

## **New Geographical Records for the Threatened Butterfly *Actinote quadra* (Lepidoptera: Nymphalidae: Heliconiinae)**

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NEW GEOGRAPHICAL RECORDS FOR THE THREATENED BUTTERFLY *ACTINOTE QUADRA*  
(LEPIDOPTERA: NYMPHALIDAE: HELICONIINAE)

**Additional key words:** Acraeini, Atlantic Rain Forest, conservation, montane butterflies, Serra da Mantiqueira.

Most species in the genus *Actinote* (Nymphalidae: Heliconiinae: Acraeini) are associated with forest edges, clearings and secondary vegetation, commonly found in high densities in disturbed habitats all over the Neotropics, especially in altitudes from 600 to 1200 m (Francini 1989, 1992; Francini & Freitas 2010; Paluch 2006). Some species, however, are rare, presenting small restricted populations associated with pristine and undisturbed habitats (Francini et al. 2004, 2005, 2011; Freitas et al. 2009, 2010; Freitas 2010). Two of them, namely *Actinote zikani* D'Almeida, 1951 (critically endangered) and *Actinote quadra* (Schaus, 1902) (vulnerable) (Fig. 1) are included in the most recent Brazilian red list of endangered fauna (Machado et al. 2008; Freitas & Brown 2008a,b) and in the 'National action Plan for conservation of Brazilian Lepidoptera' (a recent document containing revised and updated information on Brazilian endangered species; Freitas & Marini-Filho 2011). In the last two decades, efforts to increase the knowledge about Brazilian threatened

butterflies resulted in valuable new information of about 10 butterfly species (see above, Kerpel et al. 2014, Freitas et al. 2014 and references therein). One of them is a detailed study of *A. quadra* (Freitas et al. 2009) that listed the 12 sites where this species has been recorded, as well as data on natural history and immature stages.

Since then, four new sites for *A. quadra* have been recorded by different research groups in Southeastern Brazil, increasing the number of localities where it occurs to 16 (Figure 2). The new sites (with number of adults collected and/or observed) were the following (see also Fig. 2): 1) Santo Antônio do Pinhal (22°49'26"S 45°37'37"W, 1200 m), São Paulo state, 4 males, 20.xi.2013, T. S. Souza leg. (Museu de Zoologia da Universidade Estadual de Campinas (ZUEC), Campinas, São Paulo, Brazil); 2) Serra do Rola Moça (20°3'29.90"S 44°00'6.20"W, 1474 m), Brumadinho, Minas Gerais state, 1 male, 29.xi.2012. S.P.A. Franco leg. (UFMG taxonomic collection, Belo Horizonte, Minas Gerais, Brazil); 3) Mina de Capanema

