

## The Kou Moth, *Ethmia colonella* Walsm., in Hawaii

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This moth is attached to the "kou" tree, *Cordia subcordata* Lamarck. It was described in the family Oecophoridae by Walsingham in the Fauna Hawaiiensis, 1 (5): 507, 1907, from 19 specimens collected by Perkins in 1896 in Honolulu. Walsingham considered it the same species as the two moths collected by Blackburn prior to 1882, which were determined incorrectly by Butler as *Azinis hilarella* Walker (Ent. Mo. Mag., 19: 180, 1883). Butler quotes Blackburn as saying: "I have twice taken this insect, though at long intervals, each time it was apparently attracted by light, but seemed very sluggish, and apparently satisfied to sit and look at the light from a distance". The Perkins specimens mentioned above, were from an unrecorded cultivated plant in Honolulu, and the statement was made that it was probably an introduced species.

Since 1906, it has been known that *Cordia subcordata* was its host plant, there being specimens in the H.S.P.A. collection reared from this plant by Terry, August and December, 1906, in Honolulu. In Proc. Haw. Ent. Soc., 6 (3): 373, 1927, Swezey records finding a *Cordia subcordata* tree infested with *Ethmia* caterpillars at Kahului, Maui, October 16, 1926. Several moths were reared by Pemberton from an infested *Cordia* tree at Black Point, Honolulu, November 20, 1935. The specimens now exhibited were reared February 4, 1943 from caterpillars brought in by Dr. Lyon from a young infested *Cordia* tree in Foster Garden, Honolulu. Furthermore, it is certainly the moth whose caterpillars were referred to by Dr. Hillebrand in "Flora of the Hawaiian Islands": 321, 1888, where, under "*Cordia subcordata*", he says: "Along the seashore here and there; formerly much planted by the natives round their houses, but now almost exterminated by the ravages of a small moth. . . . It ranges all the way from the Hawaiian Islands to Madagascar and Zanzibar, and would seem to have accompanied the Malayo-Maori race in their migrations, a reason for which may be found in the large shade afforded by its broad crown, particularly valuable in a littoral tree. The wood, rather soft but durable, is much prized for cabinet work, cups and dishes, exhibiting wavy ribbons of light and dark brown when polished". It was a favorite wood with the Hawaiians for making calabashes. Since 1906, and probably since Hillebrand's time, no trees have been able to grow

large enough for this purpose. They are always kept stunted on account of the caterpillars of *Ethmia colonella* feeding on the young terminal foliage and checking the growth of the tree. In fact, the tree is so scarce that only an occasional stunted example is now seen.

The caterpillars are protected by webs. The full-grown caterpillar is about 22 mm. long; black, with the dorsal and lateral surfaces speckled with numerous small irregular-shaped light yellow spots, a median dorsal pair of closely-parallel interrupted light yellow lines, laterally the spots are assembled in a distinct broken stripe just above the line of spiracles, which are small dark and nearly circular; cervical shield black with anterior margin widely light yellow and a median light yellow line; head black; head, cervical shield and dorsum with long slender black setae. Four pairs of slender abdominal prolegs.

The white cocoons are elongate oval, made rather flat on the surface of a leaf or other object. The pupa is 10 mm. long; uniformly reddish brown, surface smooth; wing and leg cases extend to the posterior margin of the fourth abdominal segment; cremaster has two stout spines situated ventrad a little forward from the apex of the abdomen and projected forward at a 45 degree angle, having numerous slender hooks to hold to the silk of the cocoon. This feature of the pupa distinguishes it from the pupa of any other moth in Hawaii. The caterpillar, too, is distinct from any other occurring in Hawaii. The pimpline parasite *Ephialtes hawaiiensis* (Cameron) has been recorded from the pupa, according to Perkins.

In 1920, two moths were collected by Kusche at Kaholuamano, Kauai. Hence, it is known on the three islands Oahu, Maui and Kauai, and no doubt would also be found on the other islands of the Hawaiian group if the *Cordia* trees were found and examined there.

Two or three other species of *Cordia* are planted in Honolulu and other localities, but *Ethmia colonella* has not been found feeding on any of them.

All along we have speculated on where *Ethmia colonella* might have come from, as we had not learned of any records of its occurrence in other localities. Just lately in searching the literature for other species of *Ethmia* and their habitats, I found that *Ethmia praeclara* was described from Lombok by Meyrick in 1910. It is a species which differs from *colonella* in only a few minor details. In the same paper (Trans. Ent. Soc. London, 1910: 461), he describes three other species of *Ethmia* from Solomon Islands, Malay States and Queensland, respectively, which are also only slightly different from *colonella*. Nothing is given as to food plants. Could it be possible that these species are also to be found attached to

*Cordia?* Also, in this same paper, Meyrick records our *colonella* from Kei Islands. These islands are a little south of the western part of New Guinea. This seems a very unlikely place for *colonella* to migrate from to Honolulu. Perhaps we may venture the opinion that some future entomological explorations will discover it on some of the nearer intervening islands.

The family name *Ethmiadae* has been used by Busck and Meyrick for *Ethmia* and related genera. (See Journ. Bombay Nat. Hist. Soc., 19: 422, 1909, and Proc. Ent. Soc. Washington, 12: 53, 1910)

Later note: It is of interest to record that observations on the above *Cordia subcordata* tree at Foster Garden, at other times during the year, showed that there had been no recurrence of the earlier severe infestation. In September the tree had quite recovered from the early infestation and made a fine growth. Only two caterpillars were found by careful search. Four months later the tree was in fine flourishing condition, with no evidence of injury by *E. colonella* caterpillars. It will be of interest to continue observations and ascertain how long a period elapses before another severe infestation occurs on this tree, and to determine if possibly this moth has seasonal recurrences.

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### Synonymy of *Euxoa hephaestaea* (Meyrick) (Lep.)

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*Agrotis hephaestaea* Meyrick, Fauna Hawaiiensis, 3: 346, 1904.

*Euxoa diplosticta* Hampson, Ann. Mag. Nat. Hist., VIII, 4: 368, 1909.

*Euxoa wikstroemiae* Swezey, Proc. Haw. Ent. Soc., 4: 377, 1920.

Meyrick described *hephaestaea* from 14 specimens collected by Perkins in N.W. Koolau range, Oahu, July, 1901. Hampson described *diplosticta* from a single male collected by Perkins at Wai-  
 alua, Oahu, without date. I suspect that this specimen was one from the same lot that Meyrick worked with, for the region where Perkins collected in N.W. Koolau range was above the Wai-  
 alua plantation, and it is possible that a specimen (or maybe more of them) was labelled "Wai-  
 alua" as there is a specimen labelled "Wai-  
 alua" in the H.S.P.A. collection which is undoubtedly from the same lot. Swezey described *wikstroemiae* from two females reared

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