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## REDISCOVERY OF *PLATYCERUS CARABOIDES* (LINNAEUS, 1758) IN THE EUGANEAN HILLS (COLEOPTERA, LUCANIDAE)

**Riassunto.** *Riscoperta di *Platycerus caraboides* (Linnaeus, 1758) sui Colli Euganei (Coleoptera, Lucanidae).*

Sono riportati ritrovamenti inediti e recenti di *Platycerus caraboides* (Linnaeus, 1758) sui Colli Euganei (Veneto), che ne confermano la presenza nell'area indagata dopo più di 150 anni dall'unica segnalazione nota. Le osservazioni, tutte effettuate sul Monte Fasolo, hanno riguardato sia adulti che larve e, nel caso di queste ultime, è stata annotata l'identità della pianta ospite.

**Summary.** New recent records of *Platycerus caraboides* (Linnaeus, 1758) are reported for the Euganean Hills (North Eastern Italy, Veneto region), confirming the presence of the species in the mentioned area after over 150 years from the only previous observation. New records, all taking place on Monte Fasolo, pertain both adults and larvae; for the latter the host tree is specified.

**Keywords:** Lucanidae, *Platycerus caraboides*, new records, Euganean Hills, saproxylic.

**Reference:** Scaccini D., Uliana M., 2017. Rediscovery of *Platycerus caraboides* (Linnaeus, 1758) in the Euganean Hills (Coleoptera, Lucanidae). *Bollettino del Museo di Storia Naturale di Venezia*, 68: 45-48.

### INTRODUCTION

Italy hosts two widely distributed species of *Platycerus* Geoffroy, 1762 (Coleoptera, Lucanidae), *P. caprea* (De Geer, 1774) and *P. caraboides* (Linnaeus, 1758). They are part of the saproxylic fauna (e.g. FRANCISCOLO, 1997; AUDISIO et al., 2014), as adults lay eggs preferably on fallen logs (SCACCINI, 2016) and larvae develop feeding exclusively on deadwood. For this reason, together with other members of the same family having similar ecology, they are listed among species of conservation concern and are ranked as a Least Concern species in the IUCN Red List, both in Italy and Europe (NIETO & ALEXANDER, 2010; AUDISIO et al., 2014). In Italy, *Platycerus caraboides* and *P. caprea* also enjoy legal protection in the Tuscany region (BARTOLOZZI & SFORZI, 2001; BALLERIO, 2003).

Their known Italian range was summarized by FRANCISCOLO (1997) and then updated by BARTOLOZZI & MAGGINI (2007), evidencing that their presence is mostly limited to Alps and Apennines.

However, their actual distribution is likely to be underestimated. In fact, the little size and the short activity period of the adults, active during springtime, make these small stag beetles rather uncommon to observe during generic entomological field surveys, and their search rather requires a dedicated approach.

The aim of this study is to report recent records of *P. caraboides* in the Euganean Hills (Veneto region), following occasional observations by MU and the results of a dedicated search by DS.

The present data confirm, after over 150 years, the survival of this species in the mentioned area, an

isolated woodland where, to our knowledge, the only record for *P. caraboides* trace back to the first half of the XIX century (CONTARINI, 1843).

