

Research articleSubmitted: February 28th, 2018 - Accepted: June 7th, 2018 - Published: June 29th, 2018**First records of acclimatized populations of *Buprestis dalmatina* in Italy (Coleoptera: Buprestidae)**Donato LORUBIO ^{1,*}, Giuseppe CANCELLIERE [†], Francesco IZZILLO ²¹ Via Trieste e Trento 54, I-75023 Montalbano Jonico (MT), Italy - donatorubio@hotmail.it² Via G. Leopardi 192 is. 29, I-80125 Napoli, Italy

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Abstract

Buprestis (Ancylocheira) dalmatina Mannerheim, 1837, an E-Mediterranean Buprestid species, is here recorded for the first time from southern Italy (forest areas of Matera province, Basilicata Region). The here reported records of *B. dalmatina* are based on material collected on *Pinus halepensis* Mill. in re-forested coastal areas; the species is therefore supposed to have been very likely introduced. Some aspects of the ecological relationships of *Buprestis dalmatina* with the closely related and syntopic *Pinus* borers *B. humeralis*, *B. novemaculata* and *B. haemorrhoidalis haemorrhoidalis* in Southern Italy are also briefly discussed.

Key words: Coleoptera, Buprestidae, *Buprestis dalmatina*, Italy, Basilicata.**Introduction**

Buprestis (Ancylocheira) dalmatina Mannerheim, 1837 is an E-Mediterranean species described from Dalmatia, then recorded from Croatia, Albania, Greece, Asia Minor, Cyprus, Syria, Egypt (Obenberger 1941; Niehuis 1990), whose range extends eastward to Georgia and Ukraine (Krym), as reported by Kubáň (2016, in Löbl & Löbl 2016). Curletti (2005: p. 206) reports a single specimen found in Northern Italy (Romagna), but very likely, as pointed out by the same author, as a result of imported timber shipment, a well-known way in which allochthonous xylophagous species are accidentally introduced. In the present paper we report a set of new data on *B. dalmatina* from southern Italy (Ionian area of Basilicata) in 2016 and 2017.

Materials and methods

The Italian specimens of *B. dalmatina* were studied with a Wild M3b stereo microscope, following features for identification supplied by Niehuis (1990), and also compared with samples from Croatia and Greece. The chorotypes here applied to the species are those proposed by Vigna Taglianti et al. (1993). Acronyms of collections as follows: (CLM) = Donato Lorubio Collection (Montalbano Jonico, MT); (CCP) = Giuseppe Cancelliere Collection (Policoro, MT); (CIN) = Francesco Izzillo Collection (Napoli). In the list of the examined material, the Italian term “masseria” was translated as “farmhouse”.

Examined material. Italy, Basilicata: Bernalda (MT), Bradano river mouth, 2 Jul 2016, G. Cancelliere lgt, 1 ♂ (CCP); Montalbano Jonico (MT), residential area, 6 Jul 2016, D. Lorubio lgt, 1 ♀ (CLM); Montalbano Jonico (MT), cemetery, 11 Jul-20 Aug 2016, D. Lorubio lgt, 16 ♂♂, 16 ♀♀ (CLM); Montalbano Jonico (MT), De Crisci farmhouse, 14 Jul-10 Aug 2016, D. Lorubio lgt, 2 ♂♂, 1 ♀ (CLM); Scanzano Jonico (MT), 18 Jul-3 Aug 2016, D. Lorubio lgt, 5 ♂♂, 3 ♀♀ (CLM); Scanzano Jonico (MT), 19 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Bernalda (MT), Metaponto Lido, 23 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Bernalda (MT), Metaponto Lido, 23 Jul 2016, F. Izzillo lgt, 2 ♂♂ (CIN); Tursi (MT), Santa Maria delle vigne, 21 Jun-08 Aug 2017, D. Lorubio lgt, 10 ♂♂, 15 ♀♀ (CLM); Montalbano Jonico (MT), De Crisci farmhouse, 27 Jun-20 Jul 2017, D. Lorubio lgt, 2 ♂♂, 1 ♀ (CLM); Montescaglioso (MT), Difesa San Biagio, 13 Aug 2017, D. Lorubio lgt, 2 ♀ (CLM).

