

AN UNUSUAL ABUNDANCE OF *AMATHUSIA PHIDIPPUS*
(AMATHUSIIDAE) IN CEBU, PHILIPPINES

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Few are the hamlets and countrysides in the Philippines where *Amathusia phidippus* (Linné), a large brown butterfly, is not a familiar sight at twilight. Its hasty, jumpy flight, large size, and habit of gamboling if several are around, sets it apart from other crepuscular fliers such as species of the satyrid genus *Melanitis*. Likewise, one seldom comes across banana and coconut groves which do not have a colony of a form of *phidippus*. Cebu's subspecies is *Amathusia phidippus pollicaris* Fruh.

In past years, there was no recorded or reported instance of pronounced abundance of this butterfly, that is, inside of this somewhat limited area, although in February 1954 about twenty pupae were brought indoors by children for hatching, all taken at the area under treatment in this article. In respect to their crepuscular activity, and frequency of encounter with immature stages in recent years, no sign of abnormalcy was noted. The same is true with observations made in parts of western Leyte and the provinces of Agusan, Surigao, and Davao in Mindanao in 1960-62.

From the latter part of December 1961 to the latter part of March 1962, this twilight beauty has multiplied in numbers which to perennial observers is beyond normalcy. The area of infestation in the suburb of Cebu City is less than a square kilometer, and involves the districts of Labangon, Mambaling, and Punta Princesa. There is a possibility that adjacent areas where investigation was not extended, may have received a share of the infestation by the destructive larva of the butterfly.

When this was first observed and reported by a team of high school students headed by Osman, the writer's son, sometime in January 1962, the density of the population was already slightly above normal, but subsequent week-end visits to the place revealed a steady crescendo until the peak was reached somewhere between February and March. The increase in numbers especially of males was particularly noteworthy in an area bordering a small slightly watered creek profusely vegetated with a tangle of shrubbery, with a predominance of coconut and bananas, and a sprinkling of betel nut, citrus, and other fruit-trees. Larvae in various stages were noted on all the monocotyledons mentioned. On these visits pupae were collected for indoor hatching.

Banana groves left uncleaned by their owners provide good hiding places of imagines, since their tangle of dried leaves affords perfect camouflage background when the insect alights with folded wings in

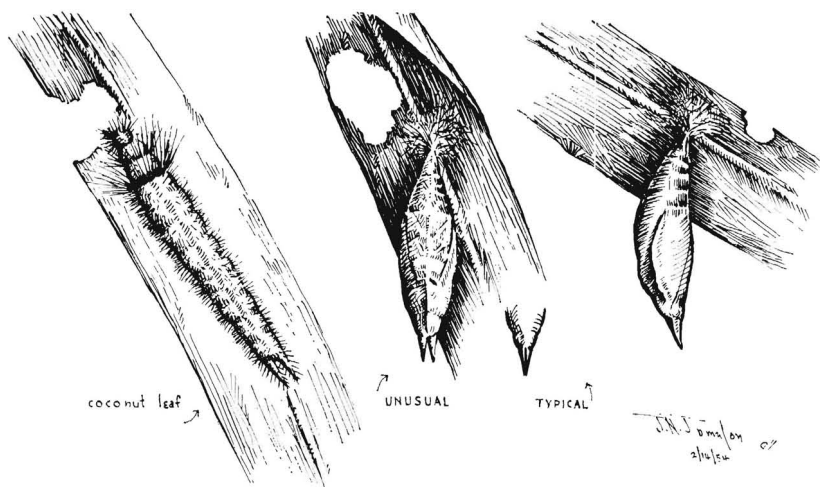
daylight. Here, by shaking these clusters of dried leaves, scores of sleepers are flushed out. Usually the insects do not fly far and long. They immediately settle on nearby hideouts, although as a rule most usually return to their favorite hideouts in due time, unless the disturbance is prolonged.

At the height of infestation it was easy for two or three boys to pick in few hours well over a hundred specimens. Visits were usually made in the morning at which time the flight of the disturbed sleepers is brief. At twilight, or close to twilight, when they become active, collecting becomes brisk, and the scores of flying dark forms offer good exercise to one's limbs and eyes. On about the last week of February, two boys took 68 fresh specimens in less than two hours in the later part of the morning, collecting at the same time live pupae for indoor hatching. Collecting imagines, however, was limited to those which alighted on low or young coconuts and bananas. Those which sought the tops of full-grown coconuts escaped molestation.