### MATERIALS AND METHODS

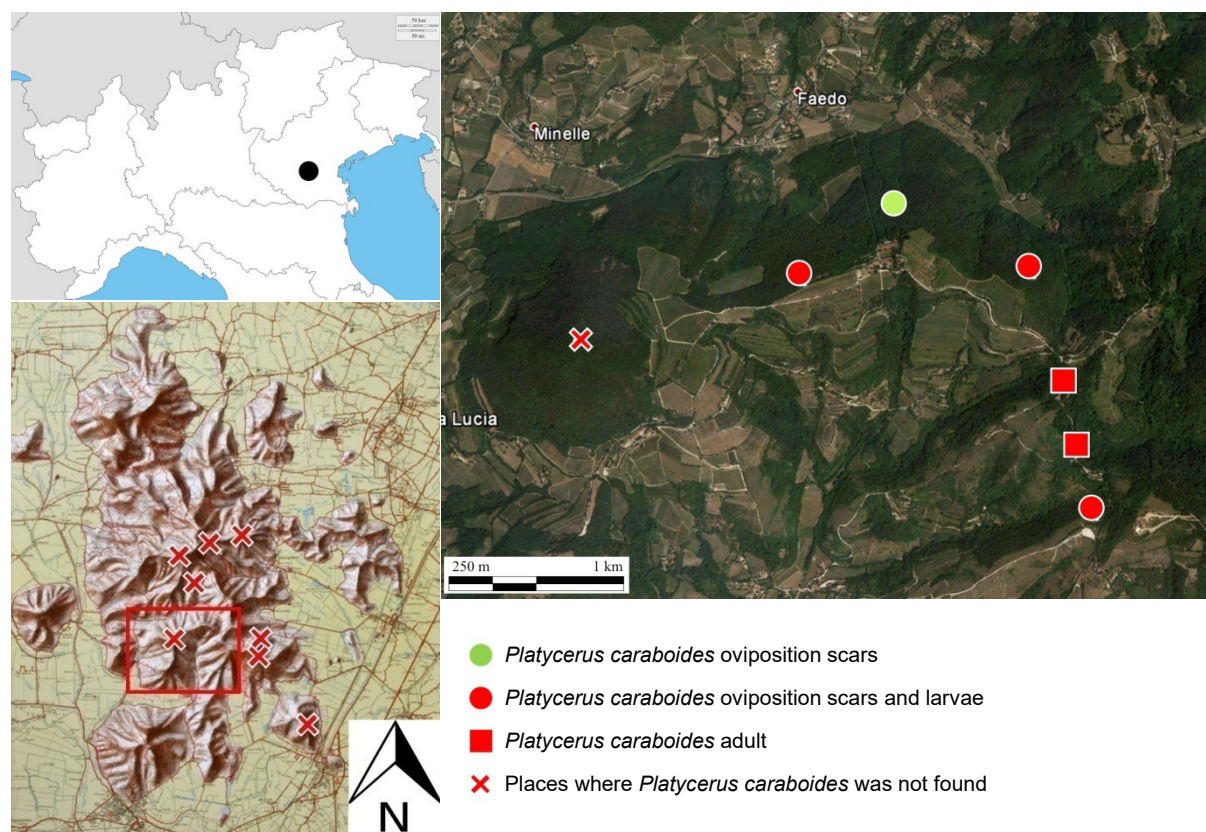
Active adults were occasionally observed in the Euganean Hills in two occurrences (in 1996 and 2006) by MU.

Six dedicated field trips were then carried out in the area from November 2016 to September 2017 by DS, searching in particular for immature stages and oviposition scars: suitable fallen logs were carefully examined for the presence of the peculiar signs laid by the female during oviposition (IMURA, 2010; SCACCINI, 2016). A total of about 25 hours of search were performed, covering parts of the following areas: Monte Rua, Monte Venda, Monte Fasolo, Monte Rusta, Monte Ventolone, and Monte Ricco (fig. 1).

The identification of scars or of suitable logs was followed by the search of alive larvae within the rotten wood.

The identification of adults followed the keys by FRANCISCOLO (1997) and BALLERIO et al. (2010), while that of the larvae followed HŮRKA (1975) and FRANCISCOLO (1997); for the latter also the observations made by SCACCINI (2015) were taken into account.

Some larvae were reared by DS for further observations, and one specimen preserved in ethanol 96% in DS collection for future genetic characterization. One of the two adult specimens is preserved in MU collection.



**Fig. 1.** Area of study and sites visited for *P. caraboides*. Upper left: modified from www.d-maps.com. Lower left: modified from www.carteinrilievo.com. Right: modified from Google Earth.

