairs hypostomal and one gnathosomal. Tectum membranous, broad, rounded apically and extending to the level of the palpal genu. Deuto-sternal groove with a single column of nine denticles.

Palps : Palps five-segmented. Palpal trochanter with one large spinous seta on ventral aspect, femur with 2 dorsal spinous setae, genu with 4 setae, tibia with nine large spinous setae, and tarsus with many short micro-setae.

Legs : Legs I and II directed anteriorly, legs III and IV directed posteriorly. Length of legs from base of coxa to tip of caruncle as follows : leg I — 315 microns ; leg II — 244 microns ; leg III — 249 microns ; leg IV — 287 microns. All legs bearing claws and caruncles, approximately 40 microns in length. Leg Iwith modified claw and caruncle. Coxa II with large anteriorly-directed spur. Setae on legs spinous. Chaetotaxy as follows :

Table I. — CHAETOTAXY OF LEGS.

Leg No.	Coxa	Troch.	Femur	Genu	Tibia	Tarsus
I	2	4	8	6	7	23
II	2	4	7	6	7	15
III	2	4	4	6	6	15
IV	1	4	5	4	7	15

Tarsus I : Tarsus I with 23 setae : six relatively long attenuate setae, 13 spinous setae and four sensory rods.

MALE.

(Pl. I, fig. 3, 6 ; Pl. II, fig. 7, 8).

Idiosoma 588 microns, body width (between coxae II and III) 260 microns. Base of gnathosoma to tip of palps 125 microns.

Dorsum : Podosomal plate similar to that of female, length 207 microns, width 165 microns. Number of podosomal plate setae same as in female except for posterior pair, which were found off the plate in the female.

Opisthosomal plate 216 microns long, 118 microns wide with four pairs of setae. Only one pair of alveolar areas present posterior to podosomal plate. Remaining pair seemingly included in opisthosomal plate. Stigmata as in female. Ten pairs of dorsal body setae : 5 pairs in the podosomal region, 4 pairs in the opisthosomal region, and one pair posterior setae.

Venter : Sternal plate with a posterior protuberance. Length of sternal plate 161 microns, width 73 microns with four pairs of sternal setae. Aediegus situated at anterior end of sternal plate. Approximate length of aediegus 37 microns, width 18 microns.

Genital plate absent. Anal plate 96 microns in length, 51 microns in width with cribrum posterior to anal pore. Three anal setae present.

Six pairs of ventral body setae ; one pair extremely minute setae at posterior level of sternal plate (not figured), 2 pairs median, and 3 pairs (plus one unpaired seta) lateral.

Gnathosoma :

Gnathosoma elongate. Chelicerae 88 microns in length, 15 microns in width (Fig. 3). Chelae 32 microns in length. Ventral aspect of gnathosoma with 3 pairs of setae. Tectal hairs present on anterior portion of tectum (Fig. 6). Deutosternal groove with 7 denticles. Palps as in female.

Legs : Length of legs from base of coxa to tip of caruncle as follows : leg I — 281 microns, leg II — 240 microns, leg III — 238 microns, leg IV — 288 microns. All legs bearing claws and caruncle, approximately 36 microns in length. Claws on leg I not modified. Coxa II with large anteriorly-directed spur as in female. Chaetotaxy of legs essentialy the same as that of female.

Nymph.
(Pl. II, fig. 9, 10).

Idiosoma 667 microns, width (between coxae II and III) 268 microns. Base of gnathosoma to tip of palps 118 microns.

Dorsum : Podosomal plate as in female ; length 160 microns, width 122 microns. Pygidial plate 34 microns in length, 71 microns in width with one pair of very long (31 microns) barbed spinous setae. Remainder of plate as in female.

Fifteen spinous dorsal body setae as in female. Two pairs of setae at posterior border of podosomal plate not as long as in female. Remaining body setae proportionately shorter. Stigmata as in female.

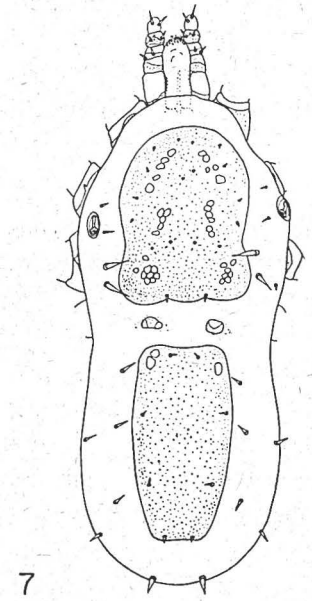
Venter : Sternal plate indistinct, approximately 67 microns in width and 150 microns in length. Eighty-five microns between posterior pair of sternal setae. Sternal setae off plate.

