

A NEW SPECIES OF *EOMICHLA* FROM COSTA RICA (OECOPHORIDAE)

J. F. GATES CLARKE

Department of Entomology, Smithsonian Institution, Washington, D.C. 20560

ABSTRACT. *Eomichla hallwachsae* is described as new, is figured and notes on its biology are given.

Eomichla hallwachsae, new species

(Figs. 1-3)

Alar expanse. 22-28 mm.

General description. Labial palpus ochraceous salmon. Antenna ochraceous-salmon; scape light ochraceous-buff. Head vertex light ochraceous-buff; posteriorly light buff; face light ochraceous-buff with ochraceous-salmon line laterally. Thorax cream-white; base of tegula zinc-orange. Forewing ground color cream-white; from basal fourth of dorsum an outwardly curved light clay color, shade extends well into cell and reaches termen beyond tornus; in cell and in its outward extremities, this clay color shade is heavily overlaid with ochraceous-buff; beyond the clay color shade an outwardly curved line of ground color with a pink tinge; base of costa zinc-orange, this color narrowly continued along costa to apex where it broadens to a narrow triangle; at apex a short, narrow dash of ground color with a tinge of pink; cilia ochraceous-buff. Hindwing ochraceous-buff; veins narrowly outlined with ochraceous-salmon; cilia ochraceous-buff. Foreleg mostly zinc-orange, with long light ochraceous-buff and buff scales on tibia and tarsal segments; midleg and hindleg mostly ochraceous-buff. Abdomen zinc-orange; abdomen spined.

Male genitalia (slide USNM 25167). Harpe base of costa with deep excavation; sacculus strongly sclerotized; cucullus curved, pointed. Gnathos a sclerotized band with lateral, curved extensions. Uncus consisting of two widely divergent arms. Vinculum subtriangular. Tegumen broader than long. Anellus a folded triangular plate. Aedeagus stout, with a narrow ridge of short teeth ventrolaterally; vesica unarmed.

Female genitalia (slide USNM 25168). Ostium transverse, narrow. Antrum broadly sclerotized. Inception of ductus seminalis dorsal, slightly before ostium. Ductus bursae very short, merging immediately with bursa copulatrix. Bursa copulatrix elongate, membranous. Signum absent.

Holotype. USNM (δ).

Type locality. Costa Rica, Guanacaste Prov., Santa Rosa National Park.

Distribution. Costa Rica.

Food plant. *Bombacopsis quinatum* (Jacq.) Dugand.

Discussion. Described from the δ holotype 23-25 May 1980, D. H. Janzen and W. Hallwachs, 2 $\delta\delta$ paratypes with identical data; 3 $\delta\delta$, η paratypes same data except 5-7 June 1980; δ , same except 8-10 June 1980 and δ with no date but reared with data number 81-SRNP-1089. Paratypes in U.S. National Museum of Natural History (USNM) and British Museum (Natural History).

This species is nearest *Eomichla regiella* (Busck) but has a whiter thorax and paler hindwing. The uncus of *hallwachsae* has a single arm on each side; the arms of the uncus of *regiella* are divided. The female of *regiella* is unknown.

Other species currently placed in the genus *Eomichla* are:

E. notandella (Busck), 1911, Proceedings of the United States National Museum, 40: 209 (Type of *Eomichla* described in *Peleopoda*). French Guiana.

