

FIRST RECORD OF *PYRRHALTA VIBURNI* (COLEOPTERA: CHRYSOMELIDAE) IN BOSNIA AND HERZEGOVINA

PRVI NALAZ VRSTE *PYRRHALTA VIBURNI* (COLEOPTERA: CHRYSOMELIDAE) U BOSNI I HERCEGOVINI

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SUMMARY

Pyrrhalta viburni (Coleoptera: Chrysomelidae), is a chrysomelid native to Eurasia. It gained importance as an invasive species in North America due to its ability to cause serious damage to native and ornamental *Viburnum* spp. plants.

In our study *Pyrrhalta viburni* was recorded as a new record in the fauna of Bosnia and Herzegovina.

It has been recorded on four locations in Bosnia and Herzegovina in the region of Sarajevo. As it is feeding on *Viburnum* spp. that are commonly used as ornamental plants, its monitoring in urban and other habitats is suggested.

KEY WORDS: *Pyrrhalta viburni*, viburnum leaf beetle, *Viburnum* spp., defoliation, Bosnia and Herzegovina.

INTRODUCTION

UVOD

Leaf beetles (Coleoptera: Chrysomelidae) is one of the most species-rich families of beetles with more than 37,000 species worldwide (Jolivet et al. 2011), and with the greatest diversity in the tropics (Riley et al. 2002). Leaf beetles are mostly phytophagous insects adapted to feed on plant species. Many leaf beetles are serious pests of agricultural crops and tree species (Jolivet et al. 1988).

In the Balkans the knowledge of Chrysomelidae is still scarce. Viktor Apfelbeck published the first significant data

on Chrysomeliade fauna of Balkan Peninsula, particularly Bosnia and Herzegovina at the beginning of 20th century (Apfelbeck 1912; 1914; 1916). In later years several other papers were published, most significant for the country being Novak (1952) and Gruev (1979). In the most recent overviews Gruev (2005) listed 433 taxa for Bosnia and Herzegovina, while Löbl and Smetana (2010) reported 460 leaf beetle species for the country.

According to Gruev (2005), Löbl & Smetana (2010) and de Jong et al. (2014) in the Balkans the species is reported from Croatia, Yugoslavia (Serbia and/or Montenegro) and Slovenia.

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Pyrrhalta viburni is native to Europe and Asia, and has been introduced to North America (Becker 1979) where it is becoming an increasingly significant pest of plants from the genus *Viburnum* (Weston et al. 2008). Adults and larvae feed almost exclusively on species of viburnum with the strong preferences for European cranberrybush (*Viburnum opulus* L.) (Wheeler and Hoebeke 1994).

Adults of viburnum leaf beetle are approximately 4.5 to 6.5 mm in length, generally brown with the slightly dark anterior edge of elytra and dorsal surface covered with dense golden-grey hair. Larvae are greenish yellow with pattern of dark spots develops as they grow (Murray 2005; Weston and Hoebeke 2003a). Additional data regarding the biology and reproductive behavior can be found in Zorin (1931), Luhmann (1934), Weston et al. (2008) and Desurmont et al. (2009).

In this paper we report the first record of viburnum leaf beetle, *Pyrrhalta viburni* Paykull, 1799 in Bosnia and Herzegovina.

MATERIALS AND METHODS

MATERIJALI I METODE

In May and June 2020 larvae of *P. viburni* were found at four locations in Bosnia and Herzegovina, near the city of the Sarajevo (Fig. 1). The second and third instar larvae of *Pyrrhalta viburni* were collected together with the host plant material of *Viburnum* spp. (*Viburnum opulus* L. from

parks, localities 1 - 3 and semi - forest areas *Viburnum lantana* L. locality 4). Collected material has been brought to the entomological laboratory of the Faculty of Forestry, Sarajevo, Department for Forest Protection for further analysis. Several larvae were kept in the laboratory until adults fully developed. They were identified according to the morphological characteristics and keys from Becker (1979) and Wheeler and Hoebeke (1994).

Images of infested leaves and insects were taken with Nikon D7500 camera and detailed images of adults, pupa and larvae were taken under AF-S Micro NIKKOR 60 mm 1:2.8 G ED. All samples are kept in Faculty of Forestry University of Sarajevo.

RESULTS AND DISCUSSION

REZULTATI I DISKUSIJA

Our results show that this is the first record of viburnum leaf beetle, *Pyrrhalta viburni* in Bosnia and Herzegovina. Its presence was confirmed in all four inspected localities (Tab. 1).

