

NOTES ON TROGONOPTERA TROJANA OF PALAWAN—
PHILIPPINES

JULIAN N. JUMALON

University of San Carlos, Cebu City, Philippines

One week before the outbreak of the war in the Pacific in 1941, the picture of both sexes of the *Trogonoptera trojana* (identified as *Ornithoptera trojana*) appeared in the magazine section of the then widely circulated *Tribune*, a Manila daily. In part the short article reads: "A certain ornithoptera for instance, (found only in Palawan), is said to cost \$250, highest price for a P.I. butterfly; its male, \$75. According to the late Prof. C. S. Banks, there are only two existing specimens of this, one of which is in a German museum, the other, in the P.I. Division of Natural History Museum." When the Bureau of Science building in Manila was destroyed during the liberation campaign, all the scientific records and collections were lost. Since then, the writer has never heard anything about this butterfly nor came across papers about it. It is evident that the trickle of scientific expeditions which have extended their field work to Palawan have not succeeded in collecting specimens of this birdwing.

In 1959, accompanied by three zoology instructors from the University of San Carlos of Cebu City, Philippines, the writer collected for nearly two months at central Palawan. Based at Irawan, 14 kilometers from the capital (Puerto Princesa), each day the party worked out the foothills of Staveley Mountain, following the chromite mine road which winds upward toward the mine, 14 kilometers from Irawan. The road cuts across a dense second growth vegetation where there were ample flowering bushes such as lantana and vines which attracted a host of pierids, danaiids, and nymphalids. Before covering the entire length of the road, one gradually enters the primary forest where the predominating important trees are almaciga (*Agathis alba*) and apitong (*Dipterocarpus grandifloris*). Here, at an elevation of 300–400 meters, the party noticed huge black birdwings soaring more than 30 feet above the vegetation. Not only did none in the party have the chance to swing a net at those high-flying insects, but we did not even see the upper surface of those soaring beauties.

In September, 1965, the Smithsonian Institution, Washington, D. C., sent out a one-man expedition to the Philippines to collect moths, with emphasis on the Islands' Microlepidoptera. Dr. Donald R. Davis, Associate Curator of the Division of Entomology at the Smithsonian se-

lected four strategic localities for light-trapping. One month was spent in Cebu and western Leyte, a full month at Davao on Mindanao, five weeks at central and southern Palawan, and finally in Baguio, on northern Luzon. According to previous arrangements, the writer agreed to accompany Dr. Davis at the first four places. The party arrived at Palawan on the last week of November. Therefore we were at Palawan when it was neither too rainy nor too dry. The rains were occasional at central Palawan, but an easterly wind made most of the days partly cloudy, with, at times, a stiff breeze which made the upper lanes of the forest too uncomfortable for these huge birdwings.

The party was based for ten days on the chromite mine site in the midst of the Almaciga and Apitong forest. The mine road runs further west for several kilometers. The surrounding ranges have an elevation of 2,000–3,000 feet and are covered with a primary forest. Here a species of climbing *Bauhinia* is in bloom during the last three months of the year. Its pods ripen in summer or the hot months of the Philippines. The inflorescence of this vine attract a number of butterflies. Among the papilionids observed to regularly visit the flowers were *Lamproptera curius*, *Papilio palawanicus*, *P. demolion*, *Graphium agamemnon*, an occasional *G. sarpedon* and *P. polytes ledebouria*. It was sometime later when the party noticed that the *T. trojana* also favored this flower although it showed marked partiality for a certain vine while the others although profusely flowered, were bypassed.

This vine may sprawl on the ground like sweet potato, or grow upward, enveloping a whole shrub tree as was the case with our "bait" tree which yielded the greatest number of catch. This vine hugged a 15-foot tree, completely covering it, its scores of clusters of flowers shooting out in all directions. All around were smaller vines striving to reach sunshine, some of which appeared ideal for flower visitors but remained unpatronized by the *trojana*. The area is a depression with second growth forest of not more than 15 years. Possibly birdwings emerging from tall trees of surrounding mountainsides fly down into this area in search of flowers and mates, as well as to escape from the stiff breeze sweeping the top of the forest. Here, all kinds of vines, shrubs and herbs, exposed to sunlight, bloom in exuberance, hence the abundance of fluttering visitors on sunny mornings.

