both in Florida and in Washington know the importance of entomology and how we as entomologists relate to the rest of our Society. The future is ours only if we make it ours. The present trend to do a better job of promoting entomology will be even more important in the future in order to attract bright young students. Our Society's financial status is sound at this time. We have placed our Society in the hands of good leadership and I have faith that we as members of the Florida Entomological Society have a bright future, but it can only be as good as the visions of our leadership and the support they receive from the membership. Thus, this is not only a tribute to our past leaders, it is also a reminder to the present and future leaders to steer a course that will continue to attract fertile minds that are dedicated to the promotion of the study of entomology, the wide distribution of knowledge pertaining to insects, and continuing efforts to make our journal the very best of its kind.

This address was presented by H. A. Denmark at the Florida Entomological Society Meeting, August 11, 1992.

A NEW SPECIES OF *TRISCHIDIAS* (COLEOPTERA: SCOLYTIDAE) FROM SOUTHERN FLORIDA WITH A KEY TO THE SPECIES OF THE SOUTHEASTERN UNITED STATES

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ABSTRACT

Five species of *Trischidias* are known from the southeastern United States. *Trischidias striata*, new species, is described from southern Florida. Descriptions, distributions, and hosts are presented for all species, as well as a key to the females.

Key Words: *Trischidia striata*, ascomycetous fungi, beetles.

RESUMEN

Se conocen 5 especies de *Trischidia* en el sureste de los Estados Unidos. *Trischidia striata*, especie nueva, se describe del sur de Florida. Se presentan descripciones, distribuciones, y plantas hospederas para todas las especies, además de una clave para hembras.

The genus *Trischidias* Hopkins includes the smallest known Scolytidae with females ranging in length from 0.65-1.1 mm. As is the case with other inbred polygynous genera in the Cryphalini, males are even smaller than females and flightless (metathoracic wings not developed). Species in the genus are poorly known because of their very small size and tropical distributions. Wood's (1982) monograph on the Scolytidae of North and

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Central America included 3 species of *Trischidias*. *Trischidias exigua* Wood was subsequently described from the Yucatan Peninsula of Mexico and Florida (Wood 1986, Deyrup 1987). *Trischidias atoma* (Hopkins) is widely distributed, though seldom collected, in the southeastern United States. *Trischidias exigua*, known from southern Florida and the Yucatan Peninsula is the only species previously reported outside the United States. The remaining southeastern species are known only in Florida and southeastern Georgia. Recently Wood & Bright (1992) expanded the genus to include species from Africa and South America that had previously been described in other genera. These and other species will probably be found over a wider area. Given the generally poor state of knowledge of the largely uncollected tropical Scolytidae, the absence of records of these tiniest of scolytids probably reflects a lack of field work by trained collectors.

The genus *Trischidias* is unusual in the Scolytidae in that adults and larvae feed on fruiting bodies of ascomycetous fungi on branches or on wood invaded by the hyphae of these fungi (Deyrup 1987). Consequently, they are likely to be overlooked even by experienced collectors of scolytids because they are in host material that would appear "too old" or "too dead." Most scolytids either feed on the undegraded phloem of their hosts (true bark beetles) or on ectosymbiotic fungi introduced into their tunnels in the sapwood (ambrosia beetles). The biology of *T. exigua* in Florida and notes on the feeding habits of *T. atoma* and *T. minutissima* Wood were discussed in detail by Deyrup (1987).

Recently, I had the opportunity to examine a very large number of Scolytidae (>2,500 specimens) collected by S. B. Peck and associates as part of a survey of the insect fauna of tropical southern Florida (Peck 1989). Included were specimens of *T. atoma*, *T. exigua*, and many specimens of a new species described here. As preparation of a monograph of the Scolytidae and Platypodidae of the southeastern United States, I have examined numerous specimens in institutional and private collections and found many previously unpublished distribution and host records. A key to all of the currently described species is included, as well as descriptions, locality data, and host information.

The following abbreviations are used for collections (from Arnett and Samuelson 1986): Archbold Biological Station, Lake Placid, Florida (ABSC), Canadian Museum of Nature Collection, Ottawa, Ontario (CMNC), Canadian National Collection, Ottawa, Ontario (CNCC), Department of Forestry and Environmental Science, State University of New York, Syracuse, New York (DFEC), S. L. Wood private collection, Provo, Utah (SLWC); Texas A&M University, College Station, Texas (TAMU), T. H. Atkinson private collection, Riverside, California (THAC), University of Georgia at Athens, Athens, Georgia (UGCA), U.S. National Museum, Washington, D.C. (USNM).

