

A NEW MITE FROM THE RESPIRATORY TRACT OF THE STARLING

(ACARINA, SPELEOGNATHIDAE)

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During a survey of parasitism in the starling, *Sturnus vulgaris* L., in North America, undertaken in 1945-46, a new species of mite was discovered inhabiting the respiratory passages of this host. It was first observed in the trachea, and was present in this location in 13 of the 300 birds examined and in representatives from four different states—Indiana, Massachusetts, New York and Ohio. However, subsequent investigation of the nasal cavities revealed that it occurred more frequently and in greater numbers here, in association with the turbinates, than in the trachea, both larvae and adults being present. A specimen of the mite was collected by G. G. Rohwer in 1940 from the boat-tailed grackle, *Cassidix mexicanus*, at St. Louis, Mo., but no data pertaining to this finding are available.

The mites were mounted either in PVA-lactic mixture or were treated with mercurochrome, cellosolve and finally euparal. The larval and adult stages of the species of mite are described below.

Speleognathus sturni, new species

LARVA (Figs. 10, 11) shows a marked similarity to the adult except in the following respects: Size, 330-400 μ in length and 270-330 μ maximum width. Genital aperture absent. Sclerotized support less well developed, not being visible in the rostrum, chelicerae or palpi, and in the legs present only as far as the femur, but in the case of leg I extending into the tibia. Terminal segment of palpus a half, instead of a third, the size of the penultimate segment. Legs three in number, the first of which is characterized by prominent claws. Coxa as well as trochanter devoid of setae; remaining segments, omitting the tarsi, with two to five pilose setae as illustrated. Tarsi II and III terminate bluntly in two lobes, between which arise two claws and a median bifurcated pilose pulvillus. Tarsi bearing ventrally a pair of terminal pilose setae and dorsally three, one on either side of a median subapical larger seta that arises from a prominent lobe. Additional setae occur on tarsi I and II, the latter with an extra seta on each side of the claws ventrally, as in the adult, and dorsally a pilose and a nude seta situated on the anterior surface. Tarsus I lacks the claws and pulvillus characteristic of the other legs and those of the adult, but instead a large double-headed claw, approximately 100 μ in length is present ventrally between the tarsus and the tibia. Four additional pilose setae occur on its anterior surface, and a single pilose and a nude seta on the posterior surface.

¹The author wishes to express appreciation to Dr. Edward W. Baker, United States Department of Agriculture, for his helpful criticism.

Setae of dorsum number 10 in place of 11 pairs, the last pair being absent, while the sensory seta measures 26μ and is relatively longer, six instead of three times the length of the average body seta. Venter possesses eight instead of 15 pairs of setae, four epimeral, two medial, one genital and a single anal. A pore similar in form to that from which the setae arise is present anterior to the genital seta. The genital seta is twice the length of the body setae.

ADULT FEMALE (Figs. 1, 9): *Body* color translucent white with an opaque median longitudinal band running the length of the abdomen. Cuticle soft with fine tuberculate striations. Egg-shaped and sparsely haired. Eyes lacking. No suture between propodosoma and hystriosoma. Dorsal and ventral shields absent. Size very small, $393\text{--}620\mu$ in length including captulum. Maximum width between legs II and III, $270\text{--}330\mu$, thus the body is approximately 1.4 times as long as broad. Anus ventral to subterminal. Genital aperture a median slit posterior to coxa IV. Genital suckers absent.

