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New population of Rosalia longicorn, *Rosalia alpina*, in Calabria (southern Italy) (Coleoptera: Cerambycidae)

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Abstract
The Rosalia longicorn is a species of European Community interest, included in Annexes II and IV of the "Habitats" Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora) and is included in the "Red List of Italian saproxylic beetles". In Calabria (Southern Italy), *Rosalia alpina* was apparently distributed only in the National Parks. We discuss about the discovery of a new population of *Rosalia alpina* (Linnaeus, 1758) in a mountainous area of Calabria called Catena Costiera, which is located between two National Parks and constitutes an important wildlife exchange corridor.

Key words: Alpine longhorn beetle, Cerambycidae, Calabria, Catena Costiera, Ecological corridor.

Introduction

The Rosalia longicorn or Alpine longhorn beetle, *Rosalia alpina* (Linnaeus, 1758), is a saproxylic beetle (Mazzei et al. 2011) belonging to the Cerambycidae family, subfamily Cerambycinae.

The species appears in Annex II as a "priority species" and in Annex IV as a "species whose conservation requires strict protection" of the "Habitats" Directive (Directive 92/43/EEC). It is also present in Annex II of the Berne Convention (1979).

R. alpina falls into the LC "Least Concern" category at European level (Horàk et al., 2010), while it falls into the NT "Near Threatened" category at Italian level (Carpaneto et al. 2015). It is included in the "Red List of Italian saproxylic beetles", where it is reported as NT "Near Threatened" (Audisio et al. 2014).

In Calabria, *R. alpina* was reported in the early 1900s by Fiori in Sila (Sama 1988). From Mazzei et al. (2013) we read that, within the "Natura 2000/Bioitaly" project, the species was cited in Calabria for two Sites of Community Interest (SCI) in the Pollino National Park. Furthermore, for Calabria there are further reports documented by photographs for the Orsomarso Mountains (Mazzei et al. 2013). This data is confirmed and increased by the reports reported by Piazzini et al. (2020), which highlight the presence of the species in this and other districts of the Pollino National Park; there are reports of presence from 800 m at 1900 m.

In the Sila National Park the species appears to have been reported in the early 1900s and this was the only report known to Sama (1988) for Calabria. Angelini (1991) reports it as present at the Cupone. However, subsequent research has highlighted the presence of the species in other areas of the protected area (Mazzei et al. 2013).

For the Aspromonte National Park, *R. alpina* is reported for two localities in the central part of the protected area (https://www.inaturalist.org/).

The species could also be present in the Serre Regional Natural Park due to the presence of potentially suitable environments, but until today there are no literature data to confirm its presence.

Therefore, the species was thus far reported as occurring only within the boundaries of national protected areas.

Materials and Methods

The investigated area falls within the perimeter of the SCI-SAC IT9310062 "Monte Caloria" (Fagnano Castello, Cosenza), in Calabria (Southern Italy). This site falls in the mountain range known as Catena Costiera (hereafter referred to as CC). The CC is a mountain chain that extends in a North-South direction immediately close to the Tyrrhenian coast for about 70 km (Fig. 1). It is characterized by an oceanic climate, with frequent but not very intense rains, and by the presence of a "band of fog" (Ciancio 1971). This feature is responsible for the climatic and vegetational "asymmetry" recorded on the two sides of the CC (Brandmayr et al. 1991).

In the SCI-SAC IT9310062 "Monte Caloria" site, with a surface area of 64 ha, the habitat 9210* "Beech forests of the Apennines with *Taxus* and *Ilex*" appears to be present with an extension of 61.12 ha (AA.VV. 2021).

This site borders on part of the SCI-SAC IT9310060 "Laghi di Fagnano" (Fig. 2); it is a site characterized for 11.64 ha out of a total surface area of 19 ha by the presence of the habitat 9210* (AA.VV. 2021).

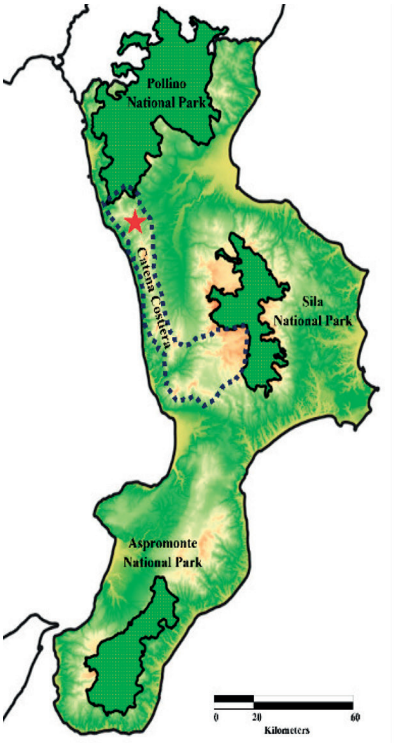
Sampling of *R. alpina* was carried out by direct observation in July-August of the potentially suitable points, where some traces of saproxylophages were evident (Mazzei et al. 2013). In accordance with Bologna et al. (2016), the species was searched with two weekly inspections of the sites and in the hours in which the species is most active, i.e., in the hottest hours. The sampling dates were the following: 3,7,11,14, 19, 23, 26 and 30 July and 3, 7 and 14 August 2022.