Genus *Trischidias* Hopkins

Trischidias Hopkins. 1915. U.S. Dept. Agric. Rep. 99: 12. (Type species: *Trischidias georgiae* Hopkins, original designation).

This genus is characterized by minute body size (length 0.6-1.1 mm), rotund body shape (2.0-2.3 times as long as wide), the 3-segmented antennal funicle, and entire margin of the eye. It is most closely related to *Hypothenemus* Westwood, from which it is doubtfully distinct. This genus may eventually be treated as a species group of *Hypothenemus*. Like many genera of the tribe Cryphalini, males of *Trischidias* are smaller than females, flightless (metathoracic wings not developed), and found in much lower numbers than females. Presumably females mate with siblings prior to emergence from the parental gallery.

Key to females of *Trischidias* of the southeastern United States

1. Interstriae wider than striae (Figs. 1, 3); anterior margin of pronotum with 4 teeth (outer pair smaller than inner pair) 2
– Interstriae narrower than striae (Fig. 5); anterior margin of pronotum with 2 or 4 teeth 3

2 (1). Body 2.3 times longer than wide; erect interstrial setae on declivity short and stout, almost as wide as long (Fig. 1). Southeastern U.S. 0.65-1.0 mm ..... *atoma* (Hopkins)
– Body 2.1 times longer than wide; erect interstrial setae on declivity long and slender, more than 5 times as long as wide (Fig. 3). Southern Florida, Campeche. 0.8-0.9mm ..... *exigua* Wood

3 (1). Strial punctures increasing conspicuously in size posteriorly; declivital interstriae less than 1/2 width of striae. Georgia. 1.1 mm ..... *georgiae* Hopkins
– Strial punctures not increasing conspicuously in size posteriorly; declivital interstriae sub equal in width to striae. Southern Florida. 0.6-0.8 mm 4

4 (3). Striae not impressed; scales about 1-2 times longer than wide . *minutissima* Wood
– Striae deeply impressed; scales on declivity 4 times longer than wide (Fig. 5) ..... *striata* new species

Trischidias atoma (Hopkins)
(Figs. 1-2)

Hypothenemus atomus Hopkins 1915:15.
Trischidias atoma: Wood 1954:1068.
Hypothenemus impressifrons Hopkins 1915:15.
Hypothenemus marylandicae Hopkins 1915:15.
Hypothenemus robiniae Hopkins 1915:15.
Hypothenemus toxicodendri Hopkins 1915:15.

Diagnosis. This is the most widely distributed species in the genus and the only one known to occur outside of Florida and southeastern Georgia. It can be distinguished from other species in the genus by the more slender body form, short setae on the elytra, and 4 marginal teeth on the pronotum.

