INTRODUCTION

Wood is widely used in trades either as a commodity itself or as packaging material for several products. Regrettably, in the absence of phytosanitary measures, it may represent an efficient vector of many xylophagous insects, increasing the risk of pest introductions in new areas (Cavey, 1998; Haack, 2001, 2006; Haack et al., 2010; Liebhold et al., 1995; McCullough et al., 2006; Aukema et al., 2010; Haack and Rabaglia, 2013; Pennacchio et al., 2003, 2004, 2013). In recent decades, during monitoring activities, hundreds of xylophagous species, belonging mainly to the families Cerambycidae, Buprestidae, Bostrichidae and Curculionidae (particularly Scolytinae) have been intercepted worldwide in high-risk areas such as ports, airports, customs and nurseries. Since then, a vast number of introduced species have become naturalized showing a strong capacity to spread to new territories, quickly adapting to different ecological conditions. This often led to negative consequences in terms of ecosystem efficiency and host plant health (Inghilesi et al., 2013; Pennacchio et al., 2013; Herard et al., 2009; Bullas-Appleton et al., 2014). In this regard, for example, negative outcomes are due to the introduction of Anoplophora chinensis (Forster, 1771), A. glabripennis (Motschulsky, 1853) (Coleoptera Cerambycidae) and Xylodendrus compactus (Eichhoff, 1875) (Coleoptera Curculionidae Scolytinae), responsible for severe damages to broad-leaved trees in urban and suburban areas, have been often observed. Moreover Megaplatythus mutatus (Chapuis, 1865) and Aclees sp. cf. foevatrus Voss (Coleoptera Curculionidae) have been also reported to be harmful to poplar plantations and fig trees, respectively (Tremblay et al., 2000; Ciampolini et al., 2005; Maspero et al., 2007; Allegro and Griffi, 2008; Herard et al., 2009; Pennacchio et al., 2012). Thanks to the monitoring activities carried out in the project ASPROPI, a specimen of Trichoferus campestris (Faldermann, 1835) (Coleoptera Cerambycidae Cerambycinae) (Velvet longhorned beetle) was captured by funnel traps located in the port of Naples, Southern Italy: the identification of the specimen was made using the keys of Hegyessy and Kutasi (2010).

DISTRIBUTION

The genus Trichoferus Wollaston, 1854, belongs to the family Cerambycidae and includes 7 species in continental Europe: T. fasciculatus (Faldermann, 1837), T. griseus (Fabricius, 1792)(Fig. 1, 2), T. holosericeus (Rossi, 1790) (Fig. I, 3), T. magnanii Sama, 1992, T. pallidus (Olivier, 1790)(Fig. I, 1), T. spartii (G. Müller, 1948) and T. campestris. In Italy only T. fasciculatus, T. griseus, T. spartii, T. pallidus, T. arenbergeri Holzschuh, 1995, endemic of Sardinia and T. holosericeus have been recorded (Sama and Razuoli, 2011; Razuoli and Grego, 2013). T. campestris is native to China, Japan, Korea, Mongolia, India, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, the easternmost part of Russia, European and south eastern Russia and the southern Urals (Krivoshieina and Tokgaye, 1985; EPPO, 2009; Grebennikov et al., 2010).

Either stabilized populations or simple interceptions of this species have been recorded in many areas outside its native range such as central and southern Russia, Ukraine, Georgia, Iran, Iraq, Poland, Moldavia, Romania, Moravia (Czech Republic), Slovakia, Hungary, Romania, France, the eastern Mediterranean area, North America, Indian Ocean and Pacific Ocean (Danilevsky and Miroshnikov, 1985; Markinoski, 1966; Dascalu et al., 2013; Coqueempot, 2006; Sabol, 2009; Sama et al., 2005; Kruszelnicki, 2010; Hegyessy and Kutasi, 2010; Zamoroka and Panin, 2011; Bullas-Appleton et al., 2014; Watson et al., 2015; The
**Biology**

*T. campestris* (Fig. 1, 4) develops in woody plants in both agricultural and forest environments. It is active during the night, flying regularly from the end of June to the beginning of August when females lay eggs into the bark of tree trunks and large-diameter branches. Healthy or stressed plants are usually colonized but any wood material, though trunks and large-diameter branches. Healthy or stressed of August when females lay eggs into the bark of tree night, flying regularly from the end of June to the beginning agricultural and forest environments. It is active during the

**Host plants**

*T. campestris* is widely polyphagous and able to colonize several woody species representing essential components of forests, orchards, and street tree populations in Italy and more generally in the EPPO countries. It has been observed to colonize healthy plants belonging to several species included in the genera: *Picea*, *Pinus*, *Betula*, *Broussonetia*, *Gleditsia*, *Malus*, *Morus*, *Salix*, *Sorbus*; when the wood is dehydrated, it is able to exploit an increased number of plant genera and species including: Abies spp., Larix spp., *Picea* spp., several *Pinus* such as *Pinus densiflora* and also *Chamaecyparis obtusa*, *Betula*, *Fagus* *crenata*, *Juglans* *mandshurica*, *Morus* *bomboycis*, *Robinia* *pseudoacacia*, *Zelkova* *serata*, *Vitis* *vinifera*, *Acer* spp., *Alnus* spp., *Aralia* spp., *Camellia* *japonica*, *Carpinus*, *Citrus*, *Cornus*, *Diospyros*, *Euonymous*, *Fraxinus*, *Ilex*, *Malus*, *Populus*, *Pyrus*, *Rhus*, *Salix*, *Syzygium*, *Tilia*, *Ulmus*, *Wisteria*, *Quercus*, *Zanthoxylum*, *Ziziphus* (*Orlinski*, 2006; *EWBBB*, 2014).

