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The grasshopper *Oedaleus decorus* in the Czech Republic (Orthoptera: Acrididae)

Saranče zelenokřídlá *Oedaleus decorus* v České republice (Orthoptera: Acrididae)

Kateřina KUŘAVOVÁ

Polyneoptera Research Group, Department of Biology and Ecology, Faculty of Sciences, University of Ostrava, Chittussiho 10, CZ-710 00 Ostrava, Czech Republic;
e-mail: kuravova.katerina@seznam.cz

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Abstract. The first recent record of the grasshopper *Oedaleus decorus* (Germar, 1825) from southern Moravia (Vojenské cvičiště Bzenec Natural Monument, Czech Republic) is given. *O. decorus* is a very rare species on the northern edge of its distribution. This is the first note discussing its status in the Czech Republic and the circumstances of its discovery are discussed (this being the first record for the Czech Republic for 45 years). It appears that the specimens were introduced to the Czech Republic by an unknown person.

INTRODUCTION

Oedaleus decorus (Germar, 1825) is primarily a Mediterranean species of steppes or sandy habitats, distributed in northern Africa, Asia and the whole of southern Europe, reaching northern Italy, Hungary and Slovakia in the north (Harz 1957, Bland et al. 1996, Kočárek et al. 2005, Kindler et al. 2012). The northern edge of its range runs through southern Slovakia; the Slovakian populations consists only a few individuals (Krištín et al. 2004). *Oedaleus decorus* is the unmistakable species of oedipodine grasshopper (Orthoptera: Acrididae). Body coloration is green or grey, with dark and pale spots, pronotum with two medially interrupted, white stripes, forming an "X", hind wings with conspicuous dark band, greenish basally, pterous (excellent fliers) (Harz 1975, Kočárek et al. 2005, 2013).

Individuals of this species were found at the end of the 1940s and the beginning of the 1970s in the Czech Republic. According to Rezek (1944) and Mařan (1952), *Oedaleus decorus* occurred near Bzenec Village in southern Moravia. The last observations are from the 1970s and this species has been evaluated as regionally extinct (Holuša 2012). It is also considered extinct in Austria (Berg 2002, Zuna-Kratky et al. 2009). This contribution reports a recent occurrence of the grasshopper *O. decorus* in the Czech Republic.

MATERIAL AND METHODS

All literature data on the occurrence *O. decorus* in the Czech Republic were analyzed. An Orthopterologists' field trip to the Vojenské cvičiště Bzenec Natural Monument, Bzenec (7069) (GPS: 48°57′26″N 17°17′20″E) took place during August 2014. Specimens of orthopterans were collected using a sweep net during sunshine, from 10 AM to 5 PM.

Vojenské cvičiště Bzenec Natural Monument, a military training ground, is one of the few unforested areas on sand in southern Moravia. It is located at an altitude of 190–200 m on the northeastern edge of the Bzenec Oak Forest, and has an area of 36 ha. The bedrock is covered by Quaternary sediments called drift sand with a thickness

of 10–30 m. The characteristic communities are xerothermic and xerophilous in various stages of succession, with a significant proportion of psammophilous species. These are likely to include many rare, endangered and protected species of invertebrates, especially insects, on the thermophilic vegetation and sands. Monitoring of Orthoptera has taken place regularly (several times a year) for ten years, and some rare xerothermic orthopterans i.e. the bush cricket *Platycleis albopunctata* (Goeze, 1778), the Italian locust *Calliptamus italicus* (Linnaeus, 1758), and the grasshoppers *Dociostaurus brevicollis* (Eversmann, 1848), *Myrmeleotettix maculatus* (Thunberg, 1815) and *Sphingonotus caerulans* (Linnaeus, 1767).

RESULTS AND DISCUSSION

Oedaleus decorus (Fig. 1) is reported for southern Moravia (Czech Republic). This species was reported (7.viii.2014, 2 ♀♀, K. Kuřavová lgt., det. et coll., 15.viii.2014, 1 ♂, R. Vlk lgt., det. et coll.) in a sandy area of Vojenské cvičiště Bzenec Natural Monument (Fig. 2). Voucher specimens are deposited in the author's collection.