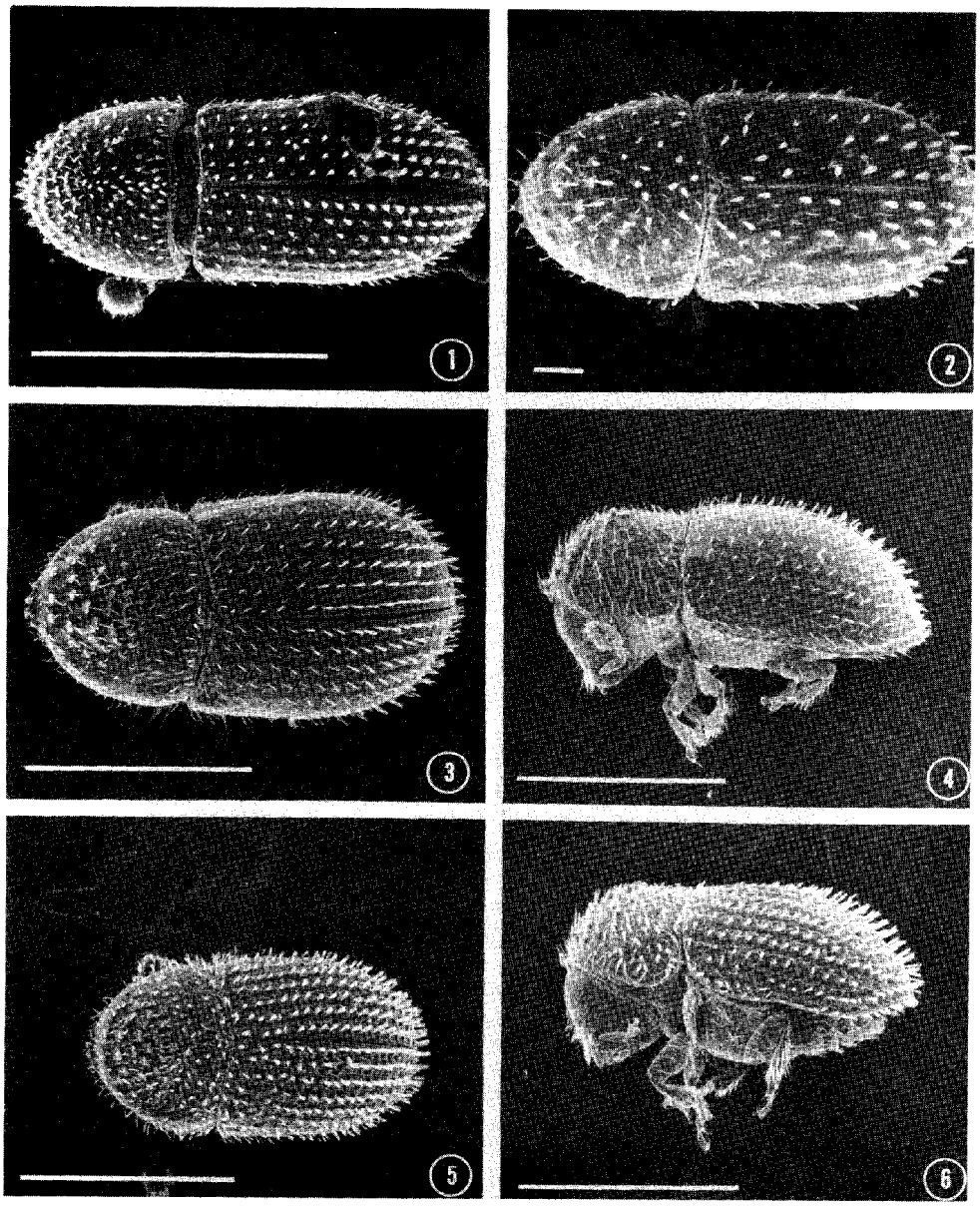
Female. Length 0.75-1.00 mm, 2.3 times as long as wide. Frons convex with transverse impression just above epistoma, shallowest in middle; convex above with median, longitudinally-oriented impression (appears as a groove in some specimens) from epistoma to upper level of eyes. Anterior margin of eye entire. Antennal club rounded, longer than scape, with 3 short sutures indicated externally by rows of setae.

Pronotum 0.9 times longer than wide, anterior margin produced anteriorly with 4 (rarely 5-6) subcontiguous teeth, the middle pair distinctly larger. Summit at middle, posterior and lateral area coarsely denticulate, with scattered granules; hair-like pubescence mixed with short erect scales (length subequal to width).

Elytra glossy; striae slightly impressed, punctures fine, distinct, shallow, separated by distance greater than diameter, with recumbent, hair-like strial setae, length slightly greater than diameter of puncture; interstriae 1.5 times width of striae, punctures small, uniseriate, granulate, with erect, stout, scale-like setae, these longer on declivity (twice as long as wide on declivity). Declivity convex.

Male. Length 0.49-0.53 mm. Similar to female but smaller.

Distribution. Eastern U.S., east of the Great Plains; southern part of Great Lakes states southward to the Florida Keys. **United States: D.C.:** Washington (Wood 1982); **Florida:** Collier Co.: Copeland, 12-IX-86, M.A. Deyrup, *Ficus aurea* (ABSC); Dade



Figs. 1-2. *Trischidias atoma.* 1, female, dorsal view. 2, male, dorsal view.
Figs. 3-4. *T. exigua.* 3, female, dorsal view. 4, female, lateral view.
Figs. 5-6. *T. striata.* 5, female, dorsal view. 6, female, lateral view. White lines = 0.5 mm in Figs. 1, 3-6, 0.05 mm in Fig. 2.