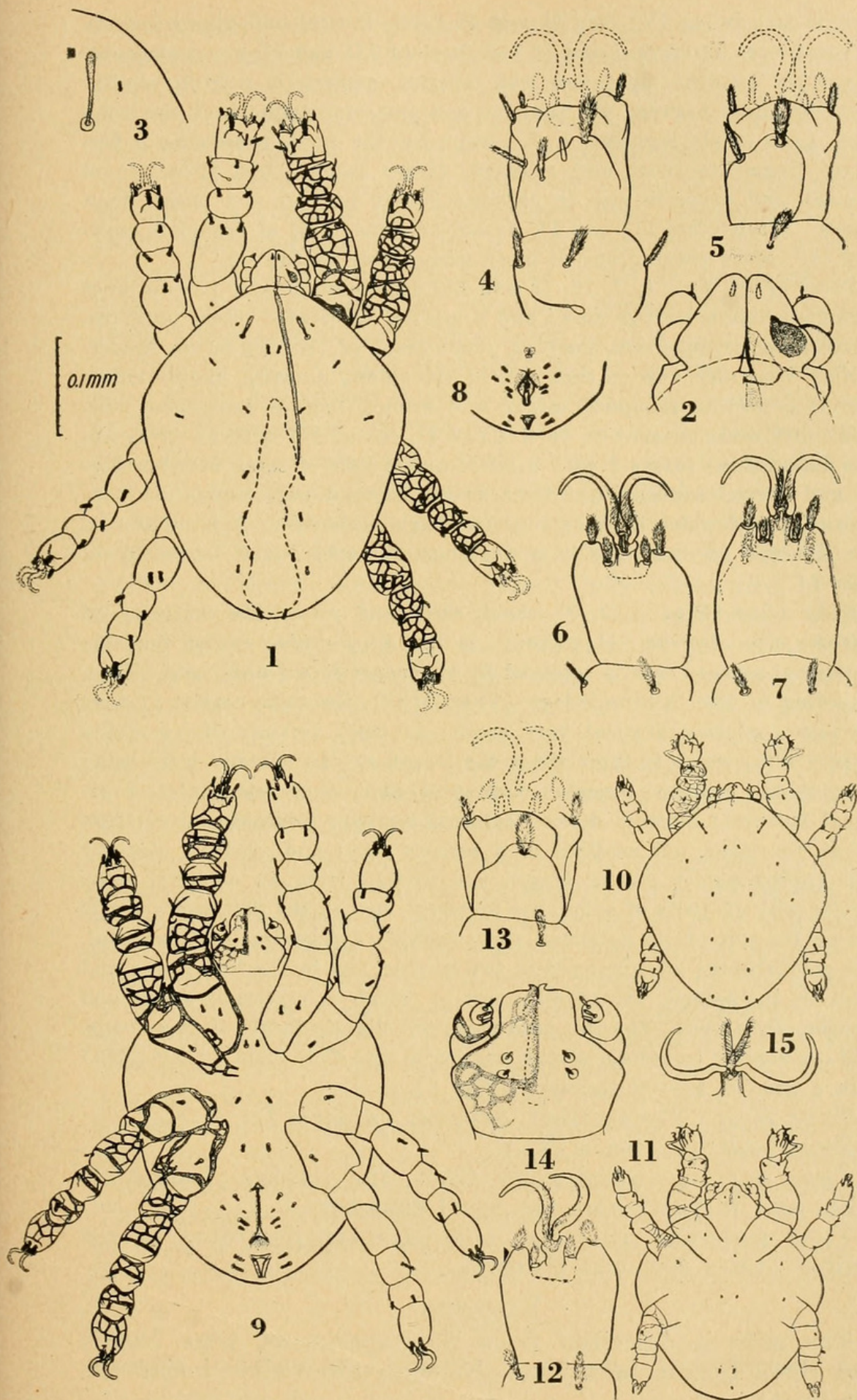
Rostrum (Fig. 14) bilobed terminating in two minute hook-like projections, its latero-basal region with network-like armature. Two pairs of small pilose setae situated on labial portion of rostrum. Pharynx clearly visible as a strongly sclerotized cone projecting between rostrum and mandibles. *Chelicerae* (Fig. 2) dorsal, devoid of setae and two-segmented. Distal segment extremely small, sharp; proximal segment contains a chitinized support in its latero-basal region.

Palpi (Figs. 2, 14) composed of three rounded segments placed laterally and between the chelicerae and rostrum, shorter than the latter. First and second segments devoid of setae, the second segment possessing some sclerotized armature. Terminal segment, a third the size of the second, with four setae, two pilose and one nude setae on internal ventral surface and more apically a single pilose seta.

