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First record of the multicoloured Asian ladybird *Harmonia axyridis* (PALLAS, 1773) in Austria. Erster Fund des Asiatischen Marienkäfers *Harmonia axyridis* (PALLAS, 1773) in Österreich.

The multicoloured Asian ladybird *Harmonia axyridis* (Coccinellidae, Coleoptera) is native to Asia (distributed from the Altai Mountains through China to Japan). Larvae and adults are strong predators of aphids (an adult beetle consumes up to 1200 aphids during its development) and this is why this species was intentionally released as a biocontrol agent against aphids in greenhouses, orchards and gardens in many countries of the world (in North America since 1916 and in Western Europe since 1982; KOCH 2003). However, it escaped from release sites and turned out to be extremely successful in the wild. In North America, the species has been established since the late 1980's, in Europe probably since the late 1990's and in South America (Brazil and Argentina) since approximately 2000. In North America it is now widely reported as the dominant species of ladybird and is anticipated to gain the same status in Europe.

Like other successful colonizers and invasive species, *H. axyridis* is polyphagous, has a high reproductive potential (up to 3819 eggs per female) and a high dispersal capacity (long migratory flights and human mediated movement of the insect resulted in an average range expansion of 442 km per year in North America) (ADRIAENS et al. 2003, KOCH et al. 2006 and references therein).

The species is regarded as being of conservational concern because it outcompetes other ladybird species (proven in the laboratory and in the field), it preys on other species of the aphidophagous guild (e.g. lacewings, hoverflies) and on other insects (butterflies, beetles) (e.g. ELLIOT et al. 1996, BROWN & MILLER 1998, ALYOKHIN & SEWELL 2004, BURGIO et al. 2005, MAJERUS et al. 2006). It further becomes a nuisance to people because of invading houses in large numbers when searching for a hibernation site in autumn. It may also become a problem for the wine industry, since beetles aggregate to feed on ripe grapes in autumn. Difficult to separate they are crushed with the grapes and negatively affect the taste of the vintage ("ladybug taint", e.g. PICKERING et al. 2006).

In Europe, established populations of the species in the wild are known so far from Germany (first record: 1999; TOLASCH 2002), Belgium (2001; ADRIAENS et al. 2003), the Netherlands (2002; CUPPEN et al. 2004), United Kingdom (2004; MAJERUS & ROY 2005), Luxemburg (2004; SCHNEIDER & LOOMANS 2006), France (LOHEZ 2005) and Switzerland (2004; KLAUSNITZER 2004, Kenis in litt.). Further releases with local escapes but unclear fate were reported from southern France, Greece and Italy (KATSOYANNOS et al. 1997, IPERTI & BERTRAND 2001, BURGIO et al. 2005). This species is increasing in both range and abundance across much of Europe and its occurrence in Austria was to be expected.

In October 2006 several specimens searching for a hibernating site were recorded by R. Schuh in Wiener Neustadt, Lower Austria (N 47°48' E 16°14', 265m NN) on the wall of a house within the city. They belong to the two most common colour morphs: black elytra with two red spots (f. *conspicua*) and orange elytra with 19 black spots (f. *succinea*) (Fig. 1). The origin of the specimens is not yet clear. Natural spread seems probable, although no nearby records are known. Escape from a greenhouse or a private garden, where the species was used to control aphids, can not be ruled out, although we have no evidence of this from discussions with local greenhouse owners in Wiener Neustadt.

At the same time, one specimen was collected in Götzis, Vorarlberg (N 47°20' E 9°38', 448m NN) by A. Kapp (pers. comm.) under similar conditions. The appearance in the westernmost province of Austria connects to known records in Switzerland and southern Germany.

In November 2006 several specimens (including f. *spectabilis* with black elytra and four red spots) were recorded by the first author in the city of Vienna, 9th district, Nordbergstrasse (N 48°13' E 16°21', 164 m NN) on the sun-exposed wall of a house.
Harmonia axyridis is 5-8 mm in body size, the elytra are very variable in colour

Fig. 1. The two colour morphs of *Harmonia axyridis* (PALLAS) found in Wiener Neustadt (Photo: W. Rabitsch).

pattern from pale yellow to black with a variable number of 0–21 spots and a wide transverse keel at the apex. The pronotum is white or yellowish with up to five spots or fused lateral spots forming two curved lines, M-shaped mark or solid trapezoid.

The species hibernates in sheltered sites (under bark, under stones), often in large aggregations. In spring, mating occurs and females start laying eggs (up to 25 eggs per day) for their entire life (1-3 months). In Europe, two generations per year have been observed and with warmer springs and autumn, three generations may be possible. There seems to exist a preference of this arboreal species for certain decidous trees on which the beetle hunts for aphids, particularly lime (*Tilia* sp.) and maple (*Acer* sp.). Most records in Europe are confined to urban areas, but it seems as if the species is increasingly conquering seminatural ecosystems and becoming a threat for native ladybird species and other aphid predators.

Harmonia axyridis counts as the most threatening predator that has been used in biocontrol (VAN LENTEREN et al. 2003) and it was coined the "most invasive ladybird on Earth" (ROY et al. 2006). Its use in biocontrol should be prohibited and detailed studies on the impact of the species on native ecosystems need to be intensified. The possibilities to establish an online-recording scheme as successfully employed in the UK (www.harlequin-survey.org) to document and monitor the expected further spread in Austria are currently under scrutiny.

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