Co.: Everglades Natl. Pk., Long Pine Key, 28-V to 8-V-86, 31-VII to 9-XII-86, S. & J. Peck, flight intercept trap (CMNC); Flagler Co.: Relay, X-78, T.H. Atkinson, window trap (THAC); Highlands Co.: Archbold Biol. Sta., 30-III-86, M.A. Deyrup, *Cestrum nocturnum* (ABSC); 3-VI-86, M.A. Deyrup, *Ilex opaca* (ABSC); Sebring (Wood 1982); Monroe Co.: No Name Key, 28-VIII to 13-XII-86, S. & J. Peck, flight intercept trap (CNCC); Sugarloaf Key, 4-VIII to 19-XI-85, S. & J. Peck, flight intercept trap (CMNC); **Georgia:** Barrow Co.: Winder, III-75, R.H. Turnbow, *Carya illinoensis* (Wangenh.)

K. Koch (UGCA); **Indiana:** Jackson Co. (Deyrup 1981); Tippecanoe Co. (Deyrup 1981); **Kansas:** Douglas Co.: Lawrence (Wood 1982); **Louisiana:** St. Tammany Par.: Covington (Wood 1982); **Maryland:** Montgomery Co.: Chevy Chase (Wood 1982); **Mississippi:** Oktibbeha Co.: Trimcane Swamp, 29-III-20, M.W. Blackman (DFEC); Warren Co.: Vicksburg (Wood 1982); **North Carolina:** Polk Co.: Tryon (Wood 1982); Swain Co.: Cherokee (Wood 1982); **New Jersey:** Gloucester Co.: Westville (Wood 1982); **South Carolina:** Dorchester Co.: Pregnall (Wood 1982); **Tennessee:** Sevier Co.: Gatlinburg (Wood 1982); **Texas:** Sabine Co.: 9 mi E Hemphill, 3-16- IV-89, Anderson & Morris, flight intercept trap (TAMU); **West Virginia:** Monongalia Co.: Morgantown (Wood 1982).

Hosts. Aceraceae: *Acer rubrum* L. (Wood 1954), **Anacardiaceae:** *Toxicodendron radicans* (L.) Kuntze (Hopkins 1915), **Annonaceae:** *Asemina triloba* (L.) Dunal (Wood 1954), **Aquifoliaceae:** *Ilex opaca*, **Ericaceae:** *Rhododendron* sp. (Wood 1954), **Fagaceae:** *Castanea dentata* (Marsh.) Borkh. (Wood 1954), *Quercus marilandica* Muenchh. (Hopkins 1915), **Juglandaceae:** *Carya* spp. (Wood 1954), *C. illinoensis*, **Leguminosae:** *Robinia pseudoacacia* L. (Hopkins 1915), **Magnoliaceae:** *Liriodendron tulipifera* L. (Deyrup 1981), **Moraceae:** *Ficus aurea* L., **Rhizophoraceae:** *Rhizophora mangle* L. (Wood 1982), **Salicaceae:** *Salix nigra* Marsh. (Hopkins 1915), *Salix* sp. (Hopkins 1915), **Solanaceae:** *Cestrum nocturnum*, **Ulmaceae:** *Ulmus americana* L. (Wood 1954), *U. rubra* Muhl. (Deyrup 1981).

Biology: This species breeds in wood of a variety of hardwood species that is invaded by a black-staining fungus. It apparently feeds on the fungus-infested wood, rather than sound tissues (Deyrup 1987). A relatively small brood is produced in each gallery system.

Comments. The types of *Hypothenemus atomus, H. impressifrons, H. marylandicae, H. robiniae* and *H. toxicodendri* (USNM) were examined.

Trischidias exigua Wood
(Figs. 3-4)

Trischidias exigua Wood 1986:273.

Diagnosis. This species can be distinguished from all other species in the genus by the long, extremely slender, hairlike setae on the pronotum and elytra. This species is stout-bodied and usually has 4 submarginal teeth on the anterior margin of the pronotum.

Female. Length 0.8-0.9 mm, 2.1 times as long as wide. Body black. Frons with strong transverse impression above slightly elevated epistomal margin, impression divided in center by glossy area; concave above, with shallow central fovea in some specimens; surface reticulate with sparse punctures and setae. Anterior margin of eye slightly notched to depth slightly greater than one facet. Antennal club rounded, subequal in length to scape, with 3 sutures marked externally by rows of setae.

