

**Short scientific note**Submitted: May 18<sup>th</sup>, 2015 - Accepted: June 16<sup>th</sup>, 2015 - Published: June 30<sup>th</sup>, 2015***Carpophilus zeaphilus*, a new sap beetle species acclimatized in Italy (Coleoptera: Nitidulidae)**Paolo AUDISIO<sup>1,\*</sup>, Pierluigi SCARAMOZZINO<sup>2</sup>, Simone SABATELLI<sup>1</sup>, Emiliano MANCINI<sup>3</sup>, Andrew Richard CLINE<sup>4</sup><sup>1</sup> Department of Biology and Biotechnologies "Charles Darwin", Sapienza University of Rome - Via Alfonso Borelli 50, I-00161 Rome, Italy - paolo.audisio@uniroma1.it; simone.sabatelli@uniroma1.it<sup>2</sup> Dipartimento di Scienze Agrarie, Alimentari e Agro-ambientali, University of Pisa - Via del Borghetto 80, I-56124 Pisa, Italy p.scaramozzino@adm.unipi.it<sup>3</sup> Department of Sciences, Roma Tre University - Viale Guglielmo Marconi 446, I-00146 Rome, Italy - emiliano.mancini@uniroma3.it<sup>4</sup> Plant Pest Diagnostics Center, California Department of Food & Agriculture - 3294 Meadowview Road, Sacramento, CA 95832 - 1448, USA - andrew.cline@cdfa.ca.gov

\* Corresponding author

**Abstract**

*Carpophilus zeaphilus* Dobson, 1969 (Coleoptera, Nitidulidae, Carpophilinae) is an Afrotropical species that has become widespread in Sub-Saharan Africa, the Arabian Peninsula, and southern Mediterranean areas in recent years. The species was first recorded from Europe in Portugal and Spain nearly thirty years ago, and it was later intercepted in Sicily near Trapani in 1991. A few specimens of this species were collected in April, 2015 in a sparsely forested area near Rome, which suggests a recent acclimatization into peninsular Italy. Specimens were taken on flowering trees of *Prunus spinosa* L. (Rosaceae), an unusual occurrence for most introduced species of Carpophilinae that are normally associated with rotten fruit and other decomposing vegetal matter.

**Key words:** *Carpophilus zeaphilus*, alien species, acclimatization, Italy, anthophagy.

*Carpophilus* Stephens, 1830 is a widespread and species-rich genus of Nitidulidae in the subfamily Carpophilinae. The genus is composed of a few hundred taxa worldwide, with most species distributed in tropical and subtropical countries (Audisio 1993). Species are frequently associated with rotten vegetal material, chiefly rotten fruits and stored products (Hinton 1945, Ewing & Cline 2005). *Carpophilus zeaphilus* (Fig. 1) was described by Dobson (1969) from a series of specimens collected in Kenya on rotting maize material, later it was also found in Nigeria, South Africa and Namibia (Kirejtshuk 1996; Golob et al. 2002; Audisio unpublished data). Until recently, this species was found acclimatized in the Arabian Peninsula (Yemen: Jelinek 1988). Likewise, it was introduced via stored vegetable and dried fruit shipments, and later acclimatized in several Mediterranean areas, including Portugal and Spain, southern Turkey, and Jordan (Audisio 1993; Jelinek & Audisio 2007; Audisio & Jelinek 2011; Avgin et al. 2015; Jelinek et al. 2015). The species was also occasionally intercepted and doubtfully acclimatized (i.e., a population was temporarily established but subsequent records were not made) in southern France, Sicily, Monaco and Albania (Spornraft 1967, 1992; Angelini et al. 1995; Lompe 2003; Audisio & De Biase 2005; Denux & Zagat-

ti 2010; Ponel et al. 2011; DAISIE 2015). Recent data by Baviera & Audisio (2014) do not confirmed the actual acclimatization of this species in Sicily, following its first interception near Trapani in 1991 (Angelini et al. 1995; Audisio & De Biase 2005, erroneously recorded as collected in 1997 due to a misprint; Ratti 2006; Jelinek et al. 2015). Mifsud & Audisio (2008) also did not list this species from Malta during recent work there. Therefore, the recent (April 2015) collection of a couple of specimens in two sparsely forested localities not far from Rome (central Italy, Latium) was rather surprising, and suggests this species appears to be now acclimatized in Italy very recently.