Legs (Figs. 1, 9): Thick, shorter than body, sclerotized network-like support present in all segments, but to a lesser extent in the tarsi. The first two pairs of legs directed anteriorly, and the last two posteriorly. Leg I a little longer and broader than the rest of the legs;

EXPLANATION OF PLATE 1

Speleognathus sturni. Fig. 1. Dorsal view of mite; sclerotized support shown on right half only; female. Fig. 2. Chelicerae; sclerotized support shown on right portion only. Fig. 3. Portion of body to show the structure of the cuticle, the internal vertical seta modified as the sensory thoracic seta, and alongside this the extremely small external vertical seta. Fig. 4. Dorsum of tarsus I. Fig. 5. Dorsum of tarsus II. Fig. 6. Venter of tarsus I. Fig. 7. Venter of tarsus II. Fig. 8. Genital region of male. Fig. 9. Ventral view of mite; female. Fig. 10. Dorsal view of larva. Fig. 11. Ventral view of larva. Fig. 12. Venter of tarsus III. Fig. 13. Dorsum of tarsus III. Fig. 14. Venter of rostrum. Fig. 15. Terminal portion of a leg with claws displaced to expose the bifurcate pilose pulvillus.



next in size is leg IV; legs II and III being shorter and approximately of equal size. Epimera I and II and those of III and IV are contiguous. The space between right and left anterior epimera is a little smaller than the space between the anterior and posterior epimera of the same side. Legs of six segments and, except for the tarsi, possessing a few setae. Segments short and rounded, tarsus longer than tibia, which is small and equal in size to patella. Femur broader and longer than tarsus. Trochanters III and IV devoid of setae; rest of segments omitting the tarsus bearing one or more pilose setae as figured.

Tarsi (Figs. 4, 5, 6, 7, 12, 13 and 15) terminate bluntly in two lobes between which arise two claws and a median bifurcated pilose pulvillus. Pilose setae arrangement complex, reminiscent of the slug-mites, *Riccardoella*: Ventrally, two on each side of the claws; dorsally, one on either side of a median subapical larger seta arising from a prominent lobe. Additional setae present on tarsi I and II, tarsus III with an extra antero-dorsal seta; tarsus I with a latero-apical pair of setae between dorsal and ventral surfaces, and towards the anterior edge ventrally, three pilose (one of which is apical) and a single nude seta. A peculiar sac-like structure, terminating in a flagellum, is to be found internally in tibia I.

Body setae (Figs. 1, 3, 9) ovoid, short and pilose, the majority of uniform size. *Dorsum*, 11 pairs as in the *Ereynetidae* except that the abdominal sensory seta is replaced by an unspecialized body seta. Thus, according to Thor's terminology (Thor, 1933), the setae consist of four thoracic (external vertical very small; internal vertical, the modified sensory seta, which is three times the length of the average body seta; internal and external scapula) and seven abdominal (internal and external humeral; internal dorsal; internal lumbar; internal and external sacral, the latter not modified as a sensory seta; and caudal). Sensory seta approximately 30μ in length and arising from an enlarged pore. *Venter* with 15 pairs of setae, five epimeral, two on the first and a single one on the rest of the epimera; three medial; five genital and two anal. The genital setae are arranged in two groups, two in the first group and three in the second, the anterior one of which is extremely small and occasionally absent. The two anal pairs are slightly larger than average.

MALE similar to female except smaller in size ($330-380\mu$ by $236-285\mu$) with a smaller genital aperture (Fig. 8).

Type Host. The starling, *Sturnus vulgaris* L.

Type locality. Ithaca, N. Y.

Type habitat. Respiratory tract, the trachea, bronchiole tubes and in particular the nasal chambers.

Type material. Holotype and paratype deposited in the United States National Museum.

REMARKS

The mite is described from four specimens, type female and three female paratypes. No eggs are visible inside the specimens.