Anterior margin of pronotum narrowly produced with 4 teeth, middle pair definitely larger; summit at middle, posterior and lateral areas sparsely granulate, all setae hairlike.

Elytra glossy; strial punctures small, shallow, separated in row by distance subequal to diameter; striae not impressed, recumbent hair-like setae twice as long as diameter of puncture, becoming longer and semi-erect on declivity; interstriae flat, twice as wide as striae, uniseriately punctate-granulate, bearing slender scales (length 4 times width) becoming longer posteriorly (length 5 times width on declivity). Declivity convex.

Male. Length 0.6 mm, 2.0 times as long as wide. Similar in appearance to female.

Distribution. Southern Florida, Yucatan Peninsula of Mexico (State of Campeche). **United States: Florida:** Dade Co.: Everglades Natl. Pk., Long Pine Key, 31-VII to 9-XII-86, S. & J. Peck, flight intercept trap (CMNC); Old Cutler Hammock, 15-XI-86, S. & J. Peck, flight intercept trap (CMNC); Monroe Co.: Big Pine Key, 17-XI-85 to 25-II-86, S. & J. Peck, flight intercept trap (CMNC); Big Torch Key, 19-XI-85 to 26-II-86,

S. & J. Peck, flight intercept trap (CMNC); Key Largo, 16-XI-85 to 24-II-86, S. & J. Peck, flight intercept trap (CMNC); Sugarloaf Key, 4-XI-84 to 3-III-85, 4-VIII to 19-XI-85, 19-XI-85 to 26-II-86, S. & J. Peck, flight intercept trap (CMNC); Highlands Co.: Archbold Biol. Sta., M.A. Deyrup (ABSC); **Mexico:** Campeche: Escárcega (SLWC).

Hosts. Tiliaceae: *Belotia campbelli* Sprague (Wood 1986); Carbonaceous ascomycete fruiting bodies on branches of *Carya* (Deyrup 1987).

Biology. Deyrup (1987) presented a detailed discussion of the biology of this species. In central Florida it was found in raised carbonaceous ascomycete fruiting bodies on branches of *Carya floridana* Sarg., but not other trees. Numerous specimens were collected in flight intercept traps in southern Florida by S. & J. Peck where this tree does not occur. This species is remarkable for the small brood sizes (6 or less) and the large size of the egg with respect to the female's body size (nearly 1/3 of her size) (Deyrup 1987).

Comments. The holotype and 6 paratypes were examined (SLWC), as well as other specimens indicated above.

Trischidias georgiae Hopkins

Trischidias georgiae Hopkins 1915:12.

Diagnosis. This is the largest known species of the genus. Interstriae are narrow and strial punctures noticeably increase in size posteriorly. The anterior prothoracic margin has 2 teeth.

Female. Length 1.1 mm, about twice as long as wide.

Frons convex, with weak transverse impression above epistomal margin, concave above, with shallow central fovea; surface reticulate with sparse punctures and setae. Anterior margin of eye entire. Antennal club rounded, slightly longer than scape, with 3 sutures marked externally by rows of setae.

Anterior margin of pronotum narrowly produced with 2 marginal teeth; summit at middle, posterior and lateral areas coarsely reticulate, sparsely granulate; hair-like pubescence intermixed on posterior half with scale-like setae.

Elytra glossy; striae slightly impressed, punctures large, deep, separated in row by half their diameters, becoming larger and closer toward declivity, with recumbent hair-like setae; interstriae narrower than striae, uniseriately punctate-granulate, bearing dark scale-like bristles (about as long as wide) becoming longer posteriorly (length 1.5 times width on declivity). Declivity convex.

Male. Unknown.

Distribution. United States: Georgia: Brunswick. Known only from the type locality.

Hosts. Unknown.

Comments. The unique type (USNM) was examined.

Trischidias minutissima Wood

Trischidias minutissima Wood 1954:1069.

Diagnosis. This is a stout-bodied species with narrow interstriae, with strial punctures not impressed. The anterior margin of the pronotum has 2-4 marginal teeth. Unlike most other species, the scales are dark, not pale-colored.

Female. Length 0.65-0.80 mm, 2.0 times as long as wide. Frons convex, transverse impression above epistoma weak or inapparent, with longitudinally impressed area of varaible length and depth in central area; surface coarsely reticulate with few inconspicuous punctures and associated fine hairs. Anterior margin of eye entire. Antennal club rounded, length greater than scape, with 3 sutures marked externally by rows of setae.

