

TWO NEW SPECIES OF *RHYACIONIA* PINE MOTHS FROM MEXICO (TORTRICIDAE: OLETHREUTINAE)

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ABSTRACT. *Rhyacionia cibriani* is described from five males and five females, and *R. rubigifasciola* from one male and one female. The former is differentiated from *R. jenningsi* Powell by genital and other characters including longer antennal pecten. The latter is differentiated from all congeners, none of which it resembles closely, by genital characters including a ridge separating sacculus and valval neck in the male, and an anally emarginate sterigma in the female. *Pinus hartwegii* Lindl. and *P. oocarpa* Schiede are the respective hosts, the larvae boring in branchlets. The new species bring the number of *Rhyacionia* known in Mexico and the Neotropics to nine species.

Additional key words: taxonomy, Eucosmini, *Rhyacionia cibriani*, *R. rubigifasciola*, Neotropics.

Pines, the larval hosts of *Rhyacionia*, are numerous in Mexico, 21 of the 30 pine species occurring there being absent in the U.S. (Critchfield & Little 1966). The 2 new species described here bring the number of *Rhyacionia* known in Mexico and the Neotropics to 9 species (Powell & Razowski in press), and the number described worldwide to 34 (Miller 1985, Obratzsov 1964, Powell & Miller 1978). This is the fourth paper in a series in which I describe new Neotropical olethreutines in various genera whose hosts and modes of feeding make them of economic interest or importance (Miller 1966, 1986, 1987).

In both species described here, hindwing vein M_2 is bent at its base, and hindwing veins M_3 and CuA are either stalked or connate and approximate toward their bases. These character states place the species in Eucosmini (Obratzsov 1958). Features that place them in *Rhyacionia* are italicized in descriptions. Venation was ascertained under a stereomicroscope from temporary preparations made by touching xylol to wings while light passed through them (Zimmerman 1978).

Rhyacionia cibriani, new species

(Figs. 1-3)

Male. Forewing length 11.0 to 12.0 mm (holotype 11.0 mm) (5n). **Head.** Labial palpus clothed with brown-banded white scales, length of 2nd segment $2 \times$ eye diam., length of 3rd segment $\frac{1}{2}$ that of 2nd; vestiture of vertex similar to that of labial palpus; antennal pecten length 1 to $1\frac{1}{4} \times$ flagellar length, $1\frac{1}{4}$ to $2 \times$ flagellar diam. **Thorax.** Dorsal vestiture beige, ventral paler; front and middle leg scaling similar to that of labial palpus, hind leg paler, tarsi indistinctly white-banded; *forewing with veins M_2 and M_3 connate, termen straight or convex, costal fold absent*, upper side yellowish to coppery red, tinged with lavender in cell area, crossed by irregular striae near middle (Fig. 1), underside pale grayish yellow; hindwing upper side gray, underside paler than forewing underside. **Genitalia** (Fig. 2) (3n). *Valva lacking costal hook*, a ridge from sacculus to neck terminating in a nipplelike process at mid-neck, neck constricted to nearly $\frac{1}{2}$ maximum sacculus



FIGS. 1-6. 1-3. *Rhyacionia cibriani* from type locality. 1, Wings of paratype; 2, Male genitalia of holotype; 3, Female genitalia of paratype. 4-6. *R. rubigifasciola* from type locality. 4, Wings of holotype; 5, Male genitalia of holotype; 6, Female genitalia of paratype. Additional information keyed to figure numbers appears in Type Data section. Some negatives reversed.

width, *pollex present* and its length about $\frac{1}{4}$ maximum cucullus width; *uncus and socii rudimentary or absent*; aedeagus curved and tapering toward apex, vesica with 3 to 4 cornuti.

Female. Forewing length 9.5 to 11.0 mm (5n). Similar exteriorly to male except for shorter antennal pecten. **Genitalia** (Fig. 3) (3n). Sternum 7 emarginate; sterigma nearly square in outline, laterally inflected, with a broad and evenly rounded longitudinal ridge; ductus bursae sclerotized only near ostium bursae; corpus bursae with 1 thornlike signum, sometimes a tiny 2nd one.

Type data. Holotype male, Paso de Cortez, Méx., Mexico, 12 March 1984, No. 1133, *Pinus hartwegii* Lindl., D. Cibrián, genit. prep. WEM 1910844 (Fig. 2), in U.S. National Museum of Natural History, Washington, D.C. Four paratype males, same data as holotype except 5–9 April 1984, 2 genit. preps. WEM 910842 and WEM 84885; 5 paratype females, same data as holotype except 5–16 April 1984 (Fig. 1), 3 genit. preps. WEM 910843 (Fig. 3), WEM 2210841, and WEM 53882, in U.S. National Museum of Natural History; Essig Museum, University of California, Berkeley; University of Minnesota, St. Paul; and Lab. de Entomologia Forestal, Universidad Autonoma Chapingo, Chapingo, Mexico.

Discussion. *Rhyacionia cibriani* most resembles *R. jenningsi* Powell, but differs in size, structure, and forewing pattern as follows. *Rhyacionia cibriani* has a 40% greater average forewing length, 100% greater relative length of 2nd palpus segment, and 350 to 400% longer relative antennal pecten length than *R. jenningsi*; the lavender hue of the *R. cibriani* forewing cell is lacking in *R. jenningsi*; the nipplelike process on the male valva in *R. cibriani* is lacking in *R. jenningsi*; the 7th female sternum is more deeply emarginate in *R. cibriani* and the sterigma more square than in *R. jenningsi*. The foregoing character states for *R. jenningsi* are documented in Powell and Miller (1978).