Speleognathus sturni bears a striking resemblance to the slug mites, members of the genus *Riccardoella*, family Ereyne-
tidae, in the structure of the cuticle, the chelicerae, the palpi
and in the general setal arrangement of the entire body.
However, it differs from this genus in fundamental features,
namely in the absence of genital suckers and in the possession
of only the anterior pair of sensory seta. Nevertheless, this
latter characteristic also holds true for both the larva of
Riccardoella limacum and for the adult *R. crassipes*. The
original description of *R. crassipes* Berlese and Trouesart,
1889, unfortunately is unobtainable in this country, but ac-
cording to Thor (1933) its body color is reddish, its thoracic
setae short, sclerotized support absent and the palpi terminate
in two pilose setae. It was reported from the English spar-
row, *Passer domesticus* L., from France, but its habitat was
not included in the description. Due to the absence of genital
suckers *Speleognathus sturni* has not been placed in the
family of the slug-mites, *Ereyne-
tidae*, but in the family
Speleognathidae. This latter family was established by Wo-
mersley (1936) to contain *Speleognathus australis*, a free-
living mite. *Speleognathus australis* and *S. sturni* both lack
genital suckers and have similar features in common, in par-
ticular the sclerotized armature in the legs. However, it is
now necessary to alter the description of the family by the
omission of "eyes present and palpi one-segmented." These
two characteristics should now be employed to differentiate
the two species from each other.

Since *Speleognathus sturni* so closely resembles species of
Riccardoella, the slug-mites, undoubtedly they are related and
probably arose from a common ancestor. It is of interest to
note that both mites live in a warm, well-aerated mucous en-
vironment, the former in the nasal passages of the starling,
while the latter is associated with the skin and mantle cavity
of snails. In addition, it should be pointed out that snails
constitute part of the diet of starlings. The question may
thus be asked, could *Speleognathus sturni* have arisen from
the ancestors of the present-day *Riccardoella* species, when
their host, the snail, was consumed as food by this bird,
thereby gaining entrance via the mouth to the nasal passages?
The subsequent structural specializations that would ensue
in such a condition, would account for the divergence of
characteristics existing between these two mucous-loving mites.

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AN ADVENTIVE MEGACHILE IN WASHINGTON, D. C.

(HYMENOPTERA, MEGACHILIDAE)

On August 15, 1947 C. W. Sabrosky captured a tiny female *Megachile* flying in his office in the U. S. National Museum. It was apparent at once that this was a *Megachile* (*Eutricharea*) and that it was a different species from the Palaearctic *M. (E.) apicalis* (Spinola) [= *virginiana* Mitchell] which is adventive in North America in Virginia, New Jersey (?) and Canada. The specimen was sent to Prof. T. B. Mitchell who reported (Aug. 27th)—“I can find no significant differences between it and some specimens [European] identified as *rotundata* by Alfken.” Mitchell (1937, Trans. Amer. Ent. Soc., 63: 417) mentions the possibility that some of the males recorded by him as *apicalis* might actually be *rotundata*.

In the meantime a second female had been submitted on August 19th by a resident of Arlington, Va., who reported it as causing damage in her garden and requested control measures. I compared this with European material in the USNM collection and found that it agreed with specimens determined as *rotundata* by Friese and also with Friese's descriptions of that species in Die Bienen Europa's (1899, pt. 5: 60-1) and Das Tierreich (1911, Lief. 28: 178).

Therefore, *Megachile (Eutricharea) rotundata* (Fabricius) is to be considered an established member of the North American fauna in at least the Washington metropolitan area. It is the tiniest *Megachile* in this country (♀, 7-9 mm. in length).

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THE EIGHTH INTERNATIONAL CONGRESS OF ENTOMOLOGY IN STOCKHOLM

The Congress will assemble in Stockholm from August 9th to 14th, 1948. The following sections are provided for discussion: Systematic entomology; physiology; ecology and zoogeography; morphology and anatomy; embryology; agricultural and horticultural entomology; apiculture; forest entomology; stored products insects; medical and veterinary entomology; methods of control and insecticides; nomenclature and history; bibliography; arachnids. Specific information about the program of the Congress and the arrangements in connection therewith will be forwarded shortly.

Address of the Congress Office: Stockholm 50, Sweden.



Boyd, Elizabeth M. 1948. "A new mite from the respiratory tract of the starling (Acarina, Speleognathidae)." *Proceedings of the Entomological Society of Washington* 50, 9–14.

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