

*PITYOPHAGUS QUERCUS* REITTER, 1877,  
A NEW SAPROXYLIC SAP BEETLE FOR THE ITALIAN FAUNA  
(Coleoptera, Nitidulidae)

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INTRODUCTION

The sap beetle *Pityophagus quercus* Reitter, 1877 (fig. 1) is one of the rarest European beetles. Until the end of the past century, it was only known from a few countries of SE Europe (S Poland to Greece) (Audisio 1993; Jelínek & Audisio 2007). In the last decade, the increasing interest in saproxylic insect communities for conservation aims, brought to the unexpected discovery of this species in northern Spain (Otero et al. 2003) and southern France (Barnouin et al. 2011). These last records obviously legitimated the suspect of a possible, so far undetected presence of this sap beetle in Italy.

During a series of ecological investigations on saproxylic beetle communities at “Bosco Polverino”, a forest area of central Italy, two specimens (one male and one female) of *Pityophagus quercus* were found using aerial interception window traps on old hollow cork oaks, *Quercus suber* L.

The present note is then aimed to report these new interesting records, in order to better define both geographical distribution and ecological requirements of this exceedingly rare and poorly known taxon.

DEPOSITORIES. The studied material is preserved in the P. Audisio’s collection, Zoological Museum, “Sapienza” Rome University (MZUR).

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## ***Pityophagus quercus* Reitter, 1877**

MATERIAL EXAMINED. Italy, Latium, Latina Province near Priverno, “Bosco Polverino”, 39 m a.s.l., WGS84UTM 33T 348764E 4588678N (41°26'07''N, 13°11'23''E), 30.VI.2010-21.VII.2010, S. Chiari, A. Zauli & G.M. Carpaneto leg. (window interception trap), 1 male (MZUR); ibidem, 51 m a.s.l., WGS84UTM 33T 348719E 4589169N (41°26'23''N, 13°11'21''E), 21.V.2009-11.VI.2009, S. Chiari, A. Zauli & G.M. Carpaneto leg. (window interception trap), 1 female (MZUR); Italy, Latium, Roma Province, Tolfa Mts., near Allumiere, beech forest, 573 m a.s.l., WGS84UTM 32T 740381E 4670735N (42°09'07''N, 11°54'34''E), 3-18.VI.2011, G.M. Carpaneto & L. Redolfi De Zan leg. (black cross window interception trap), 1 female (MZUR).

DESCRIPTION OF THE STUDY AREAS AND TRAP DEVICE. “Bosco Polverino”, is a small fragment (about 107 ha) of mixed evergreen/deciduous forest,



Fig. 1 – Habitus of *Pityophagus quercus* Reitter, 1877, female specimen from southern France, Forêt Domaniale de Cadarache. Scale bar: 1.2 mm (Photo: T. Barnouin).

surrounded by cultivated areas. It is located in the Latium region, Latina province, near Priverno, at an altitude of 20-70 m above sea level. According to the European Union Habitat Directive, this site is classified as a pSCI (IT6040004). Tree layer is formed by both evergreen oaks (*Quercus suber* and *Q. ilex*) and deciduous oaks (*Quercus cerris*, *Q. frainetto*, *Q. pubescens*). For a long time, the cork oak (*Q. suber*; fig. 2) was the dominant species, owing to traditional exploitation of the bark, but now this species shows the signs of a decline due to the abandonment of this activity and the consequent increased competition with deciduous trees. For this reason, the site is currently managed towards a recovery of cork oaks for a conservation purpose (fig. 3). Our sampling activity was focused on cork oaks and traps were set on old-growth trees of *Q. suber* in the years 2009-2010, from April to August. The additional locality (Alumiere) situated in northern Latium (Tolfa Mts.), is a small fragment of beech forest, under the normal altitudinal range of *Fagus sylvatica* in Italy, and surrounded by turkey oak (*Quercus cerris* L.) stands.

The window trap model used for the research in Bosco Polverino area was based on the aerial interception of flying beetles by transparent rigid plastic sheets (60x30cm), placed perpendicular to a plastic container half filled with ethylene glycol (50%) and a trace of detergent to reduce surface tension. Black cross window interception trap model used for the



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Figs 2-3 – An old cork oak at Bosco Polverino (Photo: S. Chiari) (2); forestry management at Bosco Polverino: a fenced area as nursery for cork oak regrowth (Photo: S. Chiari) (3).

research in Allumiere area was similar, with black rigid plastic sheets. These traps were hanged to hollow trunks, near to the entrance hole.

