The *Carabus ménétriesi* HUMMEL, 1827 (Coleoptera, Carabidae), a postglacial (or glacial and may be preglacial?) relic in Poland and in adjacent countries of the Central and Eastern Europe

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Abstract: The *Carabus ménétriesi* HUMMEL, 1827 (Coleoptera, Carabidae), a postglacial (or glacial and may be preglacial?) relic in Poland and in adjacent countries of the Central and Eastern Europe. – Localities of *Carabus ménétriesi* - an old relic sphagnophile in Central and Eastern Europe - is listed and illustrated. Suppositions on the primeval range of this species and its migrations are given.

1 Introduction

The title species was described by HUMMEL (1827) from a material collected in Novgorod province, NW Russia. After LINDROTH (1945) it is: "hauptsächlich auf nassem Moorboden gefunden". The present distribution of this species is called by several authors as "Eastern European" – for instance HORION (1941): "Osteuropäische Art. … Isolierte Vorkommen in Oberschlesien, Slowakei, Erzgebirge, Böhmerwald, die wohl nur als Glazialrelikte zu erklären sind."; in the Catalogus faunae Poloniae (BURAKOWSKI al. 1973) it is similarly defined. The main area of distribution of *C. ménétriesi* comprises the subboreal zone of humid forests (with peat bogs or peat soils), situated between 20° and 56°E as well as between 50° and 62°N, but diagonally, from SW to NW (Fig. 1). In my opinion – the main (lowland) part of the today's distribution is a result of postglacial migration, because this territory was nearly completely covered by continental glacier ice during the last (Vistulian = Weichselian) glacial period. The Carabus ménétriesi has – after BREUNING (1933) "Hinterflügel sehr stark reduziert" or – after LINDROTH (1945) – „ganz kurzes und schmales Flügelrudiment". In this situation the dispersal of spreading must be strongly limited.

The question is: where are the primeval sites of *C. ménétriesi*? I suppose that *C. ménétriesi* is an element of the old – Tertiary (Pliocene or even older) highland marshy forest, in analogy to some other (but small and micropterous) ground-beetles, e.g. *Trechus montanellus* GEMM. & HAR. and *T. amplicollis* Fairm., the relic inhabitants of isolated, mountain and highland peat-bogs in Central Europe (PAWŁOWSKI 1975). Localities in Westfranken, NW Tirol, Ober- and Niederösterreich, Erzgebirge/Krušne Hory mts., Český Les (= Böhmer-/Oberpfälzer Wald) and Šumava are probably the primeval area relics of *C. ménétriesi*. The species possibly migrated during Pleistocene period from the above mentioned territory – to the highlands situated north of Sudeto-Carpathian massifs and to the lower parts of Western Carpathians. A further expansion to the north-east lowlands was not possible earlier than in the end of Vistulian or older Holocene period.

A very important significance for the above formulated hypothesis is the occurence of subfossile remains (fragment of left elytron) of *Carabus ménétriesi* on the pleniglacial site (Vistulian / Weichselian; 27 000-18 000 years BP) in the region of Cracow (PAWŁOWSKI 1989). I suppose that this species was also reported (as the synonyme *Carabus thürachi*) from one Pleistocene site in Southern Germany has been reported (FLACH 1884). But no reports of *C. ménétriesi* remains from all Pleistocene sites of Belarus (NAZAROV 1984).

2 Recent localities

Known localities of Central Europe (from 19th–20th cent.) are situated as below [numbers concerning the Fig. 2].

Poland:

[1] Ełk (HORION 1941: „Lyck, Riesen & Reinberger leg.“).

[2] Piska primeval forest (HORION 1941: „Johannisburger Heide, Folwaczny leg., 1935-37“).

[3] Szczytno environs (BARTELS 1896: „Gegend von Ortelsburg, Bercio leg.; von 1888“).

[4] Knyszyńska primeval forest ad Białystok (KUBISZ & PAWŁOWSKI 1995: Puszcza Knyszyńska – Piłatowszczyzna, Gudowski leg.; VIII 1990).

