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A remarkable record of *Phaneroptera falcata* (Poda, 1761) (Saltatoria: Phaneropteridae) from north-eastern Poland

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Abstract. A record of *Phaneroptera falcata* is made from the northeastern Poland, extending the known distribution in this country for about 300 km to the north and linking it with a newly discovered occurrence in southern Lithuania. The northern margin of the species' range in eastern Central Europe and in East Europe is briefly reviewed.

Phaneroptera falcata (Poda, 1761) belongs to those faunal elements which underwent a rapid northward-directed range extension on the northwestern edge of their distribution areas, particularly in NW Germany (Northrhine-Westphalia) and the Benelux countries (Detzel 1998). A similar trend was observed in Thuringia (Köhler, 2010), and even the federal states of Lower Saxony and Brandenburg have already been reached (Grein 2000, 2007, Landeck et al. 2005). In the eastern part of its Central European range, however, *P. falcata* was believed, despite some expansional trend in the Czech Republic (Kočárek et al. 2008), to be restricted to the southern half of Poland, as indicated by e.g. the sketch maps in Detzel (1998) and Maas et al. (2002). However, a recent record in southernmost Lithuania (Lazdijai) close to the Polish northeastern border (Ivinskis & Rimsaite 2008) suggests a much more northern distribution also in Poland.

Southern Poland (Galicia) had already been mentioned in the classic work by Harz (1957) as that part of this country which is inhabited by *P. falcata.* Even much earlier, Zacher (1917) had pointed on a doubtful voucher specimen of the Wroclaw (formerly Breslau) Museum from "Schlesien" (= Silesia), but he claimed that Pylnov (1913) had already recorded this species more northernly of Wroclaw, viz. from "Nova Alexandria, Russisch Polen" (= "Russian Poland"). This place, today Pulawy (51.26N; 21.59E) can be found on older maps as situated between Radom and Lublin, on the Visla river south of Deblin: 51.34N; 21.50E. Several new Polish references give a more detailed and also extended picture of the distribution range of *P. falcata* in Poland (Bazyluk & Liana 2000, Kočárek 2000, Orzechowski 2009). The locality data published by these authors document this species to be more widespread in the central part of Poland, the most northwestern records (Lubuskie Province: Orzechowski 2009) being adjacent to the relatively new records from Brandenburg (Landeck et al. 2005). The two northern Polish regions Pojezierze Pomorskie and Mazurskie which together roughly comprise the northern third of the country, were so far lacking *Phaneroptera falcata* records. The new and unexpected find of this species in southern Lithuania (Ivinskis & Rimsaite 2008), however, made the occurrence of *P. falcata* likely also in northern Poland .

On August 13, 2010 two of us (WB & PW) passed through northeastern Poland towards Lithuania. On road no. 16 east of Wigierski National Park, between Serski Las village and Sejny, at 53.55N and 23.09E, when searching for lizards on a spruce forest clearing, we happened to find an adult female of *P. falcata* (Fig. 1) which in view of what is said above seems to be a remarkable record, as it ex-

Fig. 1. The voucher specimen of *Phaneroptera falcata* from E of Wigierski National Park, Northeast Poland. Photograph: P. Geissler.

Fig. 2. Habitat east of Wigierski National Park where our *P. falcata* record was found. Photograph: W. Böhme.

tends the known range within Poland for about (appr.) 300 km northeastwards and immediately links it with the first Lithuanian record from 2008. The locality (Fig. 2) is situated less than 20 km from the Lithuanian border and closely corresponds to the new and single Lithuanian locality of this thermophilous species which is situated in the Lazdijai district at 54.12N and 23.50E (Ivinskis & Rimsaite 2008) (Fig. 3). Our specimen is deposited in the Orthoptera collection of the Zoologisches Forschungsmuseum A. Koenig (ZFMK) in Bonn.

According to Zuna-Kratky et al. (2009), adults in Austria appear about on mid-July but start their main adulthood season from mid-August. This agrees with our female voucher specimen, which was also adult, despite its much more northernly situated locality.

Road no. 16 from Augustow via Serski Las and Sejny runs in parallel to the main road (no. 8, via Suwalki to Marjampole in Lithuania) and has much less traffic than the latter. This alone makes it unlikely that the specimen of *P. falcata* could have been passively displaced by human transportation. Rather, this thermophilous species demonstrated its potential for a natural, northeastward-directed range extension not only in Germany and the Benelux countries with a predominantly oceanic climate, but also in NE Poland, under much more continental climatic conditions and even reached Lithuania. The several individuals registered there underline the existence of a population in this area rather than displaced single individuals. Intensive faunistic search is necessary to assess the distribution range and its dynamics of *Phaneroptera falcata* in this region.

The eastward continuation of the northern borderline of *P. falcata* through Belarus and the European part of the Russian Federation also needs more faunistic research efforts. According to the map in Willemse (2007), *P. falcata* is not yet known from Belarus. In Ukraine, the exact northern borderline has yet to be assessed but runs, according to Kotenko (in litt., November 2010), between 52 and 53N. In the European part of the Russian Federation, it is marked by localities situated approximately on a similar latitude as the formerly known Polish findings, e.g. Sevsk (Fig. 3: 12), Kursk (Fig. 3: 13), and Lipetsk (Fig. 3: 14) in the southern part of the Ryazan area (Bey-Bienko 1954). A newly collected voucher specimen from the southern part of the Bryansk area close to the Ukrainian border (Chukrai village, district of Suzemka, 52.19N; 34.05E, collected by one of us (PG) in July, 2010 and also deposited in ZFMK's Orthoptera collection), roughly fits this distributional pattern (Fig. 3: 11), which ranges between 51 and 51.40N in the Asiatic part of Russia (Bey-Bienko 1954, 1964). It can be assumed, however, that *P. falcata* will extend its northern distribution borderline also in these parts of its range.

Fig. 3. Map showing the northern part of the distribution range of *P. falcata* in the eastern Central and East European realm, our new record (2) and the one from Lithuania (1) being the northernmost sites. **1.** Lazdijai District (LIT); **2.** Wigierski National Park (PL); **3.** Treuenbrietzen (D); **4.** Berkenbrück (D); **5.** Lubuski Province (PL); **6.** Wroclaw (PL); **7.** Nizina Sandomierska (PL); **8.** Roztocze National Park; **9.** Pulawy (PL); **10.** Polesie National Park (PL); **11.** Chukrai (RUS); **12.** Sevsk (RUS); **13.** Kursk (RUS); **14.** Lipezk (RUS). Map: P. Wagner.

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