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FIRST INTERCEPTION OF *ACROSSIDIUS TASMANIAE* (HOPE, 1847) (COLEOPTERA SCARABAEIDAE APHODIINAE) IN EUROPE

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Mazza G., Pennacchio F., Marianelli L., Rey A., Dellacasa M., Dellacasa G., Stasolla G., Tricarico E., Inghilesi A.F., Roversi P.F. – First interception of *Acrossidius tasmaniae* (Hope, 1847) (Coleoptera Scarabaeidae Aphodiinae) in Europe.

In April 2013, four adults of *Acrossidius tasmaniae* (Hope, 1847) (Coleoptera Scarabaeidae Aphodiinae) were found during the inspection of the Phytosanitary Service of Tuscany Region in the port of Leghorn, in a container from New Zealand. This is the first interception of this minor pest for cultivated plants in Europe.

KEY WORDS: Aphodiinae, *Acrossidius tasmaniae*, alien insect, minor pest, interception, port

Introductions of species outside their native ranges can have important effects on ecosystems, agriculture, and human health (LIEBHOLD *et al.*, 1995; VITOUSEK *et al.*, 1996; MAZZA *et al.*, 2014). Unintentional introductions associated with international commerce are a primary mean by which non-indigenous species become established (HAACK, 2001; MCCULLOUGH *et al.*, 2006). Insects, in particular, are mainly introduced as contaminant of imported commodities, including agricultural products, greenhouse and ornamental plants, nursery stocks, cut flowers, wood products, stored products and packing materials (HAACK, 2001; MCCULLOUGH *et al.*, 2006). Since prevention is both the best and the first measure to be taken against biological invasions (COP 6 Decision VI/23, CBD, The Hague, April 2002), understanding the origin of alien species and the pathway they follow is crucial to better tackle the risk of their introductions.

Italy is one of the most invaded European country by alien insects and one of the best studied area for this issue (e.g. INGHILESI *et al.*, 2013a; INGHILESI *et al.*, 2013b). A recent update on alien insects counted 923 species present in Italy, even if 54% of these are not established species (INGHILESI *et al.*, 2013a). Alien Coleoptera are the most abundant, mainly because this is the richest order of insects; however, species have a variable success of colonization and only a portion of them is able to become invasive (e.g. PENNACCHIO *et al.*, 2003; PENNACCHIO *et al.*, 2004; FACCOLI *et al.*, 2009; INGHILESI *et al.*, 2013a). Even if several species were only intercepted at ports of entry, this information is also fundamental to better address the management efforts towards early detection with the

purpose of improving policies that might prevent further introductions (VAN DER GAAG *et al.*, 2010).

With this aim, here we reported the first interception of *Acrossidius tasmaniae* (Hope, 1847) (Coleoptera Scarabaeidae Aphodiinae) in Europe. This is the second record of alien Aphodiinae for Italy after the recent finding of *Ataenius picinus* Harold, 1867 reported by INGHILESI *et al.* (2011).

Aphodiinae are mainly coprophagous or saprophagous, usually feeding and breeding in the soil on various kinds of excrement and/or in vegetable debris. However, several species found in Europe, Asia, America, and Australia, and two species (*A. tasmaniae* and *A. picinus*) in New Zealand are minor pests of cultivated plants, such as alfalfa and clover (STEBNICKA, 2001).

In April 2013, during the inspection of the Phytosanitary Service of Tuscany Region in the port of Leghorn, four adults of *A. tasmaniae* (Fig. I) were found in a container from New Zealand containing fumigated sacks of seeds of carrots and mustards. The species was identified by G. Dellacasa and Dr. M. Dellacasa and the specimens were preserved in Dellacasa collection, Genova.

