

Omia cyclopea (Graslin, [1837]) and *Coenobia rufa* (Haworth, 1809) in southern Italy with notes on their conservation (Lepidoptera: Noctuidae)

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Abstract

We recorded *Omia cyclopea* (Graslin, [1837]) and *Coenobia rufa* (Haworth, 1809) for the first time in southern Italy. These are extremely rare species in Italy and conservation actions are needed to prevent Italian populations of *C. rufa* from extinction, locally extinct yet.

KEY WORDS: Lepidoptera, Noctuidae, biodiversity, conservation, Italy

Omia cyclopea (Graslin, [1837]) y *Coenobia rufa* (Haworth, 1809) en el sur de Italia con notas sobre su conservación (Lepidoptera: Noctuidae)

Resumen

Registramos, por primera vez, a *Omia cyclopea* (Graslin, [1837]) y *Coenobia rufa* (Haworth, 1809) en el sur de Italia. Estas especies son extremadamente raras en Italia y son necesarias acciones de Conservación para prevenir la extinción de las poblaciones italianas de *C. rufa*, localmente extintas.

PALABRAS CLAVE: Lepidoptera, Noctuidae, biodiversidad, conservación, Italia.

Introduction

Knowledge on Italian fauna of Macrolepidoptera is increasingly growing due to the description of species new to the science (SCALERCIO *et al.*, 2016), to the first record of species in the country (CABELLA & MAIOGLIO, 2013) and to the discovery of new populations of rare species (INFUSINO *et al.*, 2017a). South regions are those providing most of discoveries because lesser studied in the past than northern regions, because the first territory where African migrant species appear in Italy, and because of their role as glacial refugia (MENCHETTI *et al.*, 2021). The findings we reported here confirmed the trend of discoveries during recent years in southernmost Italian regions. In fact, we recorded as new for South Italy *Omia cyclopea* (Graslin, [1837]) and *Coenobia rufa* (Haworth, 1809), extremely rare in Italy (Fig. 1).

Results

Omia cyclopea (Graslin, [1837]) (Fig. 2)

Cleophana cyclopea Graslin, [1837] 1836. *Ann. Soc. ent. Fr.*, 5(14): 570, pl. 17, fig. B7

LT: Alfakar [Sierra de Alfakar], Granada, SPAIN

Material: Calabria, Morano Calabro, Monte Pollino (39.9016°N; 16.1802°E), 1950 m s.l.m., 1 ♂, 17-VI-2021, Bertaccini leg., in coll. Bertaccini.

Distribution: This is the first record for southern Italy and the easternmost for this species. It has been found during daytime while feeding on flowers (Fig. 2). *Omia cyclopea* is the smallest species in the genus *Omia* Hübner, [1821] including four species worldwide, which are well separated with the exception of the strictly related *O. cymbalariae* (Hübner, [1809]) and *O. banghaasi* Stauder, 1930 (RONKAY & RONKAY, 1995). It is an extremely rare species known from Spain, southern France, Corsica, Morocco and Algeria (ZILLI, 1986). In total, three specimens were collected in Italy so far. It was reported for the first time in Italy by a handwritten addition for the Piedmont region of GHILIANI (1852) to his catalogue. This specimen is likely lost, but one individual in the collection of the Museo Civico di Storia Naturale “E. Caffi”, Bergamo and labelled “Italia” without other geographic information, could be those mentioned by Ghiliani (Fig. 3). Two additional specimens have been found in the Abruzzo region above the 1200 m of altitude (ZILLI, 1986).

Notes: *O. cyclopea* is a xerophilous species flying during daytime and visiting flowers of *Rosmarinus*, *Thymus*, *Lotus*, *Coronilla* and *Helianthemum*, the last being also the larval foodplant (RONKAY & RONKAY, 1995). It has also been found on the flowers of *Helychrysum* (GRASLIN, 1837). The specimen found on the Monte Pollino was feeding mainly on *Helianthemum oleandicum* (L.) DC. ssp. *incanum* (Willk.) G. Ló, but it visited also *Crepis lacera* Ten. (Fig. 2). It prefers sunny and dry grasslands, rocky slopes, and other similar habitats at medium and high altitude where it flies from May to the end of July (RONKAY & RONKAY, 1995), never found in Italy below 1200 m a.s.l. (ZILLI, 1986). Its habitat on the Pollino Massif perfectly matches that known for the species (Figs 3-4).

