P O L I S H J O U R N A L O F E N T O M O L O G Y
P O L S K I E P I S M O E N T O M O L O G I C Z N E

VOL. **76**: 177-182 Bydgoszcz 30 September 2007

Harmonia axyridis (PALLAS, 1773) (Coleoptera: Coccinellidae) new species of ladybird beetle for Polish fauna

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ABSTRACT. *Harmonia axyridis* (PALL.), a very expansive species of ladybird beetle, for the first time has been recorded from Poland. Two localities in Wielkopolska-Kujawy Lowland are given.

KEY WORDS: Coleoptera, Coccinellidae, *Harmonia axyridis*, new records, Wielkopolska-Kujawy Lowland, Western Poland.

So far 75 species of ladybird beetles (Coccinellidae) (BURAKOWSKI et al. 1986, 2000, STĄCZEK & PIETRYKOWSKA 2003, KRÓLIK 2006) have been recorded for Poland. Only one representative of *Harmonia* MULSANT, 1850 genus occurs naturally in Europe, namely *Harmonia quadripunctata* (PONTOPPIDAN 1763). *H. axyridis* is not of Europe origin. Its natural range was probably Eastern Asia: from the Altay Mountains to the Pacific Coast and from southern Siberia to southern China. Due to its great voraciousness the species was considered to be a helpful one to fight aphids and that is why it was induced in North America and Western Europe in greenhouses. However, it soon went out of control and quickly invaded large areas of the USA and Western Europe. It is also reported from South America. The list of countries where the species was reported in natural environments and

settled there includes: Canada, the USA, Argentina, Brazil, Belgium, France, Greece, the Netherlands, Germany and the UK (ADRIAENS et al. 2003, KOCH 2003, Global Invasive Species Database). Due to the closeness of its positions in Germany and a large invasive potential it could be expected to be found in Poland, too.

Below two localities on Wielkopolska-Kujawy Lowland are presented:

- Poznań-Ogrody (UTM: XU20); 25/26 IX 2006, 1 ex., ad lucem, the garden of the Department of Entomology Poznań Agricultural University, leg. M. BUNALSKI, coll. M. PRZEWOŹNY;
- Mokrz ad Wronki (WU84), 14 X 2006, 2 exx., on a house wall, leg. et coll. T. BARŁOŻEK.

H. axyridis is a medium-size ladybird beetle, with very changeable colour of body. The body is 5-8 mm long, convex, oval. The head, antennae and mouthpiece are most often whitish to yellow or yellow-orange, there may be two black triangular spots on the head, sometimes spreading all over the head. The pronotum is most often light, from white to yellow or yellow-orange with a characteristic M-shaped spot (Fig. 1), sometimes it can be divided into 5 smaller spots or, rarer, on black forms the spot may cover almost all the pronotum, leaving only narrow light stripes (there are a number of transition forms between the two extreme forms of pronotum colouring). The colour of elytrae may is even more changeable: from completely black with two large red spots, to black with numerous red spots, red with up to 19 black spots, to completely red (Fig. 2). All the 3 specimens caught in Poland were the form of typical colour of the pronotum and red elytrae with 19 spots (Fig. 1). This is the most common form in Europe. Also in North America the most common are light forms, while in Asia dark forms prevail (KOCH 2003). The ventral part of the body is from yellow-orange to black. forms, while in Asia dark forms prevail (KOCH 2003). The ventral part of the body is from yellow-orange to black.

Genus *Harmonia* differs from other genera in tribe Coccinellini by heaving prosternal process without ribs. Coxal lines undistinct, curved in the middle. Epimeron of mesosternum and episternum of metasternum white, often also prosternum and mesosternum all white (BIELAWSKI 1959).

As the species is not included in the Polish key to determine ladybird beetle species (BIELAWSKI 1959), we present a key that will help to differentiate this species and *H. quadripunctata*:

1. The body seen from lateral convex. On the posterior part of elytrae on both sides there is a slight bulge in the shape of a narrow crosswise keel on both sides bordered by shallow hollows. Often a black M-shaped spot on the pronotum (Fig. 1).

…… ***H. axyridis***

2. The body seen from lateral oblate. Elytrae are evenly convex. A number of small spots on the pronotum (Fig. 3).

……***H. quadripunctata***

H. axyridis is characterised by its quick rate of spreading through Europe. It was first found in natural environments in Europe in Germany in1999 (TOLASH 2002), in Belgium in

2001 (ADRIAENS et al. 2003), although previously it had been brought there in 1997 in order to fight aphids. It was reported from the Netherlands in 2002 (MABBOTT 2004), in the UK in 2004 (MABBOTT 2004) and in the same year in France (SAN MARTIN et al. 2004). In the US the species was found to press strongly on the local species of ladybird beetles. It turned out that it was a serious threat to natural groupings of Coccinellidae, as it feeds not only on aphids, but also on other species of ladybird beetles. It also has considerable ability to disperse and significant ecological flexibility (ADRIAENS et al. 2003). In the same study the authors expect that the same situation may occur in Europe if the population continues growing.

For now it is impossible to tell whether this species has settled in Polish fauna permanently and whether it will become a threat to Polish populations of ladybird beetles. The answer may be obtained after further observations on the rate of its spreading, possible growth in number and food selectiveness.

We would like to thank Dr Paweł JAŁOSZYŃSKI for taking photos of color variability of *H. axyridis* and let as use them in our article.

Fig. 1. *Harmonia axyridis* (PALL.) dorsal and lateral view.

Fig. 2. *Harmonia axyridis* (PALL.) variation of colour.

Fig. 3. *Harmonia quadripunctata* (PONTOP.) dorsal and lateral view.

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Received: June 06, 2007
Accepted: August 20, 2007