Pinus hartwegii is classified in *Ponderosae* (Critchfield & Little 1966), a *Pinus* subsection whose members are hosts to several *Rhyacionia* species (Powell & Miller 1978).

The species is named for David Cibrián-Tovar, who reared adults from larvae boring in *Pinus hartwegii* branchlets.

Rhyacionia rubigifasciola, new species

(Figs. 4–6)

Male. Forewing length 8.5 mm (1n). **Head.** Labial palpus clothed with silvery white scales sometimes tinged with orange or gray, length of 2nd segment $1\frac{1}{2}\times$ eye diam., length of 3rd segment $\frac{1}{4}$ that of 2nd; vestiture of vertex silvery white except for orange near antennal bases; antennal pecten length $0.8\times$ flagellar length, $0.8\times$ flagellar diam. **Thorax.** Dorsal vestiture similar to vertex; front and middle legs orange, banded with white, hind leg paler except for tarsi; *forewing with veins M_2 and M_3 connate, termen convex, costal fold absent*, upper side with 4 orange spindle-shaped fasciae extending from costa to dorsum, 2 less tapered ones from costa to termen, all separated by silvery white (Fig. 4), underside pale gray; hindwing upper side gray, underside paler than forewing underside. **Genitalia** (Fig. 5) (1n). *Valva lacking costal hook*, sacculus separated from neck by a ridge, neck scarcely constricted dorsoventrally, concave anally, *pollex present* but not well defined in outline; *uncus absent*; *socii tiny, inflected, nearly obscured by tergum*, aedeagus apically expanded, forked, with several tiny apical spurs; vesica with 6 cornuti.

Female. Forewing length 8.5 mm (1n). Similar exteriorly to male. **Genitalia** (Fig. 6) (1n). Sternum 7 not markedly emarginate; sterigma rounded in outline, emarginate on anal margin, lamella antevaginalis scoop-shaped; ductus bursae sclerotized in an incomplete ring for a short distance at $\frac{2}{3}$ its length from ostium bursae; corpus bursae with 2 thornlike signa.

Type data. Holotype male, Sta. Lucia, Sinaloa, Mexico, 1 July 1981 (Fig. 4), No. 802, *Pinus oocarpa* Schiede, D. Cibrián & T. Méndez, genit. prep. WEM 108842 (Fig. 5), in Essig Museum, University of California, Berkeley. One paratype female, same data and depository as holotype except genit. prep. WEM 234851 (Fig. 6).

Discussion. *Rhyacionia rubigifasciola* does not clearly resemble any congener (Miller 1985, Obratsov 1964, Powell & Miller 1978). It differs from all in male valval outline

and in the ridge separating sacculus and neck; also in shape of the female sterigma with its anal emargination. The larvae bore in *Pinus oocarpa* branchlets.

Pinus oocarpa is classified in *Oocarpae* (Critchfield & Little 1966), a *Pinus* subsection whose members are hosts to only one other *Rhyacionia* species, *R. pasadenana* (Kearfott) (Powell & Miller 1978). The new species does not appear closer morphologically to *R. pasadenana* than to other *Rhyacionia* species, however.

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LITERATURE CITED

- CRITCHFIELD, W. B. & E. L. LITTLE. 1966. Geographic distribution of the pines of the world. U.S. Dept. Agr. Misc. Publ. 991, 97 pp.
- MILLER, W. E. 1966. A new species of moth destructive to pine cones in Mexico (Tortricoidea). *J. Lepid. Soc.* 20:251-253.
- 1985. Nearctic *Rhyacionia* pine tip moths: A revised identity and a new species (Lepidoptera: Tortricidae). *Great Lakes Entomol.* 18:119-122.
- 1986. New species of the genus *Cydia* that attack seeds of Mexican conifers (Lepidoptera: Tortricidae), pp. 5-7. In Cibrián-Tovar, D., B. H. Ebel, H. O. Yates, and J. T. Méndez-Montiel (eds.), *Insectos de conos y semillas de las coníferas de México/Cone and seed insects of the Mexican conifers*. U.S. Dept. Agr. Gen. Tech. Rep. SE-40, 110 pp.
- 1987. A new species of *Gretchena* (Tortricidae) injurious to planted Neotropical walnut. *J. Lepid. Soc.* 41:151-153.
- OBRAZTSOV, N. S. 1958. Die Gattungen der palaearktischen Tortricidae II. Die Unterfamilie Olethreutinae. *Tijdschr. Entomol.* 101:229-261.
- 1964. Die Gattungen der palaearktischen Tortricidae II. Die Unterfamilie Olethreutinae 5. *Tijdschr. Entomol.* 107:1-48.
- POWELL, J. A. & W. E. MILLER. 1978. Nearctic pine tip moths of the genus *Rhyacionia*: Biosystematic review (Lepidoptera: Tortricidae, Olethreutinae). U.S. Dep. Agr., Agr. Handb. 514, 51 pp.
- POWELL, J. A. & J. RAZOWSKI. In press. Tortricidae: Olethreutinae. In Heppner, J. B. (ed.), *Atlas of Neotropical Lepidoptera. Checklist: Part 2. Pyraloidea-Tortricoidea*. E. J. Brill, Leiden.
- ZIMMERMAN, E. L. 1978. *Insects of Hawaii* 9, Microlepidoptera I. University Press of Hawaii. 882 pp.

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