Other examined material. Croatia: Drvenik, 11-22 Jun 2000, M. Kafka lgt, 2 exx, (CIN); Podgora, 31 Jul 2013, F. Izzillo lgt, 7 exx, (CIN). **Greece:** Eubea, Rovies, 11 Aug 1991, P. Crovato lgt, 2 exx, (CIN); Ilia, Kaiafa, ex larva 30 May 1993 & Jun 1993, A. Liberto lgt, 2 exx, (CIN); Korinthia, Xilokastro, 1-4 Jun 1994, I. Sparacio lgt, 1 ex, (CIN); Messinia, Taygetos Oros, 29 Jun 1996, F. Izzillo lgt, 2 exx, (CIN); Ahaia, Kalogria, 3 & 4 Jul 1996, I. & F. Izzillo lgt, 6 exx, (CIN); Ahaia, Ano Diakoftò, 2 Jul 1996, I. & F. Izzillo lgt, 13 exx, (CIN); Arkadia, Livadaki, 28 Jun 1997, A. Liberto lgt, 10 exx, (CIN); Larissa, Ossa Oros, near Spilia, 28-29 Jul 2011, F. Izzillo lgt, 5 exx, (CIN).

Examined material of associated *Buprestis* species

Buprestis (Ancylocheira) haemorrhoidalis haemorrhoidalis Herbst, 1780: **Italy, Basilicata:** Bernalda (MT), Bradano river mouth, 1 Jul 2016, G. Cancelliere lgt, 1 ♂ (CCP); Bernalda (MT), Bradano river mouth, 2 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Scanzano Jonico (MT), 18 Jul 2016, D. Lorubio lgt, 1 ♂, 1 ♀ (CLM); Scanzano Jonico (MT), 19 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Bernalda (MT), Metaponto Lido, 23 Jul 2016, F. Izzillo lgt, 1 ♂, 1 ♀ (CIN); Bernalda (MT), Metaponto Lido, 23 Jul 2016, D. Lorubio lgt, 1 ♀ (CLM); Scanzano Jonico (MT), 3 Aug 2016, D. Lorubio lgt, 3 ♂♂ (CLM); Tursi (MT), Santa Maria delle vigne, 21 Jun 2017, D. Lorubio lgt, 2 ♂, 2 ♀ (CLM); Tursi (MT), Santa Maria delle vigne, 6 Jul 2017, D. Lorubio lgt, 1 ♂ (CLM); Tursi (MT), Santa Maria delle vigne, 21 Jul 2017, D. Lorubio lgt, 1 ♂ (CLM).

Buprestis (Ancylocheira) humeralis Klug, 1829: **Italy, Basilicata:** Bernalda (MT), Bradano river mouth, 1 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Ginosa (TA), 1 Jul 2016, G. Cancelliere lgt, 1 ♂ (CCP); Montalbano Jonico (MT), cemetery, 2 Aug 2016, D. Lorubio lgt, 1 ♀ (CLM); Cassano allo Jonio (CS), Crati river mouth, 11 Jul 2016, G. Cancelliere lgt, 1 ex., remains (CCP); Policoro (MT), Torre mozza, 14 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Scanzano Jonico (MT), 19 Jul 2016, G. Cancelliere lgt, 1 ♀ (CCP); Bernalda (MT), Metaponto Lido, 23 Jul 2016, F. Izzillo lgt, 1 ♀ (CIN); Montescaglioso (MT), Difesa San Biagio, 18 Aug 2016, D. Lorubio lgt, 1 ♀ (CLM); Montescaglioso (MT), Difesa San Biagio, 28 Aug 2016, D.

Lorubio lgt, 1 ♀ (CLM); Tursi (MT), Santa Maria delle vigne, 8 Aug 2017, D. Lorubio lgt, 1 ♀ (CLM).

Buprestis (Ancylocheira) novemmaculata novemmaculata Linnaeus, 1767: **Italy, Basilicata:** Montalbano Jonico (MT), cemetery, 12 Jul 2016, D. Lorubio lgt, 1 ♀ (CLM); Montalbano Jonico (MT), De Crisci farmhouse, 14 Jul 2016, D. Lorubio lgt, 1 ♀ (CLM); Montalbano Jonico (MT), cemetery, 2 Aug 2016, D. Lorubio lgt, 2 ♂♂ (CLM); Tursi (MT), Santa Maria delle vigne, 21 Jun 2017, D. Lorubio lgt, 1 ♂, 1 ♀ (CLM); Tursi (MT), Santa Maria delle vigne, 6 Jul 2017, D. Lorubio lgt, 1 ♂ (CLM).