For each individual, was taken a photo and the coordinates recorded. The identification of the founded single individuals was done through the capture-marking-recapture (CMR) technique, based on the shape of the black spots on the elytra (Bologna et al. 2016). Photographic marking was used.

The sex of the captured individuals was determined through the observation of length and morphology of the antennae (Duelli & Wermelinger 2005) and through the observation of the mandibles.

Results

During the research period, the following were found: 10 live individuals, 1 dead specimen and 2 elytra, belonging to a further 2 individuals. The total number of individuals found amounts to 13 (Fig. 3). In total, 7 ♂♂ and 4 ♀♀ were identified. The species is probably also present within the boundaries of the "Laghi di Fagnano" SCI-SAC, since a left elytra was found.



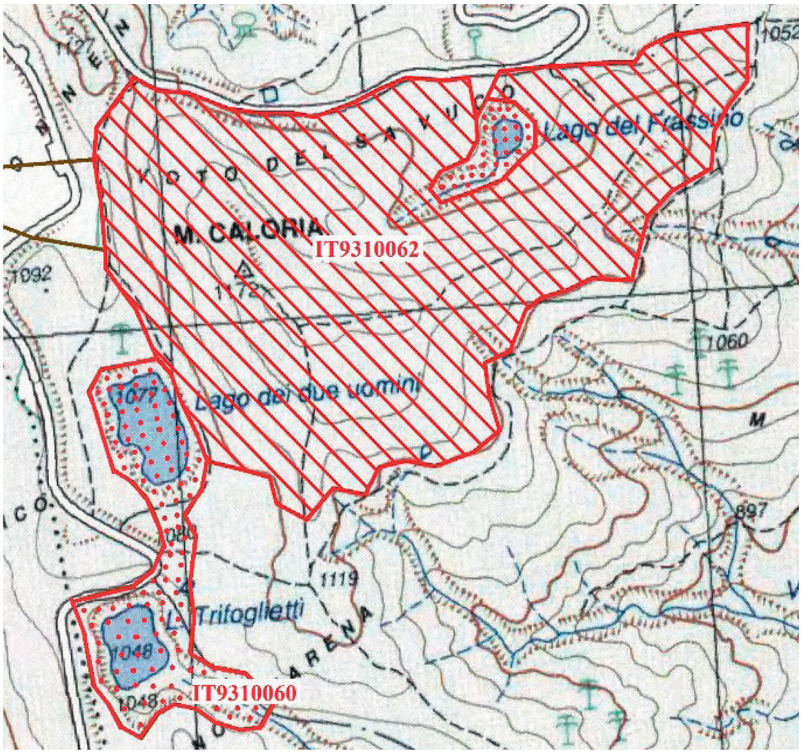


Fig. 1 – Green areas: National Parks where *Rosalia alpina* is present; dotted blue line: Catena Costiera as an ecological corridor; red star: discovery point of the new population of *R. alpina.* **Fig. 2 –** SCI-SAC present in the study area (Image reworked from the maps downloadable from: http://retenatura2000.regione.calabria.it/).

Fig. 3 – Individual of *Rosalia alpina* photographed on a rotting beech trunk on the ground covered with moss into the new Calabrian site.

Discussion and conclusions

The Calabrian CC represents the general characteristics of an ecological corridor, being a linear and continuous portion of territory that connects two core areas (highly natural areas that are subject to a protection regime) and which allows genetic interchange and mobility of species among them.

According to Gilbert-Norton et al. (2010), ecological corridors increase movements between source areas by 50% compared to equivalent non-connected areas, facilitating the movement of animals and plants; this justifies the effort to maintain and create them. Therefore, the CC is considered an important geographical area both from a zoogeographic and conservation point of view; in fact, it can be considered a faunal exchange corridor between two important protected areas of Calabria: Pollino National Park to the north and Sila National Park to the south (Sperone et al. 2007).

The discovery of such a rare and localized species as *Rosalia alpina* in this area, connecting two important Calabrian mountain massifs (both included in National Parks), makes the CC even more interesting from a faunal point of view, being already characterized by the presence of wetlands where various species of herpetological importance live (Sperone et al. 2007). The species does not appear in the forms of the SCI-SAC sites IT9310062 "Monte Caloria" and IT9310060 "Laghi di Fagnano", therefore an update is required.

Upcoming research will be able to confirm its presence in the "Laghi di Fagnano" SCI-SAC and to identify additional sites within the "Monte Caloria" SCI-SAC. The municipality of Fagnano Castello occupies part of the northern portion of the CC; a little further N there is Passo dello Scalone (740 m, on the SW border of the Pollino National Park), which separates the CC from the Orsomarso Mountains, where *R. alpina* is present.