The finding of this species in a Natura 2000 site (SAC IT9310004 Rupi del Monte Pollino) included in the Pollino National Park, increased the importance of this European network of protected areas for the conservation of extremely rare invertebrates not included in the Annexes of the Habitat Directive 92/43/EEC. The compilation of regional or even local red lists of invertebrates should be a short-term solution to this problem.

Coenobia rufa (Haworth, 1809) (Fig. 6)

Phytometra rufa Haworth, 1809. *Lep. Brit.*: 260

LT: GREAT BRITAIN

Material: Romagna, Ravenna, Bardello, coastal pine woodlot of San Vitale, Scolo Rivalone, 2 ♂♂, 22-VIII-1984, Bertaccini leg.; idem, 1 ♀, 10-IX-1984, Bertaccini leg.; idem, 1 ♂, 21-VIII-1987, Bertaccini leg.; idem, 2 ♂♂ and 3 ♀♀, 27-VIII-1987, Bertaccini & Campri leg.; idem, 2 ♂♂ and 2 ♀♀, 23-VIII-1993, Bertaccini leg.; Bosco Gesuiti, San Fili, Cosenza, Calabria, 620m s.l.m.; Calabria, San Fili, Bosco Gesuiti (39.3715°N; 16.1310°E), 620 m s.l.m., 1 ♂, 14-IX-2015, Scalercio & Infusino leg. (Barcode, BOLD ID: LEP-SS-01117), in coll. Centro di Ricerca Foreste e Legno, Rende, Cosenza.

Distribution: This is the first record for southern Italy and one the most isolated European populations. It has been collected by an UV LED light trap (INFUSINO *et al.*, 2017b). *Coenobia rufa* is the only species belonging to the genus *Coenobia* Stephens, 1850 (ZILLI *et al.*, 2005). It is known from most of western and Central Europe with a small and isolated population in Romania (ZILLI *et al.*, 2005). In Italy the north-eastern alpine region was covered in ZILLI *et al.* (2005), but no records are available for this area, whilst it was previously found in Romagna, Scolo Rivalone near Ravenna (FIUMI & CAMPORESI, 1985) and Tuscany, Lago di Burano near Orbetello (ZILLI, 1986) (Fig. 1). In total, 18 specimens of this species have been collected in Italy in three localities only.

Notes: *C. rufa* is a hygrophilous species with larvae feeding within the stem of *Juncus* sp.pl. (ZILLI *et al.*, 2005). It flies from late July to August, in Italy found until mid-September. The specimen we found in Calabria is an erratic male because found in a chestnut woodlot for fruit production (Fig. 7), an unusual habitat for this species that lives in swamp, marsh, bog, and meadow. Likely nearby the collecting site there is the optimal habitat for this species that is not a good disperser. The most

abundant Italian population found in Romagna region, where it is not recorded from 1993, is likely extinct nowadays. We can suppose a negative effect of pesticides massively used against mosquitos at the beginning of '90, but the question deserves more accurate studies. *C. rufa* was not recorded also in the nearby Natura 2000 site named Bardello (site code: IT4070002) despite the presence of its habitat and with a recently studied lepidopterological fauna (BENDAZZI & PEZZI, 2019). Urgent conservation actions are needed to preserve Italian populations from extinction.

Calabrian specimen was erroneously identified as *Archanara neurica* (Hübner, [1808]) in INFUSINO *et al.* (2018). Successively, it was correctly identified thanks to barcoding analysis carried out according to the standard procedures of Canadian Centre for DNA Barcoding (<http://boldsystem.org>). Despite the isolation of the Calabrian population, results showed a great similarity of the barcode sequence with those of Central and North European populations (Fig. 8), probably resulting from a species distribution only recently fragmented.

