



PACIFIC ORANGE LEAFWING BUTTERFLY *Doleschallia tongana* (Lepidoptera: Nymphalidae)

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On October 23, 2017, a butterfly was taken from the underside of a leaf of sour-sop, *Annona muricata*, by Jake Manuel, a student assembling an insect collection as a requirement for the General Entomology course at the University of Guam. The collection site was the University of Guam campus in Mangilao, Guam (13.43047° N, 144.80041° E). The specimen was pinned, images were made (Fig. 1), documented in iNaturalist [1] and deposited in the University of Guam insect collection (Accession code: iNat8515898). The specimen has been identified as *Doleschallia tongana*, This is an new island record for Guam and Micronesia and this discovery has been published in the scientific literature [2].

Identification

This specimen does not match any of the descriptions in *Butterflies of Micronesia* [3], the standard reference for Guam's butterflies. So a request for identification was sent to Donald Buden, PhD, a biologist at the College of Micronesia in Pohnpei, who is an expert on butterflies in our region. Based on images, Buden tentatively identified the specimen as a species in the genus *Doleschallia*, and indicated it possibly belonging to the *bisaltide* complex. On 24 February 2018, John Tennent, PhD, a lepidopterist at Natural History Museum in London determined the butterfly as *Doleschallia tongana* Hopkins, 1927, based on images and comparison with specimens in the extensive collections of the Museum.

In common with other species in the *D. bisaltide* species-group, *D. tongana* is individually variable. The GBIF Backbone Taxonomy lists the accepted name for this taxon as *Doleschallia bisaltide* subsp. *tongana* Hopkins, 1927 [4]. However, the taxon record is tagged as a “name parent mismatch” issue. *D. tongana* is listed in the iNaturalist database [5] and has been assigned the vernacular name “Pacific orange leafwing”.



Figure 1. The first Pacific orange leafwing collected on Guam. Images show top and bottom surfaces of wings.

Geographic distribution

D. tongana is recorded from Tonga, Fiji, Samoa, Papua New Guinea (including the Bismark Islands), the Solomon Islands, and New Caledonia.

Occurrence of *D. tongana* in Samoa is a relatively recently recorded range expansion. It was first detected on Tutuila Island in American Samoa in 1997 [6]. Cook and Vargo 2000 [6] state that “The inclusion of Samoa in this species’ range by Parsons (1998) appears to be based on a misreading of Hopkins (1927).”

Description of caterpillar

Cook and Vargo 2000 [6] provide a description of a last instar *D. tongana* caterpillar observed in American Samoa:

Only a few larval host plants have been recorded for *D. tongana*. Its major host plant family appears to be *Acanthaceae*. But it also feeds on *Moraceae* and *Fabaceae*. For a list of species, see Manuel et al. (2018) [2].

Just prior to pupation, the caterpillar measured ca. 50 mm in length. It possessed a black ground color with light speckling dorsally and prominent cream colored stripes running longitudinally, located dorsolaterally and ventrolaterally. Each body segment had seven prominent black spines, with numerous smaller secondary spines. The base of each primary spine was pale metallic blue. From a distance, the most prominent features of the caterpillar are the black ground color with metallic blue spots, and the pair of light parallel stripes running longitudinally on each side.

Public Assistance Requested

This insect has the potential to do economic damage because it has been reported to feed on breadfruit, *Artocarpus altilis* (Family *Moraceae*) [8]. It is not expected that this invasive insect will develop into a major pest on Guam, however there is a need to collect information on local distribution and larval host range.

To date, only the single specimen has been collected and no caterpillars have been found. An informal survey has been initiated on Guam to search for more specimens of *D. tongana* and to record host plants. The public is invited to help in this effort. Citizens are asked to report any sightings of this butterfly or its caterpillars either by contacting Aubrey Moore, PhD, at the University of Guam (aubreymoore@triton.uog.edu) or by posting observations, preferably with images, on iNaturalist in a *Doleschillia tongana* survey project set up for this purpose <https://www.inaturalist.org/projects/survey-for-doleschallia-tongana-on-guam>

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