[5] Białowieska primeval forest (KARPIŃSKI & MAKÓLSKI 1954: Puszcza Białowieska).

[6] Międzyrzec Podlaski (KARPIŃSKI & MAKÓLSKI 1954).

[7] Łomża (KARPIŃSKI & MAKÓLSKI 1954).

[8] Uher ad Chełm (FUDAKOWSKI 1922).

[9] Zagnańsk (PONGRACZ 1923).

[10] Starzawa ad Przemyśl (TRELLA 1926).

[11] Załęże ad Rzeszów (Stobiecki coll.; leg. 1911).

[12] Opole environments (HORION 1941: „Dembiohammer Först., Kr. Oppeln“; Baucke leg.).

[13] Forests between rivers Sztobrawa and Mała Panew (Horion 1941: „Waldgebiet zwischen Stober und Malapane, bei Dombrowka und Karlsruhe“; Wagner & Wendroth leg.).

Germany:

[14] Erzgebirge: Fichtelberg bei Gottesgab (HORION 1941: Linke leg., 1913).

Czech Republik:

[15] Krušne Hory Mts.: Nekléřov-pass (HŮRKA 1996: 80, after Pokorný 1988: oblast Nekleřovského průsmyku).

[16] Český Les (HORION 1941: „Böhmerwald: bei Schneiderschlag, Tanzer leg., 1926-27“).

[17] Šumava: Dobrá (HEJKAL & al.1980: „náplav Teplé Vltavy, 1 ex. ♂, Moravec lgt. Et coll.“).

Austria:

[18] Northern Tirolia: environs of Reutte (HORION 1941; but in his opinion, this locality is not sure, because – after Breuning determination – it may be “ein Bastard *granulatus x Ullrichi*”?!); NW Tirolia (HŮRKA 1996; „... f. knabli Mandl)”.

[19] Oberösterreich: Mühlviertel (HŮRKA 1996).

[20] Niederösterreich: Waldviertel (HŮRKA 1996).

Slovakia:

[21] Beskyd mt. in Riečnica ad Čadca (HORION 1941: „Am Berg Beskyd in Riecnica bei Cadca“); Kusické Beskydy Mts. (HŮRKA 1996).

[22] ?Bile Karpaty Mts. ad Trenčin (HORION 1941: „Weiße Karpathen b. Trentschin – Kardasch leg.“), Western Ukraine:

[23] Bilohiršča ad Lviv („Biłohorszcza k. Lwowa”; Stobiecki leg. & coll.; 1882, 1901).

[24] Ivano-Frankove ad Horodok („Janów k. Gródka Jag.” Stobiecki leg. & coll.; 1914);

Belarus*:

*In „A catalogue of Coleoptera (Insecta) of Belarus” (ALEXANDROVITCH et al. 1996) are recorded only distribution in seven geobotanical districts of this country. I should like to express my thanks to Prof. Dr Oleg R. Alexandrovitch for his kindly information about most part of detailed Belarussian localities; they are marked here by the abbreviation: (OA).

[25] Zapovednik Belovežskaja Pušča, Brest province (OA = O.R. Alexandrovitch' personal communication).

[26] Pružany environs, Brest province (OA).

[27] Luninec environs, Brest province (OA).

[28] Rečica environs, Homel [Gomel] province (OA).

[29] Ustronie ad Słuck, Minsk province (Stobiecki coll.: leg. Proszyński, 1911).

[30] Hancevičі [Gancevičі] environs, Brest province (OA).

[31] Hrodna [Grodno] environs (OA).

[32] Stolbcy environs, Minsk province (OA).

[33] Nalibockaja Pušča ad Vołożin, Minsk province (OA).

[34] Peat-bog on Balduk Lake (Naroč environs), Minsk province (OA).

[35] Environs of Seľava Lake, Minsk province (OA).

[36] Berezinskij Reserve near Lepeľ, Vitebsk province (OA).

