

THE FIRST RECORD OF *SERICODA*
QUADRIPUNCTATA (DE GEER, 1774) (COLEOPTERA:
CARABIDAE) IN CROATIA

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The first record of the pyrophilous ground beetle *Sericoda quadripunctata* (De Geer, 1774) (Coleoptera: Carabidae) in Croatia is presented. A large population of the species was found during field studies in the beech forests between the Veliko Rujno and Stražbenica, south Velebit Mountain. Findings of this rare carabid beetle, which are common in habitats of naturally-occurring forest combustion, as mentioned in the Red Data Books of different European countries, imply the possibility of further findings of this rare pyrophilous species in inaccessible parts of their potential habitat distribution.

Key words: *Sericoda quadripunctata*, Carabidae, Velebit, pyrophilous, first record, Croatia

Vujčić-Karlo, S., Lukač, G. & Brigić, A.: Prvi nalaz vrste *Sericoda quadripunctata* (De Geer, 1774) (Coleoptera, Carabidae) u Hrvatskoj. *Nat. Croat.*, Vol. 22, No. 1, 189–192, 2013, Zagreb.

U ovom radu se opisuje prvi nalaz pirofilne vrste trčka *Sericoda quadripunctata* (De Geer, 1774) (Coleoptera, Carabidae) u Hrvatskoj. Ova vrsta je pronađena tijekom terenskih istraživanja faune trčaka u bukovim šumama na području južnog Velebita od Velikog Rujna do Stražbenice. Pronalazak ove rijetke vrste trčka, tipične za prirodno opožarena staništa, koja se nalazi na popisima ugroženih životinjskih vrsta diljem Europe, ukazuje na mogućnost pronalaska novih vrsta trčaka u Hrvatskoj i to posebno u teže pristupačnim krajevima.

Ključne riječi: *Sericoda quadripunctata*, trči, Velebit, požari, prvi nalaz, Hrvatska

According to LÖBL & SMETANA (2003) the genus *Sericoda* Kirby, 1837 is represented throughout the Palaearctic Region by four species: *S. bogemannii* Gyllenhal, 1813, *S. ceylonica* Motschulsky, 1859, *S. lissoptera* Chaudoir, 1854 and *S. quadripunctata* De Geer, 1774. Although two species, *S. bogemannii* and *S. quadripunctata* can be found in neighbouring countries (LÖBL & SMETANA, 2003), their presence was not previously recorded for Croatia. The presence of this species in Croatia is not mentioned in the available literature (APFELBECK, 1904; BREGOVIĆ, 1985; CSIKI, 1927–1933; DEPOLI, 1928; DROVENIK & PEKS, 1994; DURBEŠIĆ & VUJČIĆ-KARLO, 1994; DURBEŠIĆ *et al.*, 1994, 2000; DURBEŠIĆ & VUJČIĆ-KARLO, 2001; GANGLBAUER, 1829; GJURAŠIN, 1994; KOČA, 1900; MARCUZZI, 1986; NOVAK, 1952, 1964, 1970; RUCNER, 1994; RUKAVINA *et al.*, 2011; SCHLOSSER-KLEKOVSKI, 1877; ŠERIĆ JELASKA, 2005; ŠERIĆ JELASKA *et al.*, 2011; VUJČIĆ-KARLO *et al.*, 1994; VUJČIĆ-KARLO & DURBEŠIĆ, 2002). According to LÖBL & SMETANA (2003) *S. quadripunctata* has a wide dis-

tribution throughout the Palaearctic, Nearctic and Oriental Regions. In Palaearctic Region the genus can be found in Europe (Austria, Belgium, Bosnia and Herzegovina, Russia: Central, North and South European Territory, the Czech Republic, Denmark, Estonia, Finland, France, the United Kingdom, Germany, Hungary, Italy, Latvia, Lithuania, Norway, Poland, Slovakia, Slovenia, Sweden, Switzerland, Ukraine) and Asia (Russia: West and East Siberia, Far East, Gansu, Japan, Kashmir, North Korea, Taiwan, Uttar Pradesh, Xizang, Yunnan). In spite of its wide distribution, *S. quadripunctata* is considered to be an endangered species and is mentioned in the Red Data Books of some European countries e. g. Germany (BINOT *et al.*, 1998), Switzerland (MARGGI, 1994), Norway (ØDEGAARD *et al.*, 2010) and Denmark (STOLTZE & PIHL, 1998).

