

Is *Hamadryas guatemalena elata* Present in Costa Rica?

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Abstract

The genus *Hamadryas* is composed by 20 species. *H. guatemalena elata* is currently known from two specimens from Brazil. Recently a new series of individuals have been caught in Costa Rica and here I discuss the validity of the taxa and its distribution.

Case Report

Some animal and plant species are known from very few collected specimens. Even more, some of them are known only from the holotype. According to Jenkins (1983) [1], in the butterfly genus *Hamadryas*, *H. guatemalena elata* is recognized from very few collected individuals, and Lamas (2004) [2] did not recognize it as a valid subspecies but he didn't explain why. The species per se is not rare, only the *elata* subspecies, which has doubtful validity [1]. From the thirty one museums and collections visited by Jenkins during the preparation of his generic revision, only two males and two females were available, and what is most strange, three specimens are from Espirito Santo and one from the Amazonas (2500 km apart, both are in Brazil).

The other two *H. guatemalena* subspecies are found 2500 km away from *H. guatemalena elata*: *H. g. guatemalena* and *H. g. marmorata* are found in Central America and Mexico respectively.

When the habitats of the widely separated localities of *H. guatemalena elata* are analyzed, one notices that these two localities belong to two different biogeographical provinces: Amazonian Rain Forest (Amazonas) and Brazilian Rain Forest (Espirito Santo) [3]. If there are actually two populations of this subspecies, they may be undergoing different evolutionary processes and may have evolved into two different sub-species, as has occurred in the subspecies found in Central America and Mexico.

What adds to this problem is the finding of four more specimens (2, 2), using the criteria of [1], of *H. guatemalena elata* in Costa Rica, flying together with *H. g. guatemalena*. This is 2500 km away from the previous reports.

The difference between *H. g. guatemalena* and *H. g. elata* are basically the sub-marginal ocelli in the dorsal hind-wings. In the first subspecies these ocelli are filled with dark gray scales and in the second with white scales (Figure 1) [1]. It is interesting that in the two Costa Rican localities where *H. g. elata* have been caught, intergradations with *H. g. guatemalena* can be found.

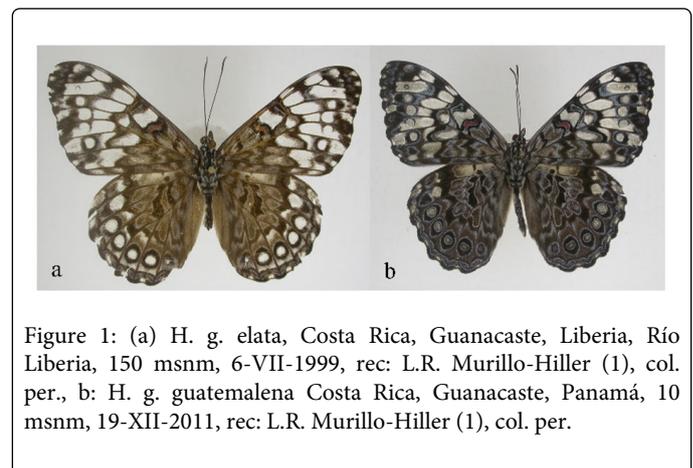


Figure 1: (a) *H. g. elata*, Costa Rica, Guanacaste, Liberia, Río Liberia, 150 msnm, 6-VII-1999, rec: L.R. Murillo-Hiller (1), col. per., b: *H. g. guatemalena* Costa Rica, Guanacaste, Panamá, 10 msnm, 19-XII-2011, rec: L.R. Murillo-Hiller (1), col. per.

Jenkins (1983) [1] argues that *H. g. elata* is perhaps a relic of a widely distributed population in the past. It is possible that Costa Rica is at the northern limit of its distribution, where hybridization with other subspecies occurs, and *H. g. elata* went into local extinction process in Brazilian population 90 years ago. If this scenario is accepted, the locations where this rare subspecies is found in Costa Rica are in great need of conservation. On the other hand, the individuals found in Brazil may represent erroneous data. A third possibility is a misidentification of the specimens collected in Brazil; these could be the similar species, *H. feronia feronia*, and the white ocelli could be a mutation, since no other *H. guatemalena* population is present in the Brazilian locality from where *H. g. elata* has been described. From all this possibilities, which is more acceptable, is that *H. guatemalena elata* never existed in Brazil, and the specimens are mistaken data (probably from somewhere in Central America) and under this scenario the subspecies *elata* is not valid, as [2] presented it on his catalog. What is presented as *H. g. elata* in fig. 1 in this paper must be then, a white aberration of *H. g. guatemalena* considering that the male genitalia studied for the Costa Rican specimens are identical to the rest of the *H. guatemalena*.

H. g. elata collected in Costa Rica (2 2): Costa Rica, Guanacaste, P.N. Rincón de la Vieja, 800 msnm, 16-IX-1997, rec: L.R. Murillo-Hiller (1), col. per. Costa Rica, Guanacaste, Panamá, 10 msnm, 19-XII-2011, rec: L.R. Murillo-Hiller (1), col. per. Costa Rica, Guanacaste,

Liberia, Río Liberia, 150 msnm, 6-VII-1999, rec: L.R. MurilloHiller (1), col. per. Costa Rica, Guanacaste, Liberia, Río Colorado, 150 msnm, 7-VII-1999, rec: L.R. MurilloHiller (1), col. per.

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