## RESULTS

Findings are listed below in chronological order, and are mapped in fig. 1. One of the two adults observed is illustrated in fig. 2, and a larva and oviposition scars in figs 3 and 4, respectively.

The WGS84 datum of each finding is stated.

### *Platycerus caraboides* (Linnaeus, 1758)

#### Material examined (2 ♂♂, 9 larvae, oviposition scars):

Veneto, Padua province, Euganean Hills, Monte Fasolo: 45°17'09"N 11°42'13"E, 245 m, facing SW, 25.IV.1996: 1 ♂, leg. M. Uliana; 45°17'00"N 11°42'16"E, 230 m, facing SE, 03.V.2006: 1 ♂, on leaves of *Quercus* sp., photo M. Uliana (fig. 2); 45°16'52"N 11°42'22"E, 230 m, facing NW, 18.II.2017: 1 larva + oviposition scars on ?*Acer* sp., leg. D. Scaccini; 45°17'24"N 11°42'05"E, 232 m, facing NE, 18.III.2017: 1 larva + oviposition scars on *Castanea sativa* Mill., leg. D. Scaccini; 45°17'18"N 11°41'22"E, 272 m, facing NW, 18.III.2017: 5 larvae + oviposition scars on *Carpinus betulus* L., 2 larvae + oviposition scars on ?*Castanea sativa*, leg. D. Scaccini; 45°17'30"N 11°41'36"E, 248 m, facing N, 26.VIII.2017: oviposition scars on *Quercus* sp., observed by D. Scaccini.

## DISCUSSION

*Platycerus caraboides* is largely distributed from the Iberian Peninsula and the North Africa to Siberia (Bartolozzi et al., 2016). In Italy it is recorded from the Alps to Calabria, most commonly in woodlands at a moderate elevation, but records from Veneto are scarce and limited to the alpine area (BARTOLOZZI & MAGGINI, 2007). It is worth noticing that the ancient record for Euganean Hills by CONTARINI (1843) was overlooked by subsequent faunistic reviews. Its presence in this area well fits within both its known distribution and altitudinal range, the latter comprised between 20 and 1786 m, with a mean of 532 m a.s.l. (FRANCISCOLO, 1997), on average lower than that of *P. caprea*, which is recorded by the same Author between 125 and 2242 m (mean 1134 m a.s.l.).

The recorded hosts in the Euganean Hills were *Carpinus betulus*, *Quercus* sp., *Castanea sativa*, and probably *Acer* sp. (status of the log not allowing a certain identification). No species of *Acer* have been to date recorded among the host plants of *P. caraboides*, which is anyway not at all selective in this regard, being recorded from a wide range of broadleaves and conifers (FRANCISCOLO, 1997; KLAUSNITZER & SPRECHER-UEBERSAX, 2008).

The population of *Platycerus caraboides* inhabiting Euganean Hills seems to have a quite low





**Figs. 2-4.** *Platycerus caraboides*, observations on Euganean Hills. **2:** adult male (Monte Fasolo, 03 May 2006). **3:** larva in the deadwood (Monte Fasolo, 18 March 2017). Faecal pellets are visible. **4:** oviposition scars on deadwood (Monte Fasolo, 18 March 2017).

density: apart from the scarcity of historical records, we maintain this opinion based on the comparison with similar, dedicated field research carried out by DS in other areas of northern Italy (e.g. Bergamo, Pavia and Piacenza provinces), which produced considerably more findings in spite of a considerably lower search effort (D. Scaccini, pers. obs.).

Euganean Hills are a protected area representing the only woodland “island” surviving in the middle of the Venetian Plain. The presence of this interesting saproxylic species adds to the value of the site and is worth, in our opinion, a conservational care similar to that paid to other saproxylic species, more well known and enjoying more attention, such as the large stag beetle *Lucanus cervus* (Linnaeus, 1758).

A crucial issue for correctly preserving the habitat of *Platycerus caraboides* is the maintaining of rotting deadwood in the forest, and in particular the small-diameter logs fallen to the ground (cf. SCACCINI, 2016).

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