Adults and larvae of *P. viburni* feed between the midrib and larger veins and skeletonize the leaves. Young larvae feed together on the underside of the young and tender leaves. Heavy infestations can cause defoliation, and plants continuously defoliated for two to three consecutive years may be killed (Young 2004).

Table 1. Localities of first record of *Pyrrhalta viburni* in Bosnia and Herzegovina

Tablica 1. Lokalizacije prvog nalaza *Pyrrhalta viburni* u Bosni i Hercegovini

| Locality no. | Date - Datum | Locality, street - Lokalizacija, ulica | Coordinates - Koordinate |
|--------------|---------------|--|--------------------------|
| 1 | 18. 05. 2020. | Pazarčić | 43°47'16"N; 18°07'56"E |
| 2 | 21. 05. 2020. | Sarajevo, Kolodvorska | 43°51'14"N; 18°23'14"E |
| 3 | 23. 05. 2020. | Sarajevo, Brčanska | 43°50'48"N; 18°22'01"E |
| 4 | 23. 06. 2020. | Breza, Trtorčić | 44°02'15"N; 18°17'37"E |



Figure 1. and Figure 2. Damage and defoliation of leaf caused by larvae (photo Mujezinović)

Fotografija 1. i 2. Oštećenje lisne površine i defolijacija biljke uzrokovana od *Pyrrhalta viburni* (foto Mujezinović)



Figure 3. Third instar larvae of the viburnum leaf beetle, *Pyrrhalta viburni* (photo Mujezinović)

Fotografija 3. Treći razvojni stadij larve, *Pyrrhalta viburni* (foto Mujezinović)



Figure 4. Pupa of the viburnum leaf beetle, *Pyrrhalta viburni* (photo Mujezinović)

Fotografija 4. Razvojni stadij lutke *Pyrrhalta viburni* (foto Mujezinović)



Figure 5. Adult of the viburnum leaf beetle, *Pyrrhalta viburni* (photo Mujezinović)

Fotografija 5. Imago *Pyrrhalta viburni* (foto Mujezinović)

Newly hatched larva is greenish yellow and very small about 1-2 mm. Mature larva is 10 - 11 mm long and sub-cylindrical (Fig. 3).

The pupa of the viburnum leaf beetle is approximately 3.5 to 4.5 mm in length (Fig. 4).

The viburnum leaf beetle is approximately 4.5 to 6.5 mm in length (Fig. 5).

It is strongly suggested to continue the monitoring of this insect on *Viburnum* spp. in Bosnia and Herzegovina and to estimate its potential of becoming a pest that could endanger ornamental and other values of its hosts. The hosts plants of this beetle play an important role for horticulture in parks and element of diversity and stability of forest ecosystems. As the species does not have its local (Bosnian) name, we suggest it to be “hudikina zlatica”, as “hudika” is a common name for *Viburnum* spp. in Bosnia and Herzegovina and “zlatica” is commonly used name for members of Chrysomelidae family.

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SAŽETAK

Pyrrhalta viburni (Coleoptera: Chrysomelidae), hudikina zlatica je kornjaš autohton u Europi i Aziji. U Sjevernoj Americi hudikina zlatica je invazivna, zbog čega je porastao interes za istraživanje biologije vrste. Imaga i ličinke hrane se najčešće lišćem biljaka iz roda *Viburnum* i uzrokuju štete na listovima, a zbog tendencije da agregiraju i polažu jaja na već oštećenim biljkama izazivaju oštećenja koja mogu uzrokovati sušenja biljke. Odrasli oblici su 4,5-6,5 mm duge, smeđe boje sa blago tamnijim prednjim dijelom elitri, dok je dorzalna površina prekrivena sa gustim zlatno-sivim dlačicama.

Imaga i ličinke sakupljene su od 18.05. do 23.06.2020. godine na četiri lokaliteta: Pazarić, dva lokaliteta u urbanom području grada Sarajeva (ulice Kolodvorska i Brčanska) i Trtorići (Općina Breza).

Ovo je prvi nalaz ove vrste kukca, potencijalno važnog defolijatora autohtonih i kultiviranih vrsta iz roda *Viburnum* koji ukazuje na potrebu daljeg istraživanja rasprostranjenosti i brojnosti vrste *Pyrrhalta viburni* na području Bosne i Hercegovine.
