

The first report of Japanese oak silkmoth *Antheraea yamamai* (Guérin-Méneville, 1861) (Lepidoptera: Saturniidae) in Montenegro

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Abstract. Japanese oak silkmoth *Antheraea yamamai* (Guérin-Méneville, 1861) is reported here for first time in the scientific literature from Montenegro (Republic of Crna Gora). In two localities, not far away each other, moths were collected at light. We report this species from Serbia as well. All collected specimens are males.

Keywords: Saturniidae, *Antheraea yamamai*, Montenegro, Serbia, introduced species

Introduction

Antheraea yamamai (Guérin-Méneville, 1861) is a native of Japan, but it can be found also in South and North Korea, China and Taiwan (Gongyin & Cui, 1996; Goel & Krishna Rao, 2004). It is introduced to Ceylon (Rougeot & Viette, 1978) and in Northern India for silk production (Macek *et al.* 2007). *A. yamamai* is very large and distinctive species with a wingspan of 110-140 mm. In Europe it can be confused only with its closely related species Chinese Oak Silkmoth *Antheraea pernyi* (Guérin-Méneville, 1855). Differences between these two species are figured in many articles. *A. yamamai* differs at glance from the other representatives of family Saturniidae by its wing shape and colour, also the flight period overlaps with only one member of the family which looks like quite different. It has one generation per year. Adults are on the wings from late July to October (Kranjčev, 2005; Kühnert, 1971). Larvae feed mainly with *Quercus* spp. but also accept *Ulmus* spp., *Fagus sylvatica* L., *Castanea sativa* Mill., *Carpinus* spp., *Rosa* spp., *Cydonia* spp., *Sorbus aria* (L.) Crantz, *Pyracantha coccinea* M. Roem., *Mespilus germanica* L., *Crataegus* spp., *Photinia glabra* (Thunb.) Franch. & Sav., *Chaenomeles japonioca* (Thunb.) Lindl. ex Spach and *Acer campestre* L. (Kranjčev, 2005; Živojinović & Vasić, 1963; Wallace, 1867). It seems they are polyphagous on different deciduous trees and bushes. Moths are active during the night and are attracted to artificial light.

This species was introduced from Japan to Europe for silk production. In Southern Europe it has stable population (Macek *et al.* 2007). According to Wallace (1867) in Europe it was first introduced in France in 1861 but rearing experiments could not provide propagation of the species. In 1863 it was introduced again in Netherlands and sent to some other European countries (Wallace, 1867). It was successfully reared by Mach family in Veliki Slatnik near Novo Mesto in Slovenia from where it escaped in 1867 and started to spread (Hafner, 1910; Mušić, 1955). So far it is reported from Austria (Walzl, 1985), Bosnia & Herzegovina (Hanjalić & Lelo, 2014), Croatia (Kovačević & Franjević-Oštrc, 1978), Germany (Schmidt & Weigert, 2006), Hungary (Kovács, 1957; Macek *et al.* 2007), Italy (Cesale, 1973), Romania (Pittaway, 2000-2015), Serbia (Živojinović & Vasić, 1963), Slovenia

(Michieli, 1963). According to Macek *et al.* (2007) in Czech Republic it is not registered, but it may occur there, which was confirmed in Pittaway (2000-2015). Damages are reported only from Serbia in *Quercus* forests in Srem area in 1960-1962 (Živojinović & Vasić, 1963) and having this in mind designation of *A. yamamai* as an invasive species in Serbia (Zatezalo, 2014) seems unjustified since there are no additional data to support this. Damages were not noticed in any other European country.

Hanjalić & Lelo (2014) and Krpac *et al.* (2015) mentioned this species to be present in Montenegro but without supporting literature. Glavendekić *et al.* (2005) reported *A. yamamai* for Serbia and Montenegro. As these two countries were one country at that time and this is just a paper from proceedings it is not clear whether it occurs in Serbia or Montenegro or both present-day countries. By contacting the authors we got information that data on *A. yamamai* refer to literature records from Srem in Serbia (Glavendekić, pers. comm.).

Material and Methods

We collected 8 nights in Montenegro and Western Serbia using 3 portable light traps and lamps plugged in generator. Light traps were pot with funnel with one 8Wactinic/or 368 nm and one 8W “blacklight” tubes powered by 12V batteries. 220V generator was used for powering Finish type “tent-like” trap with 160W MVL at the top and pot with funnel with 20W 368nm black light below. Another pot with funnel with 20W 368nm lamp was used in distance of 60-70m from the “tent-like” trap. Distance between the traps was of several hundred meters. All traps ran all over the nights.

Results

Montenegro

Pivska planina Mt., Polje Crkvičko village, Rudine, 43°19'48" N, 18°53'41" E, altitude 1117 m a.s.l., 07.08.2015, 1 male in the pot of the “tent-like” trap (Fig. 1)

Pivska planina Mt., Boričje village, 43°08'14" N; 18°54'18" E, 1182 m a. s. l., 09.08.2015, 2 males at the “tent-like” trap and 1male on the ground near the trap with 20W 368nm lamp

Serbia

Javor Mt., Vasilin vrh peak, 43°26'28" N; 20°03'06" E, 1489 m a.s.l., 12.08.2015, 1 male at portable light trap



Fig. 1. *Antheraea yamamai* (Guérin-Méneville, 1861) male, Montenegro, Pivska planina Mt., Polje Crkvičko village, Rudine, 07.08.2015, in coll. NMNHS. Photo: Stoyan Beshkov.

Discussion

These are the first records of *A. yamamai* from Montenegro in scientific literature since it has been only photographed from Mt. Durmitor (Verspui, 2013). *A. yamamai* was known in Serbia only from Srem area in lowland forests (Živojinović & Vasić, 1963) and on Mt. Fruška Gora (Stojanović, 2012). In Bosnia & Herzegovina it was observed for the first time in 1996 but since 2004 reports are regular (Mihajlović & Stanivuković, 2009; Neimarlija & Merdan, 2012; Hanjalić & Lelo, 2014). In Croatia it is distributed throughout the country (Mladinov, 1976; Kovačević & Franjević-Oštrc, 1978; Kranjčev, 2005; Vignjević *et al.* 2010; Vojvodić, 2011). Considering its wide distribution in neighboring countries of Bosnia & Herzegovina and Croatia together with lack of continuous research on moths in Serbia and Montenegro, we assume that *A. yamamai* is already widely distributed in northern Montenegro and western Serbia. Its distribution in Serbia can be seen in an Internet database (Hric, 2014). The further spread on the Balkans should be expected in near future.

All collecting localities are more or less open area near forest with *Quercus* spp., *Fagus sylvatica*, *Acer* spp. and *Corylus* spp. The low density and the presence of male specimens only supports the opinion that perhaps collected specimens are dispersed individuals and this is not migration or colonization of new territories.

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