Genital area absent. Anal plate as in female. Four pairs of spinous setae on opisthosoma ; two pairs median, two pairs lateral.

Gnathosoma : Gnathosoma as in female. Deutosternal groove with 7 denticles instead of 9, as in female. Palps with setation as in female. Chelicerae 106 microns total length with bulbous portion 40 microns and chelae 5 microns in length.

Legs : All legs with claws and caruncle, those of leg I not modified. Length of legs from base of coxa to tip of caruncle as follows : leg I — 226 microns, leg II —

183 microns, leg III — 188 microns, leg IV — 207 microns. Chaetotaxy of legs essentialy the same as that of holotype. Coxa II with anteriorly-directed spur as in female.



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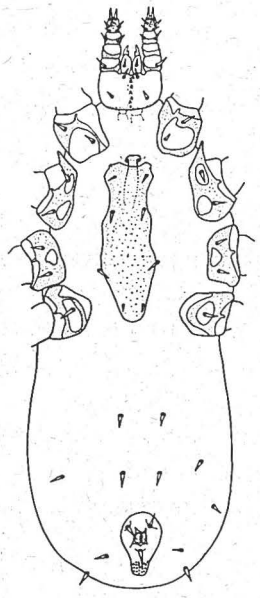

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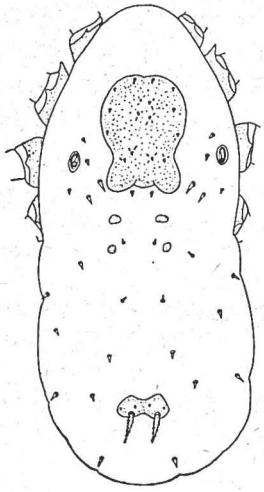

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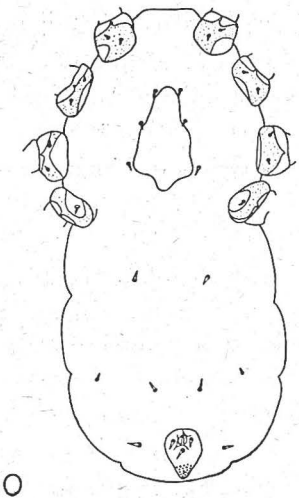

10

Ptylonyssus constrictus n. sp.

FIG. 7, Male, dorsal view ; FIG. 8, *id.*, ventral view ; FIG. 9, nymph, dorsal view ; FIG. 10, *id.*, ventral view.

Diagnosis : Ptilonyssus constrictus, n. sp. can be readily recognized by the deep constriction of the podosomal plate at the level of the stigmata and by the spur on coxa II. It resembles P. *lanii* Zumpt and Till, 1955, *P. sairae* Castro, 1948, and *P. japuibensis* Castro, 1948.

Ptilonyssus constrictus differs from *P. lanii* in the number and size of setae on the anal plate, podosomal plate, and dorsum ; from *P. sairae* in the presence of ventral abdominal setae, and the absence of an enlarged first palpal segment ; and from *P. japuibensis* in the size of the pygidial plate and shape of the podosomal plate.

Type Material : The holotype, allotype, and nymph (U.S.N.M. No. 2582) are deposited in the collection of the United States National Museum, Washington, D. C. One of the female paratypes from the bobolink is in the entomological collection of the Illinois Natural History Survey, Urbana, Illinois ; the other in the entomological collection of the University of Rhode Island, Kingston, Rhode Island. The single female paratype from the vesper sparrow is in the entomological collection of Michigan State University, East Lansing, Michigan. The remaining female paratype from the myrtle warbler is in the collection of the author.

Type Host : The type host is *Dendroica coronata coronata* (Linnaeus), the myrtle warbler ; collector, Dr. D. T. Clark.

Type Locality : North Manitou Island, Michigan.

Additional Specimens : Both the bobolink, *Dolichonyx oryzivorus* (Linnaeus), and vesper sparrow, *Pooecetes gramineus gramineus* (Gmelin), were collectedby Dr. K. E. Hyland at the Kellogg Gull Lake Biological Station, Hickory Corners, Michigan — a distance of approximately 180 air miles from the type locality.

The adult female specimens of *Ptilonyssus constrictus* from the bobolink had 8 deutosternal teeth, but in all other respects resembled the holotype.

The vesper sparrow specimen differed slightly in the shape of the plates, the pygidial plate being more irregular than that of the holotype. Ten deutosternal teeth were present. Some slight differences in chaetotaxy of the legs was evident.

Acknowledgements.

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