**Phytosanitary risk**

In 2007, *T. campestris* was included in the EPPO A2 action list and it is currently considered a quarantine insect not only in the USA and Canada but also in the EPPO countries where there is a risk of introduction. In fact, together with its congeneric species reported in the European fauna, it is often responsible for damages to live trees, dehydrated wood, and, in some circumstances, solid wood items. Therefore, since this species has the potential to establish permanently in the vast majority of regions of central and southern Europe, including Italy, it is regarded as a possible threat to biodiversity (*Makholmovskii*, 1966; *Kostin*, 1973; *Krivoshchina* and *Tokage*, 1985).

**Phytosanitary measures aimed at limiting pest spreading**

The main vector, responsible for the artificial introduction of *T. campestris* in new geographic areas, is certainly infested wood and in particular packaging material that may host larvae, pupae and adults.

In 2002, specimens of *T. campestris* emerged in a quarantine area of the Marseille harbour (France) from *Salix* sp. timber shipped from China (*Cocquempot*, 2006). In 2015, in Austria, *T. campestris* specimens were intercepted 3 times on packaging material from China marked with the ISPM-31 (*EUROPHYT*, 2016). Thanks to these last interceptions, made also with the help of dogs, live larvae, pupae and adults of this species could be detected.

Since this pest is able to develop even in highly dehydrated wood, trade of packaging material represents indeed the main spreading route. So far, phytosanitary measures adopted to limit pest introductions included the
early debarking of logs and accurate wood inspections aimed at detecting characteristics diagnostic of xylophagous insects (i.e. frass and gallery systems).

However, we stress that the compliance with the current international legislation concerning phytosanitary measures for packaging material, in agreement with the FAO requirements (ISPM No. 15) (2013), is essential in the implementation of strategies aimed at preventing unintentional pest transfer.

This specimen was collected thanks to a national monitoring network established in the Naples harbour by MIPAAF in cooperation with the regional phytosanitary services, CREA and other scientific institutions. In the same area, an outbreak of Aromia bungii (Faldermann, 1835) (Coleoptera Cerambycidae) had been detected in 2012 (EPPO, 2012; EPPO, 2015).

Such results underline that the active monitoring of areas at risk of pest introduction, represents a key element of the alert system designed to quickly counter the accidental introduction and spreading of exotic insects in the Italian territory.

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REFERENCES


Cavey, J.F. 1998 – Solid wood packing material from China, initial pest risk assessment on certain wood boring beetles known to be associated with cargo shipments: Asian Longhorned Beetle (Anoplophora glabripennis), Ceresium, Monochamus and Hesperophanes. USDA PPQ, 22pp.


CoC Emmont, C., 2006 – Alien longhorned beetles (Coleoptera Cerambycidae): Original interceptions and introductions in Europe, mainly in France, and notes about recently imported species. - Redia, 89: 35-50.


Dascalu, M.M., Serafim, R., Lindeelow, A., 2013 – Range expansion of Trichoferus campestris (Faldermann) (Coleoptera: Cerambycidae) in Europe with the confirmation of its presence in Romania. - Entomologica Fennica, 24: 142-146.


EWBBB, 2014, Exotic Wood Borer/Bark Beetle - Trichoferus campestris (Faldermann), datasheet http://www.google.it/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&cad=rja&uact=8&ved=0ahUKEwjBp7f19NPIAhXkDywkJtrHRQvDoQSpQAQ&url=http%3A%2F%2Fdownload.ceris.purdue.edu%2Ffile%2F2204&usg=AFQjCNGq6t5xp5m_0MMH18VAXUoBzDzQ&sig2=nxD8AV9E5PK401CgUQySwQ&bvm=bv.117218890,d.Bg.g (last date access, 22 march 2016).


Ivata R., Yamada F., 1990 – Notes on the biology of Hesperophanes campestris (Faldermann) (Col.,


Pennacchio F. Santini L., Francardi V., 2012 - Bioecological notes on Xylosandrus compactus (Eichhoff) (Coleoptera Curculionidae Scolytinae), a species recently recorded into Italy. - Redia, 95: 67-77.


Rapuzzi P. and Grego B., 2013. First record of Trichoferus pallidus (Olivier, 1790) for Italy (Coleoptera: Cerambycidae). Munis Entomology & Zoology, 8 (2): 712-713.