E. mummulata Meyrick, 1916, Exotic Microlepidoptera, 1:546. French Guiana.

E. thysiaracha Meyrick, 1928, Exotic Microlepidoptera, 3:469. Bolivia.

E. xystidota Meyrick, 1918, Exotic Microlepidoptera, 2:215. French Guiana.

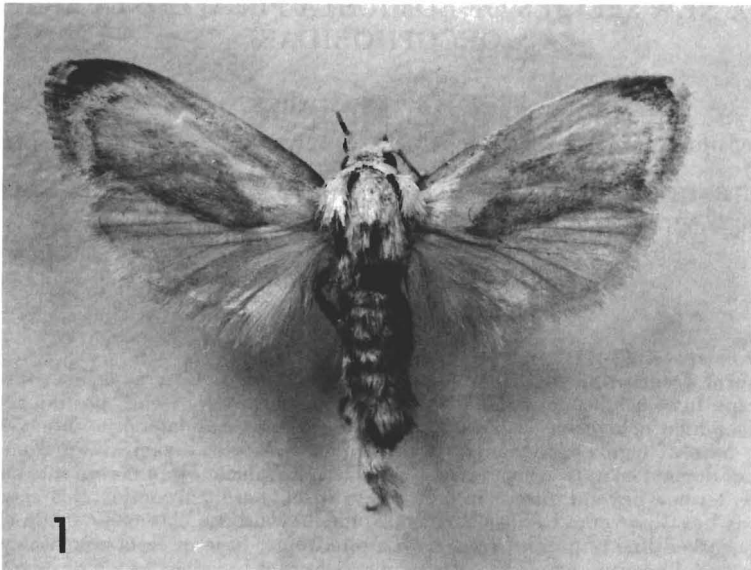


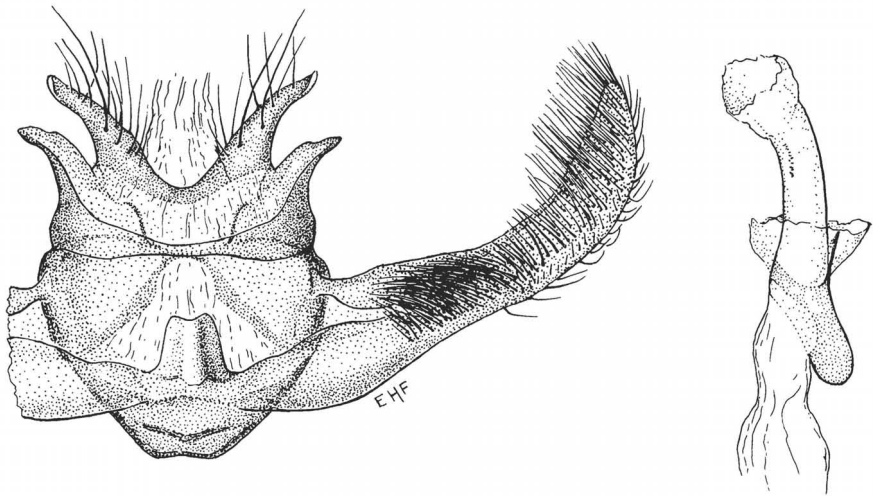
FIG. 1. *Eomichla hallwachsae*, new species: adult male paratype.

- E. maroniella* (Busck), 1911, Proceedings of the United States National Museum, 40: 208. French Guiana.
E. imperiella (Busck), 1914, Proceedings of the United States National Museum, 47: 26. Panama.
E. irenella (Busck), 1911, Proceedings of the United States National Museum, 40:209. French Guiana.
E. leucoclista Meyrick, 1930, Annalen des Naturhistorischen Museums in Wien, 44: 231. Brazil.

Natural History

The notes on the life history of this taxon which follow were written and provided by Dr. D. H. Janzen.

The only known larval host plant of *Eomichla hallwachsae* is the large native tree *Bombacopsis quinatum* (Bombacaceae). The large palmately compound leaves of *B. quinatum* have glabrous ovoid leaflets 7–15 cm long and 5–10 cm wide. The leaf is held in a roughly horizontal position and the caterpillar lives on the upper surface of the leaflet. The two halves of the leaflet blade are positioned so as to form a shallow trough with the leaf midrib running along the bottom; the caterpillar spins a dense, white, double-walled tough silk partition from one side of the leaflet blade to the other so as to leave a tunnel with the dorsal side of the silked-over leaflet midrib as its floor. This elongate silk house is 4–8 mm in length initially but becomes as much



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FIG. 2. *Eomichla hallwachsae*, new species: ventral view of male genitalia with left harpe removed and aedeagus to right.

as 25 mm long and 6–8 mm wide for the last instar larva. The house is positioned roughly in the center of the leaflet. The end toward the petiolet is closed, but the other end is always open; the front portion of the caterpillar head is visible as a black area well back from the tunnel entrance when the caterpillar is not feeding.

The caterpillar feeds by venturing partly out of the entrance of the silk tunnel, both exposed on the leaflet surface and among or underneath a more flimsy layer of silk around the tunnel entrance. It eats the surface of the leaflet down to the epidermis of the underside of the leaf but leaves the epidermis intact. The result is that, when a leaf with *Eomichla hallwachsae* is viewed from below, there are irregular 'windows' in the leaflet blade around the midrib somewhat distal from the center of the leaflet. A caterpillar may spend its entire development period on a single leaflet, or it may move to a new leaflet if its feeding has removed most of the leaf surface. If it moves it may make a new silk tunnel.