Beetles of the carabid genus *Sericoda* are considered to be pyrophilous (fire favouring, attracted to burned areas) because they are often numerous in recently burned forests (BURAKOWSKI, 1989; HOLLIDAY, 1984; KOIVULA *et al.*, 2006; WIKARS, 1995). They can be collected primarily during the first three years after a fire (HOLLIDAY, 1984, 1991; KOIVULA *et al.*, 2006; WIKARS, 1995). Pyrophilous species have great migratory abilities and the largest population density occurs in the centre of a burned area (GONGALSKY *et al.*, 2008). *Sericoda quadripunctata* lives in a burned area for up to three years (HOLLIDAY, 1984, 1991; SAINT-GERMAIN *et al.*, 2005). The pyrophilous nature of these beetles is not really known but their post-fire population buildup seems to be positively correlated with the burn severity. Their rapid disappearance in the subsequent years may be a result of the succession and emergence of new plant cover (KOIVULA *et al.*, 2006) or increasing interspecies competition with other mountainous species (HOLLIDAY, 1991). This eurytopic species prefers burned, uncut forests. They live under the bark of trees damaged or killed by fire. Adults are active from May until September. They overwinter and then breed in the following spring. They are diurnal and macropterous, observed in flight (PRADELLA *et al.*, 2010). Burned forests attract many other non-pyrophilous insects. Burned wood material serve as a food source for pyrophilous species. Probably, the lack of interspecies competition among predators and concentration of high prey populations, contributes to the drastic increase in their numbers (GONGALSKY *et al.*, 2008). It is possible that this carnivorous species feeds on the scolytids, cryptophagids and latridiids, because they occupy the same microhabitats (MUONA & RUTANEN, 1994). Because of the distinctive biology, and the lack of targeted research of a burned mountain forests in Croatia, this species has not yet been recorded in Croatia.

The first finding of *S. quadripunctata* reported here dates from 2009 carabid beetle fauna research in Paklenica National Park and Velebit Nature Park, in the area of Veliko Rujno plateau and Stražbenica peak. The area is covered by a dense forest of Illyrian Black Pine (*Pinus nigra* Arnold ssp. *illyrica* (Vid.) Fukarek) while the smaller peripheral areas are covered by mixed woods of Common Beech (*Fagus sylvatica* L.) and Illyrian Black Pine. The mixed forest is dominated by 80–100 year-old trees and has never been affected by commercial logging. In August 2007 a forest fire affected an area of 170 ha in the west part of the National Park and in the southern part of the Velebit Nature Park. Some parts of the forest were completely burned, while others were only partially destroyed. Carabid beetles were sampled at 15 different plots were affected by different severities of fire, including the unburned control plot. One of the plots (N 44°21'33", E 15°26'50", 981 m a. s. l.) was placed in 100 ± year old beech forest growing on a slope. This area was intensively burned, both by high crown forest fire and ground fire, and the burning depth was also severe. Before the fire the plot was very dry with deep leaf litter. The specimens of *S. quadripunctata* were found only in that single plot. The species was nu-

merous and during the daytime it was observed flying between dead fire-scorched trees landing low on the tree base where the severity of the fire damage was greatest. Because in the year 2007 more than 1817 ha of forests were burned in Croatia, with 241 fires only in the karst region (JURJEVIĆ *et al.*, 2009) we assume that the species must be present in a wider area of the primeval mountain forests of the Croatian karst. Further research into the carabid fauna in the higher mountain zones will give us more information about the distribution of this and probably other pyrophilous carabid species. These species should be included into the Red List of the ground beetles of Croatia (Coleoptera, Carabidae) (VUJČIĆ-KARLO *et al.*, 2007) in the category of the Near Threatened species (NT). However, further surveys have to confirm the permanent residence of the species in other parts of its potential habitat distribution in the Croatia.

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