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A SURVEY ON THE APOIDEA ANTHOPHILA  
OF THE DOLOMITI BELLUNESI NATIONAL PARK  
(VENETO, NORTH-EASTERN ITALY)

*Un'indagine sugli Apoidea anthophila del Parco Nazionale  
delle Dolomiti Bellunesi (Veneto, Italia Nord Orientale)*

The results of the research on the Apoidea anthophila of the Dolomiti Bellunesi National Park, even if limited to only two areas of its southern portion (Monte Grave and Vette Feltrine), allowed the identification of 67 species. Among these 67 species, a species of the genus *Bombus*, different from the others found, has not been identified at a specific level. In the present study, *Apis mellifera* was also considered, although in general this species is considered as a component foreign to the native fauna, but as confirmed by San Michele all'Adige Declaration it must be considered as a wild species (FONTANA *et al.*, 2018). The honey bee specimens collected during the sampling constituted more than a third of the total bees collected and most likely derive from hives nearby managed by beekeepers. We anyway decided to evaluate their presence for their ecological service on wild vegetation. Within the 66 non *Apis* species detected, only 20 were collected with at least 10 specimens while as many as 28 species were collected with a single specimen. This data confirms the effectiveness of the sampling method adopted, capable of identifying even the species present with very rarefied populations or present for a short time. Another factor that should be mentioned in the present study is the altitude range at which most of the collections were made, mostly between 1000 and 2000 m. Most likely, by carrying out research in lower ranges, the number of species significantly increases as was highlighted in a recent publication based on these same data (SOMMAGGIO *et al.*, 2022).

The samplings were carried out in two altitudinal transects identified by

the same park authority, one on Monte Grave and another called Vette Feltrine. The first is made up of 3 plots (between 1080 and 1375 m a.s.l.), while the second comprises 8 plots (between 780 and 2130 m a.s.l.).

In each plot, 5 sampling points were selected; in each sampling point, a stake was placed, each one supporting 3 white bowls (diameter: 30 cm; height: 5 cm), at about 60 cm from the ground, at similar level than most flowers. The inside of bowls was painted blue, white, or yellow UV-reflecting paints (Sparvar Leuchtfarbe, Spray-Color GmbH, Merzenich; item numbers 3107, 3108, 3104, respectively) (WESTPHAL *et al.*, 2008). The five sampling points were set at 25 m along the diameter of the plot.

The samplings were conducted from May to September on a monthly basis, compatibly with the possibility of reaching the sites due to the weather conditions. Once the samples were received in the laboratories of the Edmund Mach Foundation, the specimens belonging to Apoidea anthophila were sorted and adequately prepared and labeled to make the subsequent identification phase possible. For the identification of five specimens of *Bombus* (Apidae), for which morphological characters were not informative, molecular identification was carried out, using cytochrome oxidase gene (COI).

Molecular analysis made it possible to identify 2 species that had not resulted from the identification on a morphological basis: *Bombus* (*Alpigenobombus*) *wurflenii* Radoszkowski, 1859 and *Bombus* (*Kallobombus*) *soroensis* (Fabricius, 1777). Furthermore, it has been established that the specimens belonging to the an unidentified *Bombus* species must to be considered *B. soroensis*. The analysis also revealed that some specimens identified ad *Bombus terrestris*, examined while showing a non-classical chromatism, belong to *B. soroensis* and to *B. wurflenii* Radoszkowski, 1860. Molecular analyzes also confirmed the identification of the only collected specimen of *Psithyrus* (*Ashtonipsithyrus*) *bohemicus* Seidl, 1838.

In total, 1363 Apoidea anthophila specimens and 67 species were collected and identified: 23 species of Apidae (including *Apis mellifera*), 11 species of Megachilidae, 12 species of Andrenidae, 17 species of Halictidae and 4 species of Colletidae.

In the red list of European Apoidea anthophila (NIETO *et al.*, 2014) 1942 species are registered and each of them is assigned, an IUCN category. To 65 on 67 species sampled during this research in the Dolomiti Bellunesi National Park one these categories was assigned. The two excluded species are obviously the unidentified *Bombus* and *Psithyrus* (*Allopsithyrus*) *maxillosus* (Klug, 1817) which strangely is not treated in the European red list. Of the 65 species surveyed, 47 are at low conservation risk (LC), 14 are those for which there are insufficient data (DD), 3 are possibly threatened (NT) and only one

threatened (EN). The three possibly threatened species are *Andrena (Chariandrena) hattorfiana* (Fabricius, 1775), *Andrena (Taeniandrena) ovatula* (Kirby, 1802) and *Lasioglossum (Evylaeus) lateiceps* (Schenck, 1870) while the threatened species is only *Bombus (Thoracobombus) inexpectatus* Tkalcu, 1963. The latter is a parasitic and rare species, with geographically separated populations, especially in the Alps, where it lives at high altitude. It is considered a threatened species due to climatic changes that could significantly decrease its host species.

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