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# *PSEUDOPARASITUS THATCHERI* N. SP. (ACARINA: DERMANYSSIDAE, LAELAPINAE) ASSOCIATED WITH SOUTHERN PINE BEETLES[1]

PRESTON E. HUNTER AND JOHN C. MOSER

Department of Entomology, University of Georgia, Athens, and Southern Forest Experiment Station, Forest Service, USDA Alexandria, La., respectively.

ABSTRACT

Adults and nymphal stages of *Pseudoparasitus thatcheri* n. sp., a mite associated with beetles occurring under bark of southern pine trees in Louisiana are described. Generic placement of the species is discussed.

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At present authors disagree on the generic limits of *Pseudoparasitus*. The species described here shows characters of both *Pseudoparasitus* and *Hypoaspis*, as defined by Evans and Till (1966). Evans and Till would exclude it from *Pseudoparasitus* for the following characters: apotele 2-tined; tectum smooth; podal plate not strongly enlarged posterior to coxa IV; para-anals not at anterior level of anal opening; and seta $av_1$ on femur II not spinelike in the female or spurlike in the male. Hunter (1966) broadens *Pseudoparasitus* to include some species from the Nearctic area which have podal plates not strongly developed, para-anals not at the anterior level of the anal opening, and seta $av_1$ not spinelike in the female. A study of material from other areas of the world is needed to determine if these characters are variable in this genus. We have chosen to place the species described below in *Pseudoparasitus*.

## *Pseudoparasitus thatcheri* n. sp.
(Fig. 1 and 2)

DIAGNOSIS: Adults and nymphs with some whiplike setae arising from dorsum of genu, tibia, and tarsus of legs III and IV; posterior pair of ventral body setae (Jv5) longer than other ventral setae; setae Z5 about as long as Jv5; all setae simple. Movable chela of adults with a single tooth; leg II unarmed in both sexes. Apotele 2-tined.

FEMALE: Idiosoma oval, evenly rounded anteriorly and posteriorly, 527$\mu$ long, 333$\mu$ wide. *Dorsum.* Covered by single plate which extends ventrally; opisthonotal region with scalelike reticulations, pronotal area with reticulations along lateral margins only; with 39 pairs of simple needlelike setae arranged as shown (Fig. 1A); posterior marginal setae longest, Z5 up to 77$\mu$ long. *Venter.* (Fig. 1B). Tritosternum with base and 2 pilose lacinae. Pre-endopodal plates conspicuous, anterior margin of each semi-sclerotized. Sternal plate 109$\mu$ long, 88$\mu$ at narrowest width between coxae II; bearing 3 pairs of simple setae and 2 pairs of

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[1] University of Georgia College of Agriculture Experiment Station, Journal Series Paper No. 128, College Station, Athens.

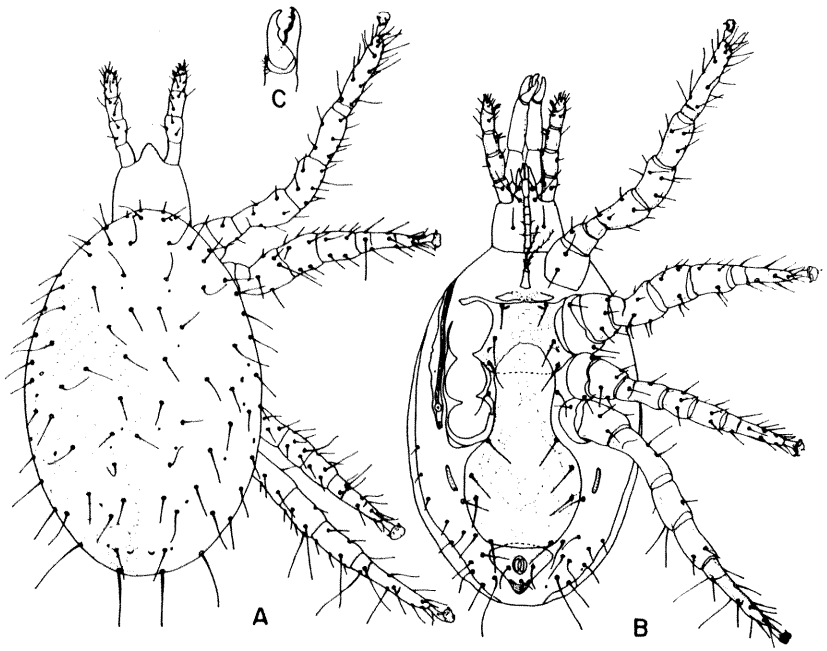


Fig. 1. *Pseudoparasitus thatcheri* n. sp. Female: A, dorsum; B, venter; C, chelicera.