**GEOGRAPHICAL DISTRIBUTION.** The species, as recently reported by Barnouin et al. (2011), was previously known from Greece, Hungary, Bulgaria, NE Romania, Czech Republic, Slovakia, S Poland, Bosnia-Herzegovina, Macedonia, S France and N Spain (Reitter 1877; Ganglbauer 1899; Roubal 1936; Horion 1960; Spornraft 1967; Nunberg 1976; Audisio 1980, 1993; Otero et al. 2003; Audisio & Jelínek 2005-2010; Jelínek & Audisio 2007).

**ECOLOGICAL REQUIREMENTS.** In Hungary, *Pityophagus quercus* specimens were collected under the bark of *Quercus frainetto* (Reitter 1877; Horion 1960; Audisio 1993), where it was supposed to live as a predator or a commensal in association with bark beetles (Curculionidae Scolytinae), as its congeners do (Hanson 1937; Martikainen 2001). Even the most recent bionomical data reported its association with old oak trees infested by bark beetles, including *Quercus pyrenaica* in N Spain (Otero et al., 2003), and *Q. pubescens* in S France (Barnouin et al. 2011). The Italian records of the present paper extend the occurrence of *Pityophagus quercus* on *Quercus suber*, an evergreen tree of the western Mediterranean coasts, and on *Q. cerris*, a deciduous mesophilous tree widespread in central and southern Europe. These records confirm that this species is a rare but widespread host of the ancient primary xerophilous and mesoxerophilous oak forests throughout south-central and southern Europe (Müller et al. 2005; Barnouin et al. 2011). The ecological requirements of this species seem to be in contrast with those of the other two European species of the genus, *Pityophagus ferrugineus* (Linnaeus, 1761) and *P. laevior* Abeille, 1872, both strictly associated with Coniferous forests (Hanson 1937; Audisio 1993; Martikainen 2001).

Members of the isolated genus *Pityophagus* Shuckard, 1839 are to be considered among the most important entomological “markers” of old-growth forests and of their biological value for conservations aims, despite the whole family Nitidulidae was ignored in the recently published but largely incomplete red list of European saproxylic beetles (Neto & Alexander 2010).

At Bosco Polverino, in the same traps where the two specimens of *Pityophagus quercus* were collected, we also found large numbers of the bark beetles *Xyleborus monographus* (Fabricius, 1792) and *X. dryo-*

*graphus* (Ratzeburg, 1837) (Coleoptera, Curculionidae Scolytinae) that may be the prey of this sap beetle. In the same locality, other interesting species of saproxylic insects have been collected during our investigations, e.g. the rare tenebrionid beetle *Eledonoprius armatus* (Panzer, 1799) (Carpaneto et al. in preparation). This site appeared to be an important reservoir of insect diversity and should be strictly protected as an area of high conservation priority.

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#### RIASSUNTO

*Pityophagus quercus* Reitter, 1877, una specie di coleotteri saproxilici nuova per la fauna italiana (Coleoptera, Nitidulidae).

Nel corso di una serie di ricerche ecologiche sulle comunità di coleotteri saproxilici nelle aree forestali relitte laziali di Bosco Polverino (provincia di Latina) e di Allumiere (provincia di Roma), è stata per la prima volta accertata la presenza in Italia di *Pityophagus quercus* Reitter, 1877 (Coleoptera, Nitidulidae). I nuovi reperti ci hanno spinto a sintetizzare l'insieme dei dati disponibili sulla distribuzione geografica e le esigenze ecologiche di questa misconosciuta specie, uno dei taxa più rari dell'entomofauna saproxilica europea.

#### SUMMARY

During ecological investigations on saproxylic beetle communities of central Italy (Latium), at Bosco Polverino (a mixed evergreen/deciduous forest fragment dominated by cork oaks), and at Allumiere (a small fragment of beech forest surrounded by turkey oak stands), the authors found three specimens of *Pityophagus quercus* Reitter, 1877 (Coleoptera, Nitidulidae). These are the first known records of this species in Italy, and the first one in association with an evergreen oak, *Quercus suber*. This discovery led us to review both bionomical and faunistic data so far available on this exceedingly rare and poorly known species.

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