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***Amnestus pusillus* Uhler, 1876 new to Europe found in Italy (Heteroptera: Cydnidae)**Paride DIOLI<sup>1,\*</sup>, Ernesto PASCOTTO<sup>2</sup>, Marco ULIANA<sup>3</sup><sup>1</sup> Museo di Storia Naturale, Sezione di Entomologia, Corso Venezia 55, 20121 Milano, Italy – paridedioli@virgilio.it; ORCID: <https://orcid.org/0000-0002-4274-0926>.<sup>2</sup> AULSS n.2 Marca Trevigiana, Dept. of Prevention – Veterinary Service, Via Castellana 2, Treviso, Italy – ORCID: <https://orcid.org/0000-0001-9257-333X><sup>3</sup> Museo di Storia Naturale di Venezia Giancarlo Ligabue, Santa Croce 1730, 30135 Venezia – ORCID: <https://orcid.org/0000-0001-7180-6659>

\*Corresponding author

**Abstract**Specimens of *Amnestus pusillus* were collected in Veneto, Italy, at light. The species is of American origin and, outside its natural range, has been recorded previously from Iran and Asian part of Turkey. The present record is the first for Europe.**Key words:** Alien species, Burrower Bugs, *Amnestus pusillus*, Cydnidae, New record, Europe, Italy.**Introduction**

*Amnestus* Dallas, 1851 is a genus of Burrower Bugs described from the New World and confirmed in the revision of the Cydnidae of the Western Hemisphere (Froeschner 1960). So far 43 species are known, distributed from western Ontario, Canada, through the United States of America, Mexico, Central America, the Antilles and even South America, in Argentina (Mayorga & Cervantes 2014).

Species of this genus were rarely found outside their natural range, except for a single record of *A. pusio* (Stål, 1860) in Madagascar (Froeschner 1960), probably introduced with goods, a single record of *Amnestus brunneus* being passively introduced into the USA with vegetables (U.S. Custom and Border Protection 2014), and repeated documentation of *Amnestus pusillus* Uhler, 1876, in the western Palaearctic. The oldest known record dates back to 1994 (Lis 1998) and consists in one male and three females collected by Linnavouri in Iran, Gilan province. It was originally interpreted as a new species (*A. raunoi* Lis, 1998) and then synonymized (Mayorga et al. 2012). The species appears established in the area, since further specimens were later collected in large numbers in different localities of the Gilan Province: Sume-eh Sara, Anzali, Dashte-Veel, Rasht, Seravan (Linnavouri 2007; Ghahari et al. 2009). Recently it was recorded from Izmir, Asian part of Turkey, based on a single specimen (Çerçi & Koçak

2016), representing the only other record of *A. pusillus* as an alien species outside Iran.

During 2020, *Amnestus pusillus* was collected in Italy. Its presence is discussed below.

**Materials and Methods**

Recent records:

**ITALY:** Veneto, Treviso, W outskirts, 45.6696, 12.2224, indoor, attracted by light, 15-17.ix.2020, E. Pascotto (EP) leg., 2♂♂, 2♀♀, Museo di Storia Naturale di Venezia (Fig. 1); 1♂, 2♀♀ coll. P. Dioli.

Several other specimens were observed in the same conditions during the previous days by EP. The specimens were identified based on the revision of the Cydnidae of the Western Hemisphere (Froeschner 1960) and subsequent descriptions and comments (Lis 1998; Mayorga et al. 2012; Mayorga & Cervantes 2014; Çerçi & Koçak 2016).

**General distribution**

Canada, USA, Mexico, Guatemala, Iran, Asian part of Turkey (Aukema et al. 2013; Mayorga & Cervantes 2014; Çerçi & Koçak 2016) and Italy (the present paper).

## Description

*Amnestus* species are recognized by their small size (2-3 mm) and by the presence of 4-5 marginal pegs in mandibular plate (Froeschner 1960).

*Amnestus pusillus* is easily recognizable by the shape of hind femora of male, bearing a subapical, characteristic spine which is more than one-third (often one-half) as long as the tibia (Fig. 1-left). Female has a short, oblique, subapical spine, ventrally near apex of the posterior femora (Fig. 1-right).

Head yellow-orange, clypeus surpassing mandibular plates, with 4 pegs on its anterior margin. Each mandibular plate with 4 pegs becoming smaller toward eyes. Surface of the head, except clypeus, coarsely punctate. Antennae pale orange, second segment apically enlarged. Pronotum orange, wider than long, with a distinct transverse impression marked by a row of punctures. Scutellum light brown, darker than pronotum, in the shape of an equilateral triangle, coarsely punctured. Hemelytra pale orange, membrane smooth and transparent, distinctly exceeding the abdomen. Fore femora ventrally with a short submedian spine, anterior tibia with two prominent angulations or spines on lower edge, more pronounced in males. Posterior femora of male and female as stated above. Length of body: mm 2.3 – 3.2.

## Discussion

Most *Amnestus* species are associated with different species of *Ficus* (Moraceae), and they feed mainly on decomposing seeds, as well as on juice of fruits fallen on the ground (Mayorga & Cervantes 2001). However, outside the countries of origin, there is no information on the possible association between *A. pusillus* and these plants, also because all the specimens were collected by light traps.

It is possible that this species, accidentally imported with goods from America, could find a suitable host plant locally. Therefore, active investigations on its food source in the countries of introduction should be undertaken, focusing especially on figs with fruits fallen on the ground.

The specimens from Treviso were collected in different periods, always in the evening at about 8.45 pm, on the second floor of a building, attracted by light. It should be noted that near the building there is a little garden and a partially canalized stream with poor riparian vegetation, that includes plants of *Ficus carica*. It is important to underline that the wholesale fruit and vegetable market of Treviso is 200 meters away, and the local Customs Point is 1500 meters away.

As Mayorga et al. (2012) commented, the presence of *A. pusillus* seems to be correlated to the proximity of major trade centers in port areas. Also in the present case, it



**Fig. 1** – *Amnestus pusillus*: specimens collected in Italy, male (left), and female (right) (photo M. Uliana – Coll. Museo di Storia Naturale di Venezia).

should be emphasized that Treviso is included in the main commercial trade triangle served by the port of Venice-Marghera. Furthermore, the area is close to a dense network of motorways and highways, that facilitates the spread of alien species. Some of the recent introductions of alien True Bugs in Italy seemingly took advantage of it either through the passive transport of goods from the ports to the sorting areas, or through the vegetated edges (often consisting of non-native plants) along the highways. Moreover, considering that *A. pusillus* seems to be easily attracted by light, illumination of ships and ferries, connecting maritime and oceanic destinations, could have functioned as a passive method of transportation (Rabitsch 2008; Dioli 2010; Dioli & Grazioli 2012; Cesari et al. 2014; Lupoli et al. 2020).

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