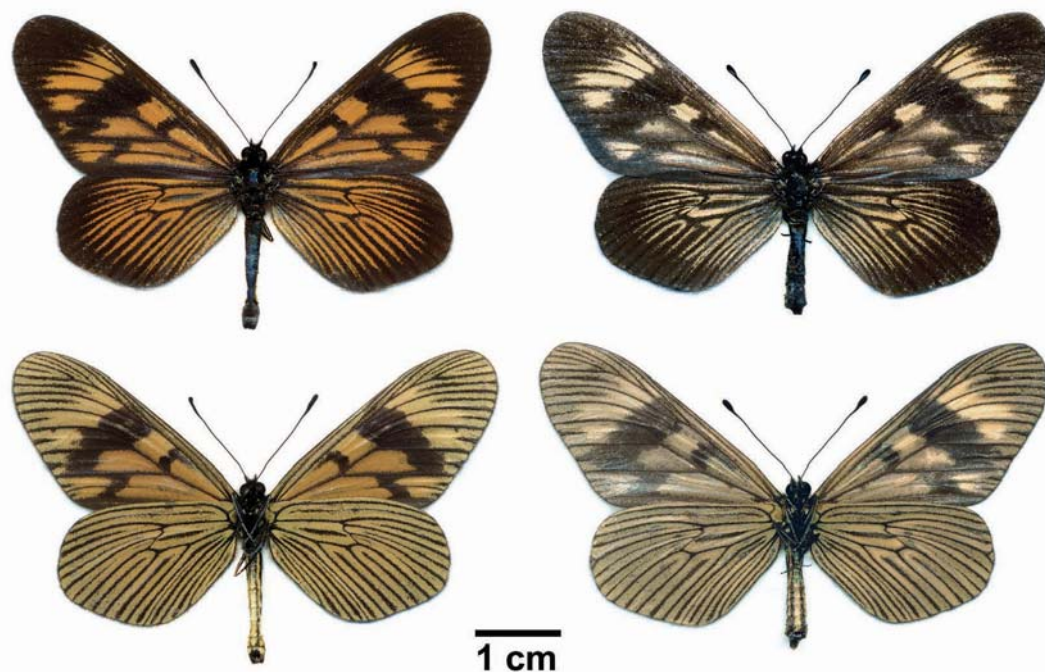


FIG. 1. Male (left) and female (right) of *Actinote quadra* from Parque Nacional do Caparaó, Minas Gerais, SE Brazil (dorsal above, ventral below). See text for additional information.

