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Long and short term changes in abundance and distribution of butterflies: hints from the Lazio database

Stefano De Felici (1), Donatella Cesaroni (1), Marco Lucarelli (1) Valerio Sbordoni (1,2)

(1) Dipartimento di Biologia, Università di Roma Tor Vergata, (2) Accademia Nazionale delle Scienze, detta dei XL

The DB on the occurrence data of the butterflies (Papilionoidea) of Lazio, at 14th February 2022 consisted of 36244 records including 154 species distributed throughout a total of 6719 sites. The data set included geo-referenced and chrono-referenced data collected from the literature, specialist-validated occurrences from websites (Forum Natura Mediterraneo, iNaturalist, Ornitho), as well as an important amount of original observations included in the database of the Lazio Biodiversity Observatory. All observations were used to create distribution maps. In order to evaluate any change in observations over time for the various species, all records were divided into three different periods: before 1980 (4425 records), 1980-2000 (6498 records) and post 2000 (25321 records). A finer subdivision was then examined within the post-2000 period: 2001-2007 (11888 records), 2008-2014 (4977 records), 2014-2021 (8456 records). Further analyses were carried out to highlight differences in the distribution of species as a function of altitude and / or changes in land use that have occurred in the last decades. The results show that qualitatively the species present in the region before 1980 are all still present today, however the abundance of related observations in several cases has changed considerably. Observations of an important portion of the species have significantly decreased in recent years. This trend is observed in the majority of mountain species and various habitat-specialist butterflies regardless of altitude. In some other species, often the most common or habitat-generalist butterflies, an increase was observed. The causes of these trends can be identified in the human land use and climate change, without excluding, however, the differences in data recording over time that could favor the most common species.

Corresponding author e-mail: valerio.sbordoni@uniroma2.it