Pronotum 0.8 times as long as wide; anterior margin narrowly rounded with 2 subcontiguous teeth (some specimens with an additional pair of smaller teeth on either side); summit at middle, posterior and lateral areas coarsely reticulate with scattered granules; hair-like pubescence intermixed with short erect setae (length equal to width).

Elytra glossy, striae slightly impressed, punctures large, deep, separated by distance equal to diameters, strial setae recumbent, hair-like, length approximately equal to diameter of puncture; interstriae narrower than striae, punctures fine, uniseriate, granulate, with erect scales (length equal to width), becoming slightly longer (length 1.5 times width) on declivity.

Male. Unknown.

Distribution. United States: Florida: Monroe Co.: Sugarloaf Key, 3-VII-51, Price, Beamer, Wood, *Rhizophora mangle* (SLWC); Sarasota Co.: Siesta Key, 24-XI-85, M.A. Deyrup, *Avicennia germinans* (L.) L. (ABSC).

Hosts. Fungal pustules on bark of aerial roots of red mangrove, *Rhizophora mangle* (Wood 1982), and black mangrove, *Avicennia germinans* (Deyrup 1987).

Comments. Ten paratypes (USNM, SLWC) were examined.

Trischidias striata Atkinson, **new species**
(Figs. 5-6)

Diagnosis. This species can be recognized by the combination of deeply impressed striae with very large strial punctures and long, blunt-tipped interstial setae.

Female. Length 0.6-0.8 mm, 2.0 times as long as wide. Body black, setae pale. Frons convex, not impressed above slightly elevated epistomal margin; weak median longitudinal carina extending from middle of frons to epistoma; frons reticulate, sparsely punctured with sparse setae. Anterior margin of eye slightly notched in middle to depth of 2 facets. Antennal club large, rounded, slightly longer than scape, with 3 transverse sutures marked externally by rows of setae.

Pronotum 0.7 times as long as wide, anterior margin slightly produced with 4 subcontiguous teeth, the middle 2 larger; summit at middle; posterior and lateral areas coarsely reticulate, with coarse punctures and associated granules; hair-like pubescence intermixed with scale-like setae of similar length.

Elytra glossy; striae deeply impressed, punctures large, deep, separated in row by distance less than their diameters, with hair-like recumbent setae; interstriae narrower than striae, with uniseriate, very coarse granules, each with an erect scalelike seta (length subequal to width), becoming longer on declivity (length 4 times width).

Male. Unknown.

Type Material. Holotype. Female. Sugarloaf Key, 19-XI-85 to 26-II-86, S. & J. Peck, flight intercept trap (U.S. National Museum of Natural History (USNM), red holotype label); 17 female paratypes deposited in the FSCA, CNCC, CMNC, and THAC.

Distribution. United States: Florida: Dade Co.: Everglades Natl. Pk., Long Pine Key, 28-VIII to 5-IX-82, S. & J. Peck, flight intercept trap (CMNC); Monroe Co.: Big Pine Key, 17-XI-85 to 25-II-86, S. & J. Peck, flight intercept trap (CMNC); Big Torch Key, 19-XI-85 to 26-II-86, 1-IX to 15-XII-86, S. & J. Peck, flight intercept trap (CMNC); Cudjoe Key, 21-XI-85 to 26-II-86, S. & J. Peck, flight intercept trap (CMNC); Key Largo, 1989, S. & J. Peck, flight intercept trap (CMNC); No Name Key, 3-VI to 27-VIII-86, S. & J. Peck, flight intercept trap (CMNC); Sugarloaf Key, 4-VIII to 19-XI-85, 19-XI-85 to 26-II-86, 26-II to 6-VI-86, 6-VI to 29-VIII-86, 29-VIII to 14-XII-86, S. & J. Peck, flight intercept trap (CMNC).

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FUNCTION OF GILLS AND MESONOTAL SHIELD OF *BAETISCA ROGERSI* NYMPHS (EPHEMEROPTERA: BAETISCIDAE)

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Abstract

The nymphs of Baetiscidae Banks (Ephemeroptera) possess a unique enlarged mesonotal shield which encloses the gills. The pattern of water circulation within this mesonotal chamber is described for *Baetisca rogersi* Berner. Suggestions are made on other functions of the shield.