The current Checklist of Orthopterans of the Czech Republic lists 96 species. A total of 20 species are considered to be extinct, spreading (recent invasive) or absent for a long time from the Czech Republic. Some species have very small populations and their status has not yet been clarified (Holuša et al. 2013). For the last 45 years, there have been no records of *O. decorus,* and it has been regarded as an extinct species in the Czech Republic (Holuša 2012). It was first recorded by Rezek (1944), in the surroundings of the villages of Bzenec and maybe Kyjov. We can equate the current study locality with the published locality of Bzenec, although the sandy area may have been larger in the past. The populations had previously supported only a small number of individuals, and, probably due to changes in the south Moravian landscape (large scale disappearance of steppes and sandy areas) this species became extinct in the Czech Republic (Holuša 2012).

At the present time, the northern limit of distribution of this species in Europe (Fig. 3) is in southern Slovakia (Danube lowland, Čenkovská step National Nature Reserve), where it is very rare (Krištín et al. 2004). There are regular records from Hungary (near the Balaton lake) (Nagy & Szovenyi 2001), about 240 km from the Czech border (Holuša 2012). In the northern parts of its range, populations of *O. decorus* have declined over the last century.

In Central Europe (northern limit its range) this species was always very rare. It became extinct in the 1950s in Austria (Berg & Zuna-Kratky 1997), is endangered in Slovenia (Gomboc & Trontelj 2001), and stable populations are at present known only in a few places in Switzerland and Romania (Szíjj 2004, Baur et al. 2006, Boczki 2007). Harz (1957) reported *O. decorus* from Germary (Mecklenburg, Brandenburg and Hesse) but for a long time it wasn't found there. Boczki (2007) mentioned a new record of this species from the southern Hessian upper Rhine valley (Germary). In France, the grasshopper is still relatively common, mainly in the Mediterranean area (Boczki 2007, Kindler et al. 2012).

Mass migrations of *O. decorus* are known (Schmidt & Lilge 1997), but the present author and Czech orthopterologists (Holuša J., Kočárek P., Marhoul P., Vlk R. – pers. comm.) have concluded that the specimens reported could have been introduced to the Czech Republic by an unknown person. The high dispersal ability of the species was documented in southern Russia, Kazakhstan and Central Asia (Harz 1975). However, if the specimens found were migrants, individuals would have been expected to have been reported from other areas. Migration is a result of increased population levels and expansion into new localities, but all of the nearest populations of *O. decorus* (Hungary, Slovakia) are very small, and no evidence of migration has been observed.



Fig. 1. Grasshopper *Oedaleus decorus* (Germar, 1825) in two color forms (grey, green). Identification characters are pronotum with two medially interrupted, white stripes, forming an "X", hind wings with conspicuous dark band, greenish basally. Females were captured in locality of Vojenské cvičiště Bzenec Natural Monument (Czech Republic). (Photo by K. Kuřavová).
Obr. 1. Saranče zelenokřídlá *Oedaleus decorus* (Germar, 1825) ve dvou barevných variantách (šedá, zelená). Určovacími znaky jsou pronotum s dvěma mediálně přerušenými bílými pruhy, tvořící znak „X" a zadní křídla s výraznou tmavou páskou, při bázi jsou nazelenalá. Samice byly odchyceny v Přírodní památce Vojenské cvičiště Bzenec (Česká republika). (Foto K. Kuřavová).

Vojenské cvičiště Bzenec Natural Monument has been intensively studied annually since 2010. In 2008, the grasshopper *Acrida ungarica* (Herbst, 1786) was recorded there, and specimens have been observed there repeatedly since (Vlk et al. 2014). *A. ungarica* occurs in the Mediterranean region and can be observed very locally to the north (eastern Austria and Hungary). The population in question is probably a temporary population that was deliberately introduced, and genetic analysis suggests that it originated from the Balkans, and belongs to the subspecies *Acrida ungarica mediterranea* Dirsh, 1949 (Vlk et al. 2014). Specimens of *Oedaleus decorus* were probably also introduced there.

It is assumed, that due the climate change induced range shifts of orthopterans (Hochkirch 2001), and because of ongoing passive and active transport by people, the number of records of rare or new species for the Czech Republic will probably increase in the coming decades. *O. decorus* will be actively monitored over the next years to determine whether the local conditions are suitable for its survival.