On slightly elevated ground 30 meters away, an eight-foot guava tree similarly choked by a *Bauhinia* vine, proved to be another nectar source favored by the *trojana*. Half a kilometer down the mining road several males and a female *trojana* were later taken at a sprawling vine. It was on the curve of the road facing the morning sun. For nine days, the

writer shuttled between the three spots from morning until sundown, and took two females and 24 males. Dr. Davis, also took a female and three males. The writer's assistant caught a female and six males. Of the chances afforded us in nine days, 30 to 40 percent were misses.

T. trojana is essentially a woodland butterfly like species of *Troides* of the islands. None was seen on the open spaces of the lowland where the black and yellow birdwings occur. Both sexes showed preference for the milder hours of the day. Shying the hot hours of bright days, they sought refuge in the cool shade of tall trees where they were usually seen ceaselessly soaring and gliding, recalling the habit of the male *Parides mariae* and *P. phegeus*. Some males were observed flying during a shower, and one was seen on the wing in a particularly heavy rain. Several males were taken while they fed during a drizzle. With their huge wings, they appeared to be at a great disadvantage during a strong wind. Some were taken while bracing a stiff breeze, when they were forced to fly lower in order to escape the wind. Of the 26 individuals taken by the writer, 18 were netted in the morning, and eight in the afternoon.

Both sexes feed early in the day, even on our side of the range where the sun appears about 9:00 A.M. The earliest catch was at about 6:00 A.M., and the latest was after 3:00 P.M. Of the four females taken, one was taken at 7:00 A.M., another at 11:00, on a cloudy day. One came to feed at 3:00 P.M. Several were seen hovering over thickets on slopes, and one fresh female was observed several times at a particular spot three meters above the roadside, leading to the writer's discovery of an *Aristolochia* vine which is very similar to *A. tagala*. An egg-laying female led to the finding of two larvae on the stem of another vine on the opposite side of the road. One, nearly 5 cm in length, was apparently hiding on the stem a meter from the ground. The smaller one was nearly 2 cm in length. The head of the larger one was black, its body brownish black with two dorsal rows of brown fleshy spines; the pair above the second false legs, and the last three pairs, together with two laterally placed below it were orange. There was a yellow ring between the head and the thorax. The small larva had the head and body brownish black, the spines pale orange. Neither reached pupation stage because the party moved down to southern Palawan soon after the discovery of the larvae. Both specimens are preserved in alcohol in the writer's collection.

Seitz (Macrolepidoptera of the World, vol. IX) described the forms of *brookiana* Wallengren of Borneo and Balabac, and *trojana* Staudinger of Palawan, giving the differences between them. The female *trojana* closely resembles that of *T. brookiana* of Malaya. However, in *trojana*,

the subapical white markings are only faintly indicated, not as vivid as in the Malayan form. The feather-like metallic green spots of the latter's forewing (dorsal) are well defined, while in *trojana*, these are reduced to narrow lines bordering the strong black veins. The hindwings above are nearly identical in the two species except that in *trojana*, a beautiful blue sheen runs from the base of the wing upward meeting the metallic green halfway discally.

Pendlebury and Corbet, as well as other observers, noted the extreme rarity of the females of the *T. brookiana*. The same is true of the Palawan birdwing. In the writer's experience, there was an average of one female for every 30 or more males seen. Of our group's total catch of 37 specimens, however, there are eight males to every female. This was because, after 15 males were captured, the writer and his companion concentrated on the rare females. Most of the half dozen or more females seen were perfect and fresh individuals. One came to the flowers briefly then flew in a spiral perpendicular to the ground until the butterfly was a mere speck overhead then made for the almaciga forest. About 20% of the males seen and taken were perfect although many of the damaged or imperfect ones were very fresh with only their hindwings showing a tear or two.

Males taken earlier were used as decoys, placed close to the flowers but were ignored by approaching males, which went directly to the flowers. Males were encountered as high as the 2,000-foot ridge toward the west, and as low as 50 feet above sea level near the foothills of Cleopatra's Needle at the north. There is forest and heavy lowland vegetation surrounding the island, showing that the birdwing is associated with woodland wherever it is found. Since there is not great variation in height of the ranges of the province from north to south, and the type of vegetation is about the same, it is likely that the range of this butterfly extends to either extremity. Perhaps some interesting subspecies may occur on the islands and islets which dot the northern and southern waters.