Key Words: Mayflies, mesonotal chamber, respiration, morphology, nymphs, Ephemeroptera, *Baetisca*, gills.

Resumen

Las ninfas de *Baetiscidae* Banks (Ephemeroptera) poseen un escudo alargado en el mesonoto en el cual se encuentran las agallas. Se describe la forma de circulación del agua dentro de esta camara del mesonoto en *Baetisca rogersi* Berner. Se hacen sugerencias acerca de otras funciones del escudo.

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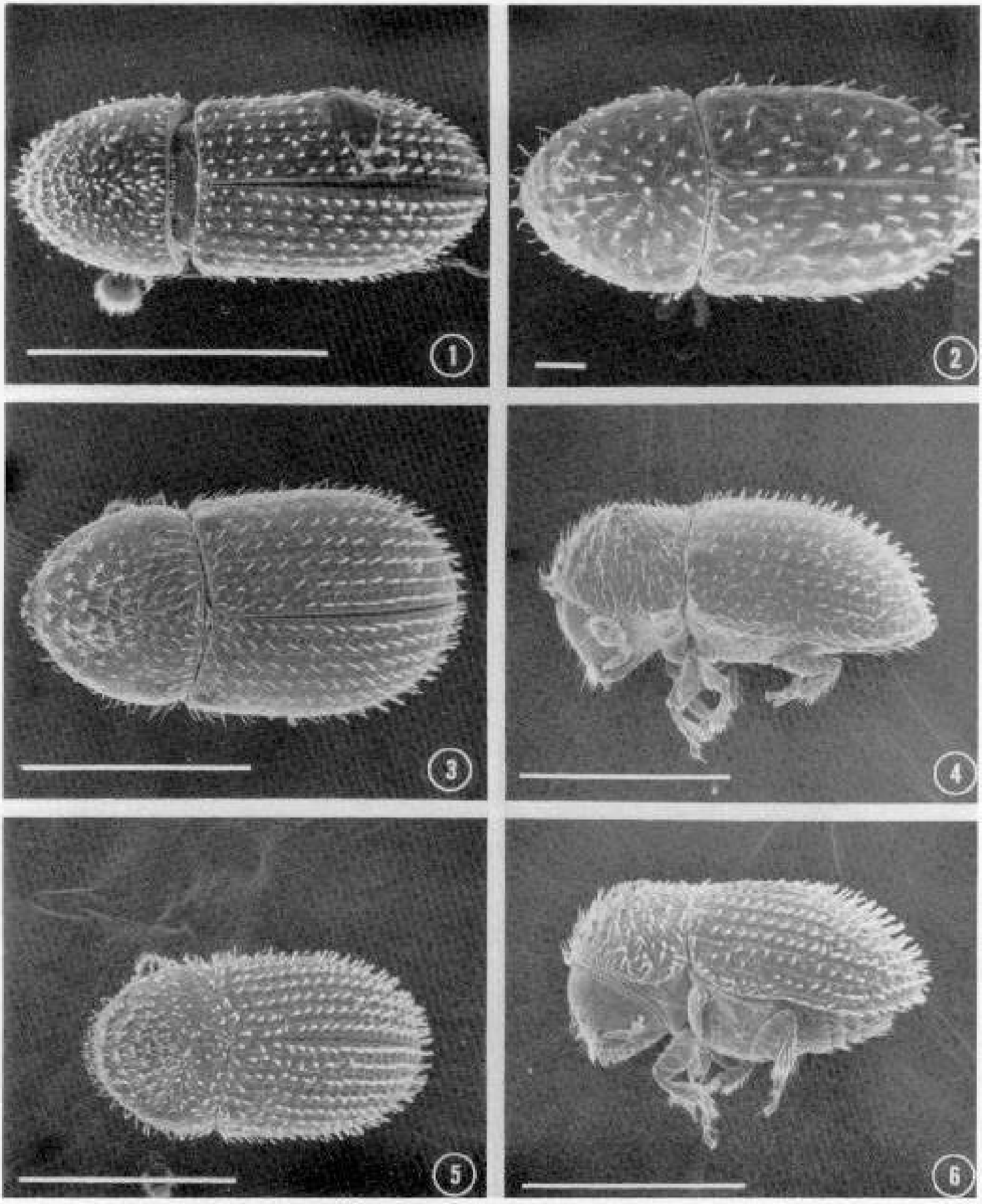
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