There is never more than one caterpillar per leaflet, but in a case of heavy infestation, each of the five leaflets may bear a caterpillar or an old silk tunnel.

When ready to pupate the caterpillar thoroughly reinforces the silk

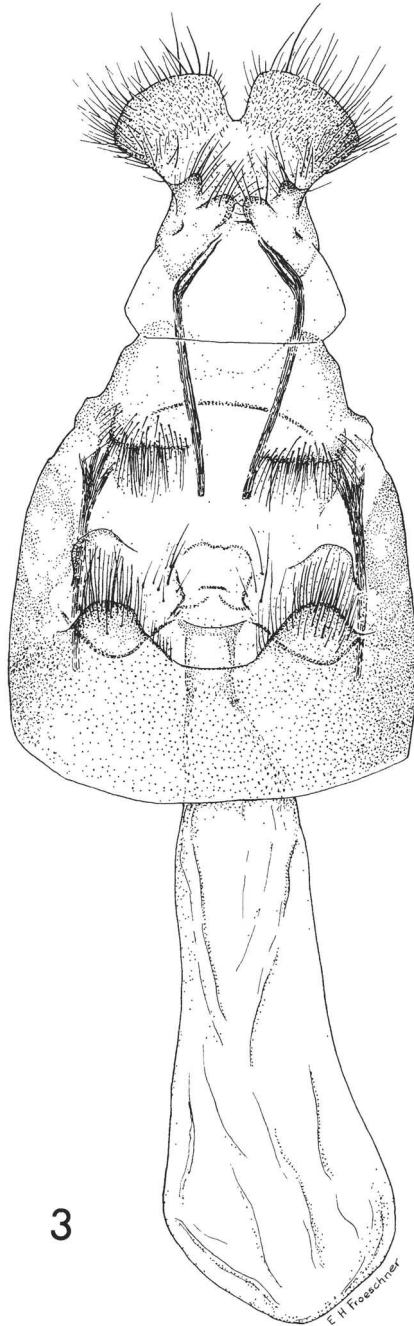


FIG. 3. *Eomichla hallwachsae*, new species: ventral view of female genitalia.

of the tunnel and spins a loosely attached tightly fitting dense silk trapdoor over the entrance and cuts through the leaf almost all the way around the site of the silk tunnel. That portion of the leaf falls free, and as the remaining leaf attachments dry, the portion with the house-cocoon either falls off the tree into the litter or becomes entangled with the leaves like any other piece of dead leaf. The caterpillar may also spin some silk attachments of the house-cocoon to adjacent green leaves, which results in the structure hanging free among the leaves. The silk at this stage is rusty brown in color, rather than the white that characterized the house when the caterpillar was in it. The white silk house looks like old spider webbing; the brown silk of the house-cocoon is a close match to dead *Bombacopsis quinatum* leaves. The cocoon-house structure is about 3 cm in length and 6–10 mm in cross-sectional diameter.

The adults emerge about one month after pupation during the rainy season, but house-cocoons maintained in dry containers in the laboratory will produce adults at least two months later when wetted. Larvae are common on *Bombacopsis quinatum* by the second month of the rainy season at Santa Rosa (June), and an occasional larva may be encountered on the foliage as late as the fifth month of the rainy season (September–October). Since *B. quinatum* is leafless from December–January until early May (dry season), the moth probably passes the dry season as a dormant pupa.

Bombacopsis quinatum is a large forest tree with a crown containing tens of thousands of leaflets. The larvae of *Eomichla hallwachsae* may be found on the foliage at any point in the crown, but they are much more common on outer leaves exposed to the sun and on leaves in the upper portion of the crown than on shaded or lower leaves. The larvae are never found on young saplings or sucker shoots (1–3 m tall) and only rarely on well-established small young trees (3–5 m in height). In the 1981 rainy season the moths were common; inspection of a large *B. quinatum* crown with binoculars yielded hundreds of leaves with the characteristic and conspicuous feeding damage. Trees growing in forest and forest edges had conspicuously more larvae on them than did trees isolated in open pastures.

The adults come to fluorescent and black lights (mostly males) placed at least 800 m from mature *B. quinatum*.

ACKNOWLEDGMENTS

I am indebted to Dr. D. H. Janzen for placing these specimens in my hands, and I am pleased to name this species for W. Hallwachs, who was one of the collectors of this new species. The drawings were done by Mrs. Elsie Froeschner and the photograph by Victor E. Kranz, Smithsonian Institution photographer. The study which produced the species described above was supported by NSF grant 8-11558.