We report herein the above-mentioned new Italian records, demonstrating the acclimatization of this species in Italy. The collected material is housed in P. Audisio's collection, Zoological Museum of the Rome University, Rome, Italy (CAR, MZUR).

**Material Examined. Italy:** Lazio (Roma province), Pomezia, Croce di Solforata, 105 m, 41.42.04.67N, 12.32.04.42E, 14 Apr 2015, P. Audisio & E. Mancini lgt, on flowering tree of *Prunus spinosa* L. (Rosaceae), 1 ♂ (CAR, MZUR); Lazio (Roma), road Pomezia-Pratica di Mare, 56 m, 41.39.58.80N, 12.28.53.44E, 14 Apr 2015, P. Audisio



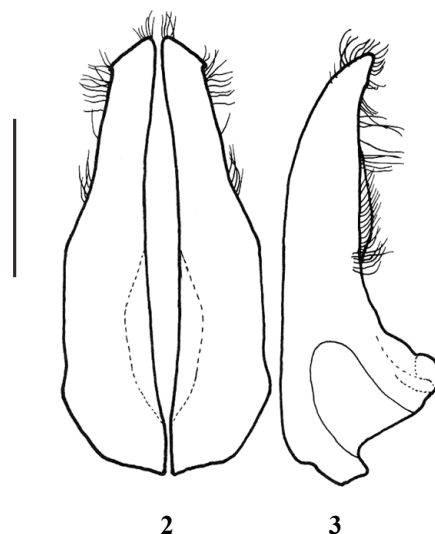
**Fig. 1** – A ♂ of *Carpophilus zeaphilus* Dobson, 1969 [Portugal (Douro), Pinhao (Vila Real), 14 Nov 2013, on ripening grape cluster, A. Lucchi lgt]; photo by P. Scaramozzino). Body length: 2.5 mm.

& E. Mancini lgt, on flowering tree of *Prunus spinosa* L. (Rosaceae), 1 ♀ (CAR, MZUR).

### Discussion

The overall body habitus (Fig. 1) and characteristic male genitalia (Figs 2-3) leave no doubt about the taxonomic identification of this species, certainly among the less common ones between the abundant series of recently introduced sap beetle species present in southern Europe (Audisio 1988, 1993; Avgin et al. 2015; Jelínek et al. 2015).

Some *Carpophilus* species are known to inhabit the flowers of various plant taxa. Therefore, the presence of *C. zeaphilus* on flowers of *Prunus spinosa* is not necessarily a surprising occurrence, but rather atypical for introduced species that are most commonly found on agricultural commodities such as fruits and stored products. Flower/inflorescence associations are widespread in *Carpophilus* and many species can be found on multiple plant genera/families. For example, Price & Young (2006) found *C. brachypterus* (Say) on flowers of species belonging to Rosaceae, Asteraceae, and Malvaceae, while some other



**Figs 2-3** – ♂ genitalia of *Carpophilus zeaphilus* Dobson, 1969 (from Portugal, near Lisboa). **2**, tegmen in dorsal view; **3**, tegmen in lateral view. Scale bar = 0.18 mm.

Nearctic and Central American *Carpophilus* species have more restricted host usage as floral feeders or pollinators on Cactaceae, Asparagaceae, and Annonaceae (Cline & Skelley 2013; Jenkins et al. 2013, 2015). Associations with species of *Prunus* are also known for multiple *Carpophilus* species from both the Old and New World.

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