The Tasmanian grass grub, *A. tasmaniae*, is distributed in Tasmania and in Australia, in particular from the Eyre Peninsula through southeastern South Australia, Victoria to eastern New South Wales (STEBNICKA, 2001). The adults are shiny, dark brown to black beetles, and long about 9-14 mm. *Acrossidius tasmaniae* is one of the most highly variable species of Aphodiini for morphological features (sexual dimorphism, allometric or heterogonic growth, and geographic variation) and its larvae unusually feed on grass and clover leaves rather than roots

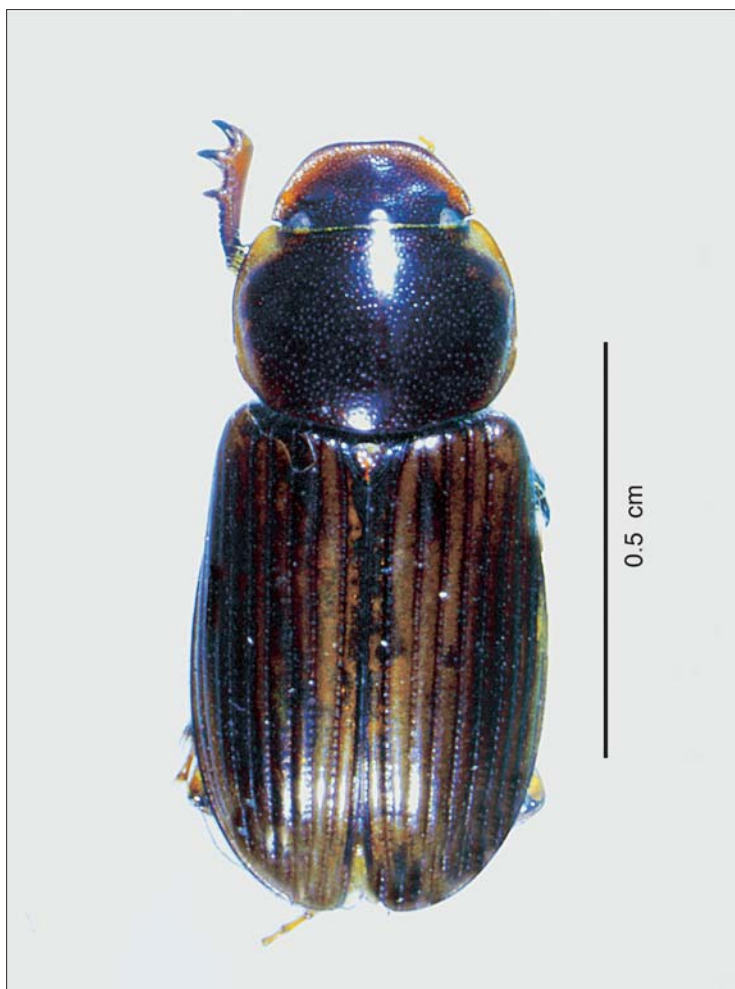


Fig. I – Adult of *Acrossidius tasmaniae* (Hope, 1847) intercepted during the inspection of the Phytosanitary Service of Tuscany Region in the port of Leghorn (Italy).

(STEBNICKA, 2001). The adult beetle instead preferably feeds on fresh horse dung but also on cattle and sheep dung (EDWARD and HOFFMANN, 2007). The females prefer to lay eggs in bare ground, and they lay more eggs if they can feed on animal dung. So areas where sheep or cattle camp are likely to be worst affected (HORNE and PAGE, 2008). This univoltine species is indeed an important pest of improved pastures in many areas of Australia and in various localities of New Zealand where it was introduced, as the drier east coast area of New Zealand (JACKSON and KLEIN, 2006).

The biology of this beetle could explain its finding in April in a container from New Zealand: adults are crepuscular-nocturnal flyers and are usually collected near lights (ports are very bright); moreover, the species high activity period in New Zealand is from November to March (STEBNICKA, 2001).

Further investigations are needed to understand if this pest is already present with established population in the closeness of the port, using light or attractive traps since *A. tasmaniae* is attracted both by skatole and light (OSBORNE et al., 1975). Finally, risk assessments of potential new pests and pathways, as well as improving inspection techniques and early detection survey programs, could be adopted at local/national level to better face biological invasions.

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