Further searches will also be aimed at finding populations in the southern sectors of the CC. *Rosalia alpina* is an excellent bioindicator of deciduous forests in good condition of conservation but decreasing due to the progressive reduction and destruction of its habitats (Mazzei et al. 2013). It is necessary, considering what was stated by Sperone et al. (2007), to give greater functionality to the local integrated system of protected areas, creating an ecological network better connecting highly natural areas; Calabrian CC should therefore be urgently subject to conservation measures going beyond the mere presence of SCI-SACs.

References

AA.VV. 2021. Rete Natura 2000. Biodiversità in Calabria. 2 Voll. Rubettino Editore, 2021. pp. 211–217.

Angelini F. 1991. Coleotterofauna dell'altipiano della Sila (Calabria, Italia) (Coleoptera). Memorie della Società entomologica italiana, 70 (1): 171–254.

Audisio P., Baviera C., Carpaneto G.M., Biscaccianti A.B., Battistoni A., Teofili C., Rondinini C. (eds) 2014. Lista Rossa IUCN dei Coleotteri saproxilici italiani. Comitato italiano IUCN e Ministero dell'ambiente e della tutela del territorio e del Mare, Roma.

Bologna M.A., Rovelli V., Zapparo M. 2016. *Rosalia alpina* (Linnaeus, 1758) (Rosalia alpina). In Stoch F., Genovesi P. (eds) 2016 – Manuali per il monitoraggio di specie e habitat di interesse comunitario (Direttiva 92/43/CEE) in Italia: specie animali. ISPRA, Serie Manuali e linee guida, 141/2016.

Brandmayr P., Codogno M., Pizzolotto R. 1991. Basi ecologiche per la mappatura delle risorse naturali in Calabria. Biomi ed unità ambientali minori lungo la sezione Catena Costiera-Sila Grande-Sila Greca. Società Italiana di Ecologia, Atti, 12: 389–393.

Carpaneto G.M., Baviera C., Biscaccianti A.B., Brandmayr P., Mazzei A., Mason F., Battistoni A., Teofili C., Rondinini C., Fattorini S., Audisio P. (eds) 2015. A Red List of Italian Saproxylic Beetles: taxonomic overview, ecological features and conservation issues (Coleoptera). Fragmenta entomologica, 47 (2): 53–126.

Ciancio O. 1971. Sul clima e sulla vegetazione altimetrica forestale in Calabria. Annuali dell'Istituto Sperimentale per la Selvicoltura. Arezzo, II: 321–370.

Duelli P., Wermelinger B. 2005. *Rosalia alpina* L. Un Cerambicide raro ed emblematico. Sherwood, n. 114 settembre 2005: 19–24.

Gilbert-Norton L., Wilson R., Stevens J.R., Beard K.H. 2010. A Meta-Analytic Review of Corridor Effectiveness. Conservation Biology, 24 (3): 660–668.

Horák J., Tezcan S., Mico E., Schmidl J., Petrakis P. 2010. *Rosalia alpina*. The IUCN Red List of Threatened Species 2010: e.T19743A9009045.

Mazzei A., Bonacci T., Contarini E., Brandmayr P. 2011. Coleotteri saproxilobionti del Parco Nazionale della Sila. Quaderno di Studi e Notizie di Storia Naturale della Romagna, 32: 81–93.

Mazzei A., Bonacci T., Gangale C., Pizzolotto R., Brandmayr P. 2013. Nuovi dati faunistici ed ecologici di *Rosalia alpina* (Linnaeus, 1758) in Calabria (Insecta Coleoptera Cerambycidae). Quaderno di Studi e Notizie di Storia Naturale della Romagna, 38: 181–190. ISSN 1123-6787.

Piazzini S., Tamburini M., Rotondaro F., Marchianò V., Martini F., Favilli L. 2020. Saproxylic beetles of conservation interest in the Calabrian side of the Pollino National Park (Calabria, Italia): *Lucanus tetraodon* Thunberg, 1806*, Osmoderma italicum* Sparacio, 2000, *Cerambyx cerdo* Linnaeus, 1758 and *Rosalia alpina* (Linnaeus, 1758) (Coleoptera Lucanidae, Cetoniidae, Cerambycidae). Biodiversity Journal, 11 (4): 1055–1066.

Sama G. 1988. Coleoptera, Cerambycidae. Catalogo Topografico e Sinonimico. Fauna d'Italia, 36. Ed. Calderini, Bologna, 1–216.

Sperone E., Bonacci A., Brunelli E., Corapi B., Tripepi S. 2007. Ecologia e conservazione dell'erpetofauna della Catena Costiera calabra. Studi Trentini di scienze naturali. Acta biologica, 83: 99–104.