pores; reticulations as illustrated. Metasternal seta arising from integument medial of endopodal plate. Genito-ventral plate flask-shaped, expanding behind coxae IV, posterior margin truncate; plate 257$\mu$ long from posterior margin of sternal plate, 171$\mu$ at greatest width; bearing 4 pairs of needlelike setae; setae Zv1, Jv1, and Jv2 on plate and medial of lateral margin of plate (in some specimens one or both Jv2 setae off plate); reticulations as shown. Anal plate 68$\mu$ long, 93$\mu$ wide, anterior margin slightly convex; para-anals longer than post-anal, positions as illustrated; reticulations not strongly developed. Number and relative lengths of opisthogaster setae as shown, seta Jv5 conspicuously longer than other ventral setae. Metapodal plates as shown. Peritremal plate widest at level between coxae II and III; fused to dorsal plate anteriorly, free posteriorly. Exopodal plates as shown; slightly enlarged area posterior to coxa IV not as strongly sclerotized as remainder of plate. *Legs.* All setae smooth; dorsum of tarsus, tibia, and genu of legs III and IV, and femur and tarsus of leg II each with 1-2 whiplike setae; ventrally tarsi II and IV with some setae stout basally with fine tips; femur II with seta $av_1$ only slightly stouter than other setae of that segment, not spinelike. Lengths, including claw and coxa, as follows: I, 486$\mu$; II, 368$\mu$; III, 354$\mu$; and IV, 485$\mu$. *Gnathosoma.* Deutosternal groove with 6 rows of teeth, 2-5 teeth/row. Internal malae with median fingerlike anterior extension and similar but shorter lateral extension. Chelicerae chelate (Fig. 1C), movable digit with 1 tooth (true of all specimens), fixed digit



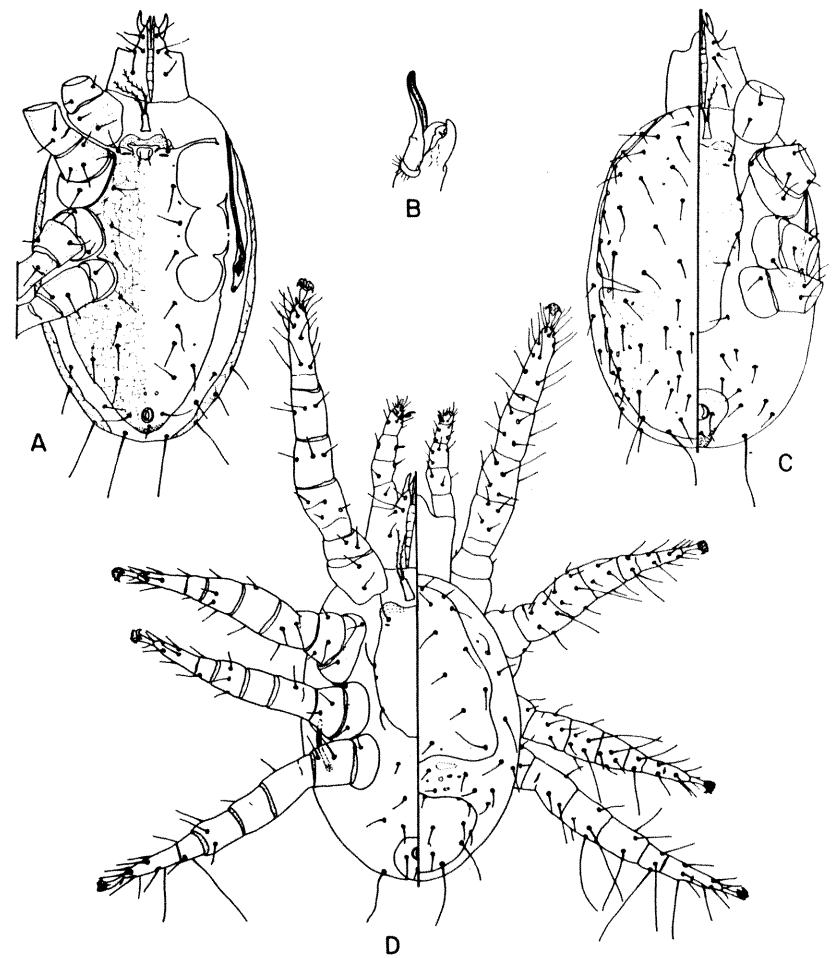


Fig. 2. *Pseudoparasitus thatcheri* n. sp. Male: A, venter; B, chelicera. Deutonymph: C, dorso-ventral view. Protonymph: D, dorso-ventral view.

with 4 teeth; *pilus dentilis* small, setiform. Tectum rounded anteriorly, margin smooth or with few small serrations. Apotele 2-tined.

