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A REMARKABLE ELEVATIONAL RECORD OF *METHONA CONFUSA* BUTLER, 1873 (NYMPHALIDAE) IN A HIGH MONTANE AREA OF SOUTHEASTERN PERU

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ABSTRACT. *Methona confusa* has been recorded across its geographic range from low elevations up to around 2,000 m, being rare above 1,500 m. We report herein a new elevational record of *M. confusa* above 3,500 m, the highest ever reported for ithomiines, from upper montane area of Megantoni National Sanctuary and Manu National Park, located on the eastern slopes of the Andes of southern Peru.

Additional key words: Andes, Ithomiini, hilltopping

Methona Doubleday, 1847 (Lepidoptera: Nymphalidae: Danainae) is a small genus of the tribe Ithomiini including seven species (Lamas 2004), distributed from Panama to northern Argentina, Uruguay, and southern Brazil (Neild 2008).

Methona confusa Butler, 1873, is distributed from Eastern Panama to the Amazon basin, with four weakly differentiated subspecies recognized (Lamas 2004). It is encountered commonly in a variety of forest habitats, from primary premontane cloud forest to lowland secondary growth (Neild 2008, Hill & Tipan 2008). In Peru, this species is widespread and common on the eastern slopes of the Andes below 1,500 m.

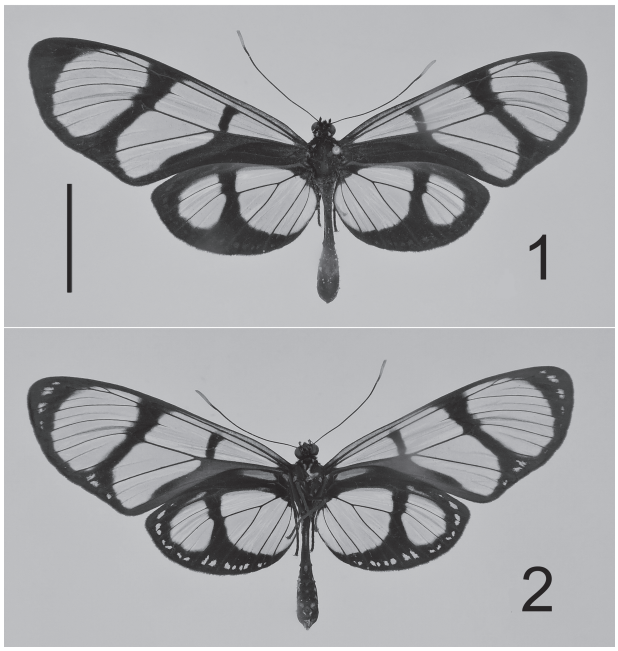
Materials and Methods

In September 2012, as a result of a butterfly survey in the upper montane area of the Megantoni National Sanctuary (MNS), on the eastern slopes of the Andes of southern Peru, one female specimen of *M. confusa* (Fig. 1) was collected near the boundary of MNS and the Manu National Park (MNP), Cuzco Department (12°30'25"S, 72°05'20"W), at 3,700 m elevation. The area is an ecotone between open, páramo-like vegetation ('wet puna') and elfin forest. The butterfly was flying at the summit of a small hill, sometimes falling into the ground vegetation and remaining there motionless, but before capture had been cruising "up-and-over" the summit, being blown off the top by strong winds and flying against the wind in approaching summit. In addition, some 200 m downhill, two more individuals of this species were found, heavily damaged and dead on the ground; those individuals may have been killed by the heavy rains falling in the area during the previous days.

Material examined. One female: Peru, Cuzco, Incatambo, 12°30'30"S, 72°05'05"W , 3,700 m, 12–15 September 2012, J. Cerdeña, R. Delgado & E. Huamaní leg. The specimen is deposited in the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos (MUSM), Lima, Peru.

Results

This is the first Ithomiini species ever reported in a high Andean ecotone between wet puna and elfin forest, as ithomiines normally occur in humid forests from sea level to about 3,000 m (Willmott & Freitas 2006). Indeed, this event would have been less remarkable if a related species, *Methona maxima*



Figs. 1, 2. Female adult of *Methona confusa* Butler, 1873 collected in September 2012, Cuzco Department, Peru. **1**) Dorsal view; **2**) ventral view. Scale bar 02 cm.

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nigerrima (Forbes), which has been recorded up to 2,950 m elevation at sites a few km to the south, in the upper Cosñipata valley (Lamas, unpubl. data), had been found in this particular location. This is also a new elevational record for this group, the highest ever reported for ithomiines.

Discussion

The only reliable hostplant records for species of *Methona* belong to the genus *Brunfelsia* Linnaeus, 1753 (Solanaceae) (Lamas 1973, Plowman 1998, Beccaloni et al. 2008). Five species of *Brunfelsia* (*amazonica* C.V. Morton, 1949, *chiricaspi* Plowman, 1973, *dwyeri* D'Arcy, 1971, *grandiflora* D. Don, 1829, and *pauciflora* (Cham. & Schltdl.) Benth. in DC., 1846) have been reported as larval foodplants for *M. confusa* (Plowman 1998); of them, *B. pauciflora* is almost certainly misidentified as the species is endemic to southeastern Brazil, where *M. confusa* does not occur. Only *B. grandiflora* has been found in the general area where the *M. confusa* specimens discussed herein were recorded, thus it is highly possible that the latter fed as larvae on individuals of that species. Although *B. grandiflora* is often cultivated as an ornamental shrub or small tree (Plowman 1998), there is no evindence of its presence above 2,000 m in southeastern Peru (indeed, no species of *Brunfelsia* have been recorded as occurring above 3,300 m [Plowman 1998]). Furthermore, the area of the MNS where this survey was conducted has no human inhabitants or man-made roads. Therefore, it is reasonable to hypothesize that *M. confusa* has no resident breeding populations in the area surveyed and was not introduced there through human agency.

If the *M. confusa* adults reported here were not part of a resident, breeding population, they may have either been performing long-distance dispersal through unfavorable habitat (the wet puna / elfin forest ecotone) between two separate areas of "normal" habitat (montane forest), or else were exhibiting hilltopping behavior (Shields 1968). At least one species of *Methona* (*singularis* Staudinger, 1884) has been cited as exhibiting summit congregation behavior (Kesselring in Shields 1968), and it may occur in *M. confusa* too. Considering that in the same study site we recorded a skipper (Hesperiidae) specimen which was obviously engaged in hilltopping behavior, and turned out to represent a new country record for Peru (Cerdeña et al. 2014), this highlights the importance of surveying hill summit habitats in order to significantly increase the chances of registering the occurrence of scarce or otherwise elusive butterfly species while performing biodiversity surveys (see also Dolibaina et al. [2012, 2015] and Cerdeña & Farfán [2015] for other remarkable findings made at hill summits).

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