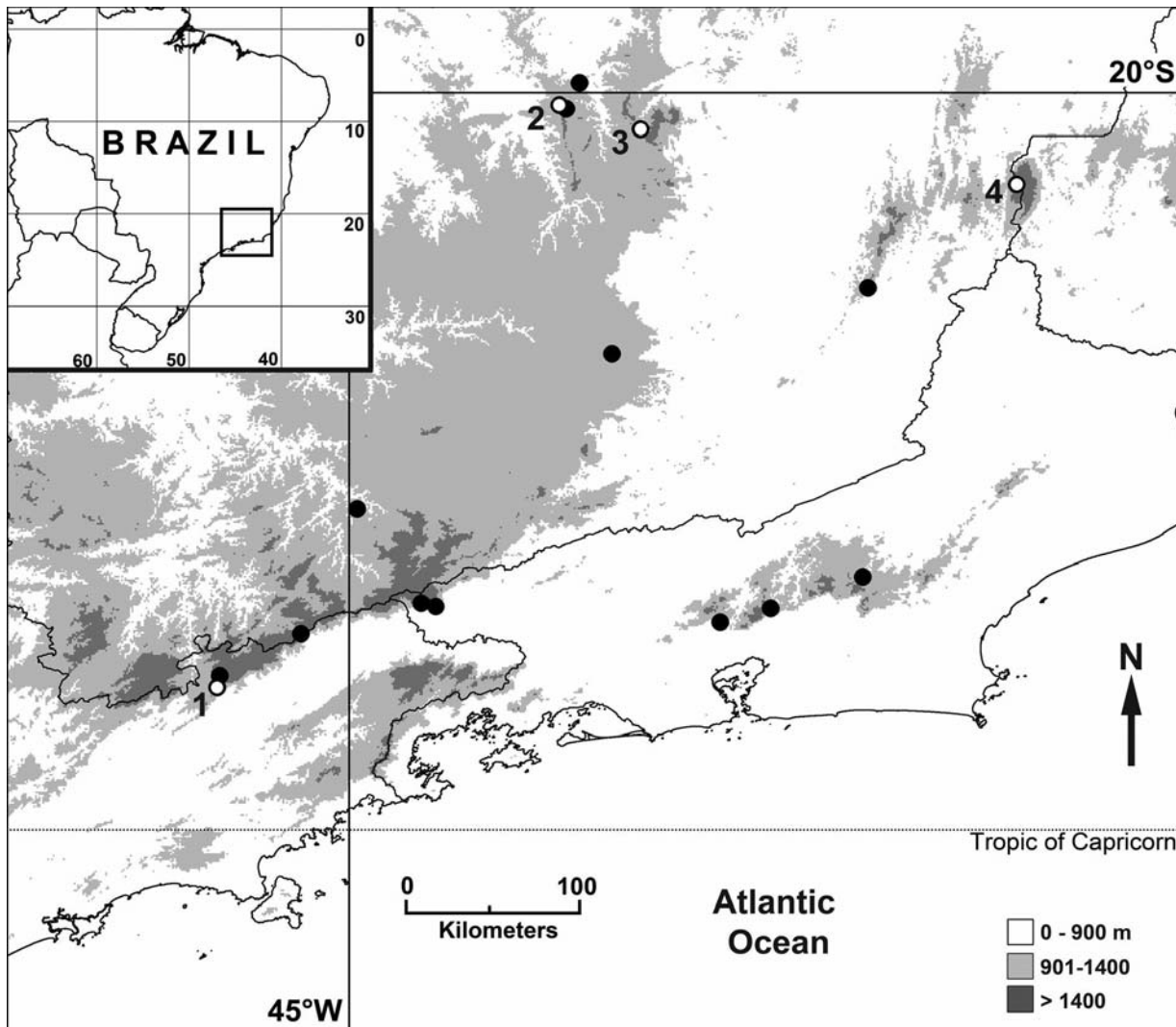


FIG. 2. Map showing the 14 known localities for *Actinote quadra* in Southeastern Brazil. The solid black circles represents the 12 previously known localities for *A. quadra* (see Freitas et al. 2009), and open circles represents the 4 new localities. 1. Santo Antonio do Pinhal, São Paulo; 2. Serra do Rola Moça, Brumadinho, Minas Gerais; 3. Mina de Capanema, Santa Bárbara, Minas Gerais; 4. Parque Nacional do Caparaó, Alto Caparaó, Minas Gerais.

(20°10'22.2"S 43°36'58.2"W, 1329 m), Santa Bárbara, Minas Gerais state, 6 males and 1 female, 3-5.iv.2011, V.A.A. Gomes & C.H.I. Costa leg. Mcn-inv 2094-2100 (Invertebrates Collection - Museu de Ciências Naturais, PUC-MG, Belo Horizonte, Minas Gerais, Brazil); additional males and females were observed flying around and perching on vegetation (ca. 2 m high); 4) Vale Verde (20°25'7"S 41°50'56"W, 1200–1300 m), Parque Nacional do Caparaó (Caparaó National Park), Alto Caparaó, Minas Gerais, 1 male and 1 female (Fig. 1), 9-15.xii.2011. A. V. L. Freitas, C. A. Iserhard & L. A. Kaminski, leg. (ZUEC); additional seven males and two females were observed flying high (ca. 3–5 meters above ground).

All four new sites for *A. quadra* are above 1200 m a.s.l., and agree with the previous altitudinal pattern recorded for this species (above 800 m, Freitas et al. 2009). Two of these new sites (sites 1 and 2) are very close to previously known sites. They were considered new sites, however, because in both cases the new site is in a different slope of the mountain range, being isolated from the neighbor site by low valleys where the species didn't occur (distribution is not continuous). The other two sites (sites 3 and 4), however, characterize new distributional data for this species, with Caparaó (site 4) representing an expansion in *A. quadra* distribution of about 100 km northeast from its previously known limit (the region of Rosário de

Limeira, Minas Gerais, see Freitas et al. 2009), and also one additional conservation unity where this species occurs. The presence of this species in the Caparaó National Park also reinforces the importance of this place as the northernmost refuge for all montane species occurring in the Serra da Mantiqueira mountain range, as recently confirmed for other butterfly species (Freitas et al. 2004 and unpublished results). The improvement of distributional data is required for an adequate assessment of the real conservation status of a threatened species, and the detection of additional populations of threatened butterfly species, both inside and outside conservation unities, is a priority in Brazil (Freitas & Marini-Filho 2011). The present findings are very encouraging since this information suggests that additional populations of *A. quadra* might occur in several other localities with similar conditions, including the full region of Serra da Mantiqueira and montane forests of Minas Gerais. The use of modelling to predict the potential distribution of this species may corroborate this idea, configuring a much more optimistic scenario for the conservation of *A. quadra*.

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