MALE: Idiosoma 392$\mu$ long, 243$\mu$ wide, shape as in female. *Dorsum.* Chaetotaxy and general appearance as in female. *Venter.* (Fig. 2A). Holoventral plate 321$\mu$ long, 71$\mu$ at narrowest width between coxae II, 166$\mu$ at greatest width behind coxae IV; bearing 10 pairs of setae plus the post-anal seta; reticulations as illustrated; exopodal plate IV and part of III fused to holoventral, anterior exopodal plate free as shown. Presternal plates not as heavily sclerotized as in female. Peritremal plate free posteriorly. Three pairs of setae arising from integument in opisthogaster area, posterior pair (Jv5) long. *Legs.* Chaetotaxy

as in female; leg II without spur or heavy spinelike setae on femur and genu. Length, including claw and coxa: I, 404μ; II, 301μ; III, 289μ; and IV, 392μ. *Gnathosoma.* General features as in female. Movable digit of chelicera with 1 tooth, fixed digit with 2 teeth, one of which is partially divided, and a setiform *pilus dentilis*; spermadactyl grooved, directed anteriorly (Fig. 2B).

DEUTONYMPH: (Fig. 2C). Idiosomal shape as in female. *Dorsum.* Dorsal plate partially divided; 383μ long, 216μ wide; anterior half of plate bearing 22 pairs of setae (seta s6 missing from female chaetotaxic pattern); setae R1-R7 arising from integument; Z5 up to 78μ long. *Venter.* Sternal plate 210μ long, 90μ at greatest width, bearing 4 pairs of setae and 2 pairs of pores. Integument bearing 9 pairs of setae posterior of sternal plate; seta Jv5 long. Anal plate 58μ long, 65μ wide; para-anal setae twice as long as post-anal seta. Peritreme not surrounded by distinct plate. Exopodal plates absent. *Legs.* Chaetotaxy and comparative setal lengths as in female. Lengths, including claw and coxa: I, 400μ; II, 300μ; III, 295μ; and IV, 390μ. *Gnathosoma.* General features as in female.

PROTONYMPH: (Fig. 2D). *Dorsum.* Anterior plate 190μ long, 170μ wide; bearing 11 pairs of setae. Posterior plate 75μ long, 130μ wide; with 8 pairs of setae, posterior pair (Z5) up to 60μ long, lengths and positions of other setae as shown. Integument bearing 11 pairs of setae; 4 platelets between anterior and posterior plates. *Venter.* Sternal plate 150μ long, 80μ wide, with 3 pairs of setae and 2 pairs of pores. Tritosternum as shown. Anal plate 40μ long, 50μ wide. Integument bearing 5 pairs of setae posterior of sternal plate, posterior pair (Jv5) 2-3 times as long as other ventral setae. Peritreme reaching to middle of coxae III; peritremal plate absent. *Legs.* General chaetotaxy as shown; all setae simple, 1 or more whiplike setae arising from dorsum of tarsi, tibiae, and genua II, III, and IV, and femur II. Lengths, including claw and coxa: I, 360μ; II, 270μ; III, 270μ; IV, 330μ. *Gnathosoma.* Chaetotaxy as shown; deutosternal groove similar to that of female.

Description and measurements based on a series of 5 females, 5 males, 3 deutonymphs, and 1 protonymph. Holotype (female) data: in boring dust from loblolly pine (*Pinus taeda* L.) containing *Dendroctonus frontalis* Zimm. and wood borers; 16 June 1966: John Moser, coll.; Elizabeth, Louisiana. Data for all slides same as for holotype. Holotype, male and deutonymph paratypes deposited in U. S. National Museum, Washington, D. C. Remaining specimens (paratypes) deposited with Department of Entomology, University of Georgia, Athens.

*P. thatcheri* was discovered as a part of a larger study by R. C. Thatcher (for whom the mite is named) to determine the seasonal variations in activity of *Dendroctonus frontalis* Zimm. in *Pinus taeda* L. at Elizabeth, Louisiana. This investigation was similar to another in east Texas (Thatcher and Pickard, 1964).

Between 1 January 1966, and 17 April 1967, bolts were cut from trees every 2 weeks at various heights of infestation, and the bark beetle galleries examined for mites. When all beetles had emerged (about 30 days after the bolts were cut) galleries were again investigated, as well as the boring dust.



During the 16-month period, *P. thatcheri* was found 6 times in bolts cut 16 May, 30 May, 14 June, 26 July, 5 September and 3 October at heights of 16, 34, and 51 feet. Relative abundance was infrequent 4 times, common once, and rare once. Adults were always seen, and occasionally nymphs and larvae were collected. The mite was found only after beetles had emerged from bolts, and usually was present in dry boring dust. *D. frontalis* and cerambycid(s) infested trees on all 6 dates, but *Ips* spp. on only 3 dates. Hence the former appear to be more likely carriers. The species was always in association with 6 to 20 other species of mites. No observations were made on its feeding habits.

## LITERATURE CITED

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