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Fig. 2. Vojenské cvičiště Bzenec Natural Monument (Czech Republic), locality of *Oedaleus decorus* (Germar, 1825). (Photo by K. Kuřavová).
Obr. 2. Přírodní památka Vojenské cvičiště Bzenec (Česká Republika) s nálezem saranče zelenokřídlé *Oedaleus decorus* (Germar, 1825). (Foto K. Kuřavová).

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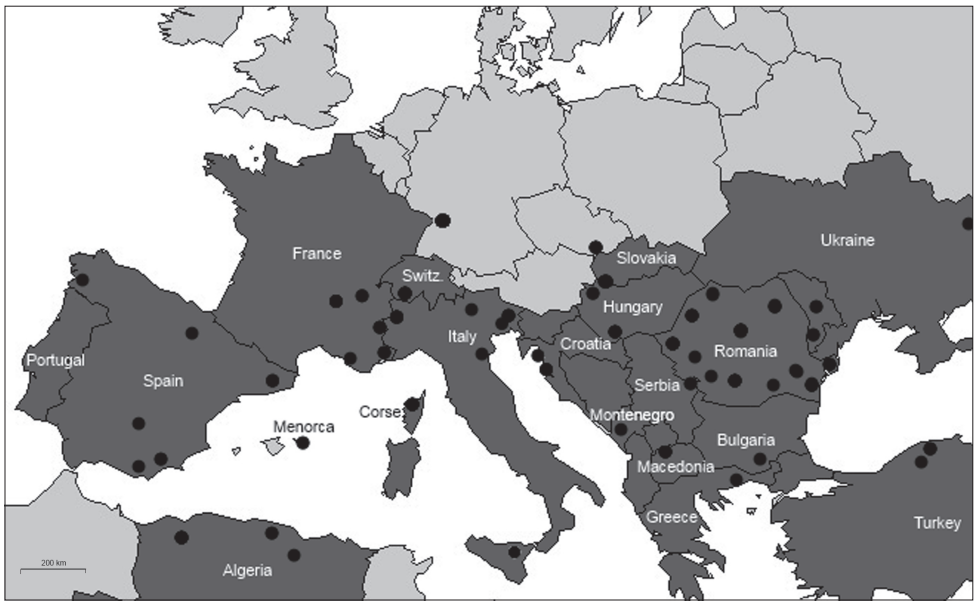


Fig. 3. Map of the occurrence of *Oedaleus decorus* (Germar, 1825) only for Europe and Algeria (species distributed in North Africa, Asia and the entire southern Europe). Dark grey; countries with known permanent occurrence of the species. Black spots, post-1960s published data (according to Bounechada et al. 2006, Braud et al. 2002, Buzzetti et al. 2010, Chobanov & Mihajlova 2010, Grosser & Rey 2009, Eiroa & Novoa 1987, Haitlinger 2004, Holuša 2012, Kindler et al. 2012, Lupu 2005, Mesa 1979, Nagy & Nagy 2000, Nikčević 2007, Olmo 1991, Rouibah & Doumandji 2013, Vidal 2002, Zaim et al. 2013).

Obr. 3. Mapa výskytu saranče zelenokřídlé *Oedaleus decorus* (Germar, 1825) pouze pro Evropu a Alžírsko (rozšíření druhu je v severní Africe, Asii a v celé jižní Evropě). Tmavě šedá barva, státy s trvalým výskytem druhu. Černé body, publikovaná data po roce 1960 (podle Bounechada et al. 2006, Braud et al. 2002, Buzzetti et al. 2010, Chobanov & Mihajlova 2010, Grosser & Rey 2009, Eiroa & Novoa 1987, Haitlinger 2004, Holuša 2012, Kindler et al. 2012, Lupu 2005, Mesa 1979, Nagy & Nagy 2000, Nikčević 2007, Olmo 1991, Rouibah & Doumandji 2013, Vidal 2002, Zaim et al. 2013).

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SOUHRN

Tento příspěvek pojednává o nálezu saranče zelenokřídlé *Oedaleus decorus* (Germar, 1825) z Přírodní památky Vojenské cvičiště Bzenec (jižní Morava, Česká republika). Druh byl nalezen opět po 45 letech v České republice a okolnosti jeho výskytu jsou nejasné. Zdá se, že se jedná o introdukci několika jedinců z míst jeho současného jihoevropského areálu rozšíření.