Remarks on ecology and ethology

A first specimen of *B. dalmatina* was accidentally found dead on a seedhead of *Setaria* sp. (Poaceae) near Bradano river mouth on 2 July 2016. Another dead specimen of *B. dalmatina* was found in the residential area of Montalbano Jonico on 6 July 2016. Later on, several surveys carried out in the wide reforestation area of *Pinus halepensis* Mill. surrounding Montalbano Jonico, allowed the collection of many living specimens either engaged in mating (Fig. 1) or in egg laying (Fig. 2), both on the bark and on the cut of chopped down trees. The range of the research was then widened to include the vast pine forests of the Ionian coast of Matera province (Scanzano Jonico, Metaponto), where *B. dalmatina* was found colonizing wood piles and logs of *P. halepensis*. During collecting trips carried out on 2017, instead, we focused on two inland hilly areas (Tursi and Difesa san Biagio, near Montescaglioso) with *P. halepensis*, where *B. dalmatina* was collected as well.



Fig. 1 – *Buprestis dalmatina*, mating. 12 Jul 2016. Montalbano Jonico, Basilicata, Italy. Photo by D. Lorubio.



Fig. 2 – *Buprestis dalmatina*, egg laying. 11 Jul 2016. Montalbano Jonico, Basilicata, Italy. Photo by D. Lorubio.

Notes on the host plant

As reported by Niehuis (1990), within its range *B. dalmatina* is most commonly found on *Pinus brutia* Ten., but it is not uncommon to find it on trees of the same genus such as *P. halepensis*, on which our observations were made. Even though diverging opinions exist as to the presence of indigenous *P. halepensis* forests alongside the Ionian coast of the province of Taranto (Biondi et al. 2004), it is unquestionable that this pine species has been widely used since 1935 in reforestations alongside the Ionian coast of Basilicata (D'Antonio 1988), in order to protect the inland farms from the strong marine winds. A similar reforestation work can be observed inland, in the area surrounding Montalbano Jonico, where pine trees were planted to strengthen its clayish hill and prevent landslides.

Notes on the associated *Buprestis* species

In the pine forest of Montalbano Jonico *Buprestis dalmatina* shares the same habitat with *B. (Ancylocheira) humeralis* Klug, 1829, the latter only lately reported from Italy (Izzillo et al. 2002; Gobbi 2002, Ionian coast of Basilicata Region). *B. humeralis* is an E-Mediterranean species that was considered as native (with trans-Ionian distribution) by Izzillo et al. (2002), whereas it was believed to be introduced by Gobbi (2002). *B. humeralis* was recently assessed as an endangered species in the Red List of Italian Saproxyllic Beetles (Carpaneto et al. 2015). In the pine forest of Montalbano Jonico *B. dalmatina* also shares the same habitat with *Buprestis (Ancylocheira) novemmaculata novemmaculata* Linnaeus, 1767. *B. novemmaculata* is a Centralasiatic-European-Mediterranean species, formerly

known from Basilicata only by remains of a single specimen found on Pollino Massif (Gobbi 1971); the *B. novemmaculata* specimens listed in this work are therefore the first living specimens collected in the Basilicata region.

In pine forests of the Ionian coast of Matera province (Scanzano Jonico, Metaponto) *Buprestis dalmatina* was associated with *B. humeralis* and with *B. (Ancylocheira) haemorrhoidalis haemorrhoidalis* Herbst, 1780, a polytypic Palaearctic species. In the pine forest of Tursi, *B. dalmatina* was associated with *B. humeralis*, *B. novemmaculata*, and *B. haemorrhoidalis*, whereas in the pine forest of Difesa San Biagio, Montescaglioso, it was associated only with *B. humeralis*.

Discussion

The area explored during our investigations was thoroughly studied over the past decades (Tassi 1967; Angelini & Montemurro 1986, Crovato et al. 1995; Izzillo et al. 2002; Gobbi 2002; Izzillo 2013), therefore we believe that *B. dalmatina* settling in the area should be considered as a rather recent occurrence, maybe due to introduction from Balkans of *Pinus halepensis* trees used for reforestation activities. In the light of the abundant collecting data herein recorded, the populations found in Basilicata must be considered as acclimatized (sensu Zapparoli 2008), as well as widespread. However, further researches are required to evaluate the impact that *B. dalmatina*, in our opinion a potentially invasive species, could have on indigenous populations of the other native *Buprestis* species associated

to *B. dalmatina* in Basilicata region, due to potential interspecific feeding competition. Both field and laboratory studies on egg laying requirements (on bark or on the cut) and larval development of the four associated *Buprestis* species are therefore needed.

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