[37] Senno environs, Vitebsk province (OA).

[38] Bešenkovičі environs, Vitebsk province (OA).

[39] Vitebsk environs (OA).

[40] Horodok [Gorodok] environs, Vitebsk province (OA).

[41] Braslav environs, Vitebsk province (OA).

Lithuania:

[42] Pine forest on Kretuono Lake near Švenčionys (MAZUROWIE 1939: Pinetum on Kretony Lake ad Święciany; 1938).

Russian enclave – Kaliningrad province:

[43] Černiachovsk (BREUNING 1933: Insterburg, coll. Breuning).

[44] Meadows on the Pregola riverside near Kaliningrad (CZWALINA 1887: „Pregelwiesen bei Königsberg“; Dossow & Steiner leg., 1886).

Subfossil localities

South Germany:

Westfranken: Hösbach ad Aschaffenburg (FLACH 1884: „unterpleistocänen Ablagerungen“).

South Poland:

Małopolska: Kraków (PAWŁOWSKI 1989: „Nowa Huta – mamut“, Vistulian pleniglacial).

Fig. 1: General distribution of *Carabus ménétriesi* HUMM. (in NO – recent permanent area, in SW – isolated relic sites).

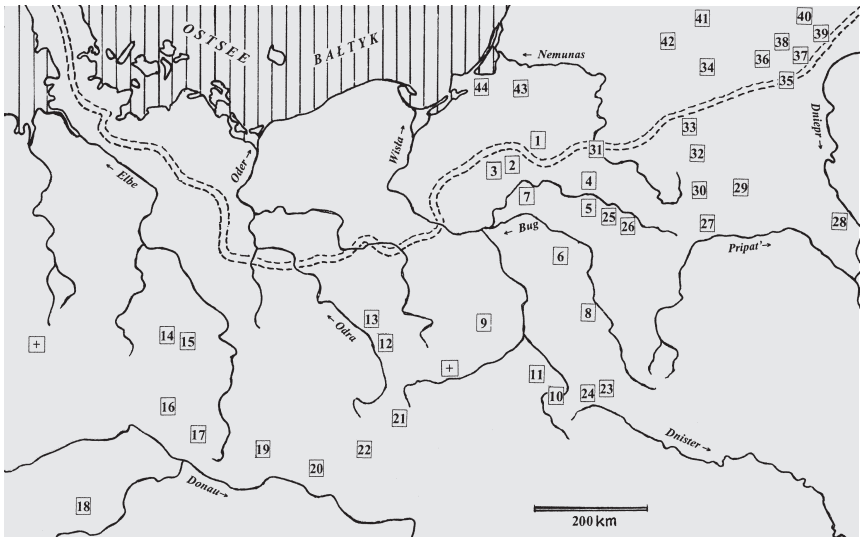

Fig. 2: Known central European distribution of *Carabus ménétriesi* HUMM.; numbers in squares mark recent (of 19th & 20th centuries) localities – explanation in the text. Two known subfossil (Pleistocene) sites are marked by crosses. Maximal extension of continental glacier during Vistulian (=Weichselian) glaciation is marked by double line.

3 Threats to the species and its protection status

Carabus ménétriesi, inhabiting peat-bogs, is a relic, regressive and threatened species of the European fauna. Presently, like many species of the genus *Carabus*, it is protected under state law in Poland (PAWŁOWSKI & al. 2002), Slovakia (KORBEL 1992) and Czech Republic (Anonym 1992). It is inserted in red books (or red lists) in the three above mentioned countries, as well as in Austria (FRANZ 1983) and Germany (BLAB et al. 1985). The categories of threat are: CR (critically endangered) in Czech Republic and Slovakia, EN (endangered) in Poland, "stark gefährdet" in Austria and "vom Aussterben bedroht" in Germany. Ten years ago (KORBEL 1992), it was defined as V (vulnerable) in the whole territory of former Czechoslovakia.

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Anschrift des Verfassers

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