On going over the sexes, we found that the males outnumbered the females by five to one. There is considerable uniformity in the stripes and colors of males; on the other hand, the sub-apical light brown area on the dorsum of the females' wings, varies in size and intensity of shade although not to a marked degree. Attack by parasitic Diptera is about 25% on all pupae brought indoors. Those which emerged were perfect, beautiful specimens with only about 1% abnormality in one form or another. Also, out of about a hundred specimens, only one female and three males are undersized. (Of the 1954 batch, 90% were parasitized by 2 species of flies.)

All the recorded foodplants of this amathusiid form of Cebu are monocotyledons. They are: *Cocos nucifera* Linné (Coconut), *Areca catechu* Linné (Betel Nut), *Corypha elata* Roxb. (the Buri Palm - source of sago flour, basic food of Melanesia), *Nipa fruticans* (Nipa or Sasa Palm, widely used for thatch), and *Musa sapientum* (Banana). It is likely that other members of this division of angiosperms are also favored by the larva, especially at places where the above-mentioned are less abundant or absent. Individuals were found by our expeditions to Leyte and Mindanao on mountainous areas of not over 1,000 feet elevation; the only possible foodplants present were wild bananas, Abaca, Rattan, and wild species of palms. Among these plants, we also flushed out species of *Zeuxidia* and *Discophora*, known feeders on similar or the same plants.

Amathusia phidippus is a familiar twilight flier in most countrysides of many provinces here. It is however more numerous in the large coconut plantations where borders are usually lined with bananas. In November



Immature stages of the Cebuan form of *Amathusia phidippus*. Larva feeding on coconut leaf, and dorsal and lateral views of the pupa. The end of the pupal head is occasionally bifurcate; it is normally produced to a single point.

of 1952, the writer spent nine days in a sizable coconut plantation near the Maria Cristina Falls in Lanao province. Here, from the eaves and under the floors of stilted huts of tenants, a good number of sleeping adults were collected. Sometimes over a dozen would appropriate dingy corners. Tuba (coconut wine) gatherers frequently find drowned or drunk individuals inside bamboo tubes, together with bees and coconut beetles. In August and September 1961, a similar opportunity was enjoyed by the writer in southern Davao. For nearly two months, the coconut plantations with their complements of bananas and bamboo thickets provided daily observation of the Mindanao form of this amathusiid. At the American-run Lais Plantation along the Pacific coast at southern Davao, these butterflies favor for their day-hiding large mango trees with spreading low branches. They sleep upside down under branches and on dense clusters of leaves.

The *Amathusia* is subject to attack by animal predators. In Davao, specifically, the Malita-Talaud-Kinangan sector, is found a goodly population of several species of Robberflies (Asilidae), and I cannot think of another place which is more spiderous. All these animals take their toll of butterflies and moths, especially the Robberflies which were frequently seen grasping a small butterfly. Crumpled wings of an *Amathusia* were seen on several webs of spiders, especially one with a strong, sticky web which sometimes can even snare a sunbird. Many specimens collected showed wings neatly clipped by either lizards,

birds, or perhaps tarsiers. Actually, a *Hestia* which soared up the coconut tree when chased was seen to become entangled in a strong web and was immediately stunned by the spider. Because of their large size, many an *Amathusia* escaped from the jaws of lizards, suffering at most about a fifth of their wings lost to the predators, which missed the vital part of the body. Uniformity of these bite marks on their wings showed that the attacks were mostly made when the prey were at rest with folded wings.

LEPIDOPTERA OVIPOSITING ON PLANTS TOXIC TO LARVAE

I can quote two East African examples analogous to those quoted by Mr. Straatman (*Journ. lepid. soc.* 16: 99-103; 1962).

Charaxes brutus Cr., and its subspecies *natalensis* Staud., with a considerable number of recorded food-plants, now lays freely on an introduced plant *Melia azedarach* L. (Meliaceae), commonly called Persian Lilac, but such larvae invariably die in their first instar despite the fact that they feed freely. On the other hand I have transferred last instar larvae from other food-plants to *M. azedarach* and they have completed their metamorphosis successfully.

Van Someren records *Charaxes lasti* Gr. Sm. as laying on *Afzelia quanzensis* Welw. (Caesalpinaceae), and I have obtained ova freely from captive females caged over the same plant. My larvae have all, however, died in the first instar and Van Someren also states that he has failed to rear the species through.

The case of the Australian subspecies of *Papilio demoleus* L. is most surprising. In India, where I have bred it in large numbers, it has a fairly wide range of food-plants belonging to the Rutaceae, and its near ally *P. demodocus* Esp. in East Africa is the same. To have diverged from the normal food-plants of the group to the extent that it cannot develop on them seems to indicate a very wide separation from the parent species.

I would like to query Mr. Straatman's use of the term "toxic" in this context; to me "toxic" implies something active or positive, but my impression is that in these cases the trouble is more passive or negative, the plants in question lacking something essential to the larva's development.

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