Barcode sequence (658 bp): AACATTATATTTTATTTTGGGAATTTGAGCAGGAATAGTAGGA ACCTCTTTAAGATTATTAATTCGAGCTGAATTAGGAAACCCTGGATCTTTAATTGGCGATGAT CAAATTTATAATACTATTGTTACAGCTCATGCTTTTATTATAATTTTTTTTATAGTTATACCCATT ATAATTGGTGGATTGGAAACTGACTCGTACCTTTAATATTAGGGGCCCCAGATATAGCATT CCTCGAATAAATAATATAAGTTTTTGGATTACTCCCTCCCTCATTAACCTTTATTAATTTCAAGAA GAATTGTAGAAAATGGTGTCTGGAACAGGGTGAACAGTATACCCCCACTTTCATCTAATATT GCTCATGGGGGAAGATCCGTAGATTAGCAATTTTTTCACTTCATTAGCCGGTATTTCTTCT ATTTTAGGAGCTATTAACCTTTATTACAACAATCATTAACATACGACTAAATAATTTATCCTTTG ATCAAATACCTTTATTTATTTGAGCTGTTGGAATTACTGCATTTTTATTATTATTACTACCA GTCTTAGCTGGAGCTATTACAATATTATTAACAGATCGAAATCTAAATACATCTTTTTTTGATC CTGCGGGAGGAGGGGATCCAATTTTATATCAACATTATT

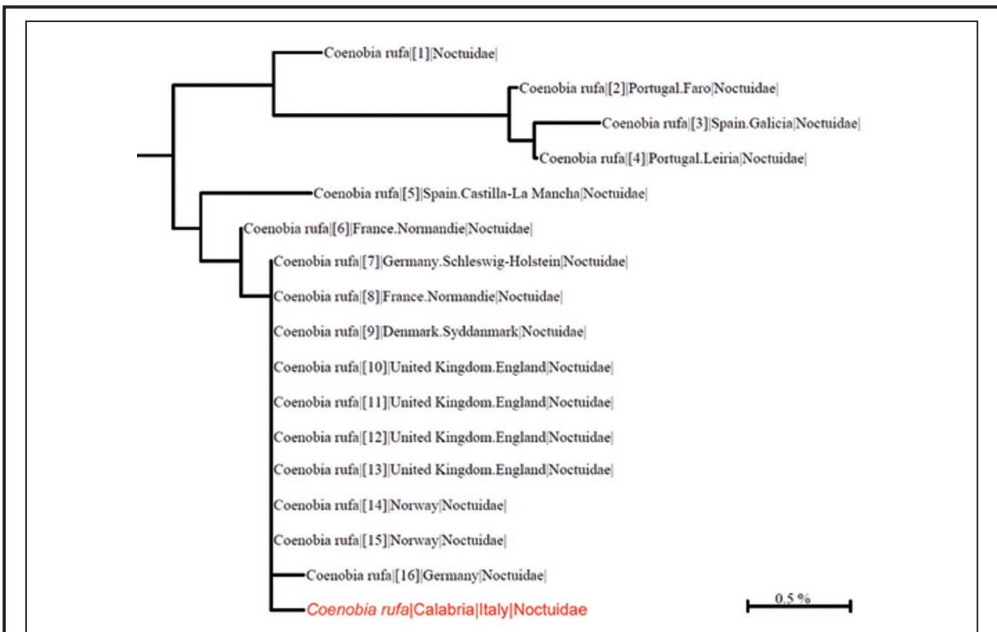


Fig. 8.– Neighbor joining trees (Kimura 2-parameter distance model for COI-5P marker) of *Coenobia rufa* built using sequences deposited in BOLD. In red the Calabrian specimen.

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Figures 1-7.— 1. Italian distribution of *Omia cyclopea* (yellow) and *Coenobia rufa* (white). Circles represent locality, the asterisk represents a generic regional record (from Google Earth). 2. *Omia cyclopea* feeding on *Crepis lacera*, Monte Pollino, 17-VI-2021. 3. Specimen from the Museo Civico di Storia Naturale “E. Caffi”, Bergamo (Photo Paolo Pantini). 4. Collecting site of *Omia cyclopea* on the Pollino Massif. 5. A detail of the habitat of *Omia cyclopea* on the Pollino Massif. 6. *Coenobia rufa*, Bosco Gesuiti, San Fili, Cosenza, 14- IX-2015, wingspan 22 mm. 7. Collecting site of *Coenobia rufa* in Calabria, southern Italy.