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First records of *Cercyon hungaricus* Endrődy-Younga, 1967 from Slovakia, notes on its distribution and biology, and fixation of its type specimens (Coleoptera: Hydrophilidae: Sphaeridiinae)

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Fikáček M., Boukal M., Lőkkös A., Kraus Z. & Křivan V. 2009: First records of *Cercyon hungaricus* Endrődy-Younga, 1967 from Slovakia, notes on its distribution and biology, and fixation of its type specimens (Coleoptera: Hydrophilidae: Sphaeridiinae). *Acta Musei Moraviae, Scientiae biologicae* (Brno) **94:** 73–80. – Distributional data of the Pannonian endemic species *Cercyon hungaricus* Endrődy-Younga, 1967 (Coleoptera: Hydrophilidae: Sphaeridiinae) are summarized and mapped, including of first records of the species from Slovakia and additional records from Hungary. The species is diagnosed and the diagnostic characters are illustrated. Based on data made available through recently collected specimens, the species is considered to inhabit leaf litter and plant debris on the shores of various kinds of standing water, but to avoid habitats that are too wet or seasonally submerged. A lectotype is designated in order to clarify a complicated situation arising out of three previously published "descriptions" of the species.

Keywords. Hydrophilidae, Megasternini, *Cercyon hungaricus*, Central Europe, Pannonian Basin, morphology, biology, distribution, lectotype designation

Introduction

Central European representatives of the genus *Cercyon* Leach, 1817 are usually widely distributed, common species and their biology is at least partly known. Many species inhabit various kinds of decaying plant matter and most of them are typically found in the excrement of large, herbivorous mammals (e.g. cows, horses, sheep, deer). Some species have also been recorded from the faeces of the brown bear (*Ursus arctos*) and domestic chickens. Only a few, *Cercyon ustulatus* (Preyssler, 1790) and four species of the *C. tristis* species group, may be considered aquatic, inhabiting wet or slightly submerged plant remains on the banks of standing water.

Cercyon hungaricus Endrődy-Younga, 1967 was, until recently, exceptional for its obscurity among Central European *Cercyon* species. It was described from a few specimens collected in central and north-eastern Hungary. A further specimen was collected in 1979 in southern Hungary (GIDÓ & SZÉL 1998) and another in 1997 in northern Slovenia (HEBAUER 2003). Its biology remained unknown, and even collecting trips to Hungary undertaken by F. Hebauer brought no new findings (Hebauer, pers. comm.). HEBAUER (2003) provided a redescription of the species, but *C. hungaricus* still remained something of mystery to coleopterists.

In 2004–2005, the species was repeatedly collected at a locality in southern Moravia (Czech Republic) (BOUKAL *et al.* 2007). At approximately the same time, between 2002 and 2006, the species was also found at three localities in southern Slovakia. These records are presented in this paper, along with additional records from Hungary. Based on the summary of the habitat information and collecting circumstances for the Czech and Slovak specimens, some rough conclusions may be drawn about the biology of the species. All known localities of the species are mapped, the distribution is briefly commented upon, and photographs facilitating its identification are provided.

Material and methods

Habitus photographs were taken with an Olympus Camedia C-5060 camera attached to an Olympus SZX9 binocular microscope and subsequently edited in Adobe Photoshop 7.0. SEM photographs of an uncoated specimen were prepared at the Department of Palaeontology of the National Museum in Prague using their Hitachi S-3700N scanning electron microscope.

Label data of the type specimens are cited verbatim, using a slash (/) to indicate a separate row on a label and a double-slash (//) to indicate a separate label; label data of additional specimens are cited in adapted form, with our comments or translations added in square brackets […]. The distribution map is based on the topography provided by the atlas of the present-day geodynamics of the Pannonian Basin available on-line at http://geophysics.elte.hu/projektek/geodinamikai_atlasz_eng.htm.

The following abbreviations are used for the collections mentioned:

ALCF . . . . . Andor Lőkkös coll. Fonyód, Hungary
ASCH . . . . . André Skale coll., Hof, Germany
BDCL . . . . . B. Drovenik coll., Ljubjana, Slovenia
HNHM . . . . . .Hungarian Natural History Museum (Gy. Makranczy)
JMMZ . . . . . Museum of South Moravia, Znojmo, Czech Republic (A. Reiter)
JPMP . . . . . Janus Pannonius Museum, Pécs, Hungary
MBCP . . . . . Milan Boukal coll., Pardubice, Czech Republic
MJMZ . . . . . Museum of south-eastern Moravia, Zlín, Czech Republic (Dušan Trávníček)
NMPC . . . . . .National Museum, Prague, Czech Republic (M. Fikáček)
RSCZ . . . . . Robert Stejskal coll., Znojmo, Czech Republic
ZKCM . . . . . Zdeněk Kraus coll. Mikulovice, Czech Republic

Results

Cercyon (*Cercyon*) *hungaricus* Endrődy-Younga, 1967

Cercyon hungaricus Endrődy-Younga, 1967: 67.
Cercyon hungaricus: Endrődy-Younga 1969: 223 (later description); Endrődy-Younga 1970: 75 (still later description); Gidó & Szél 1998: 198 (distribution); Csabai & Szél 1999: 219, 227 (catalogue); Hansen 1999: 280 (catalogue); Csabai *et al.* 2002: 106 (identification key, diagnosis, distribution); Hebauer 2003: 148 (redescription, distribution); Hansen 2004: 62 (catalogue); Boukal *et al.* 2006: 152 (distribution, habitat).

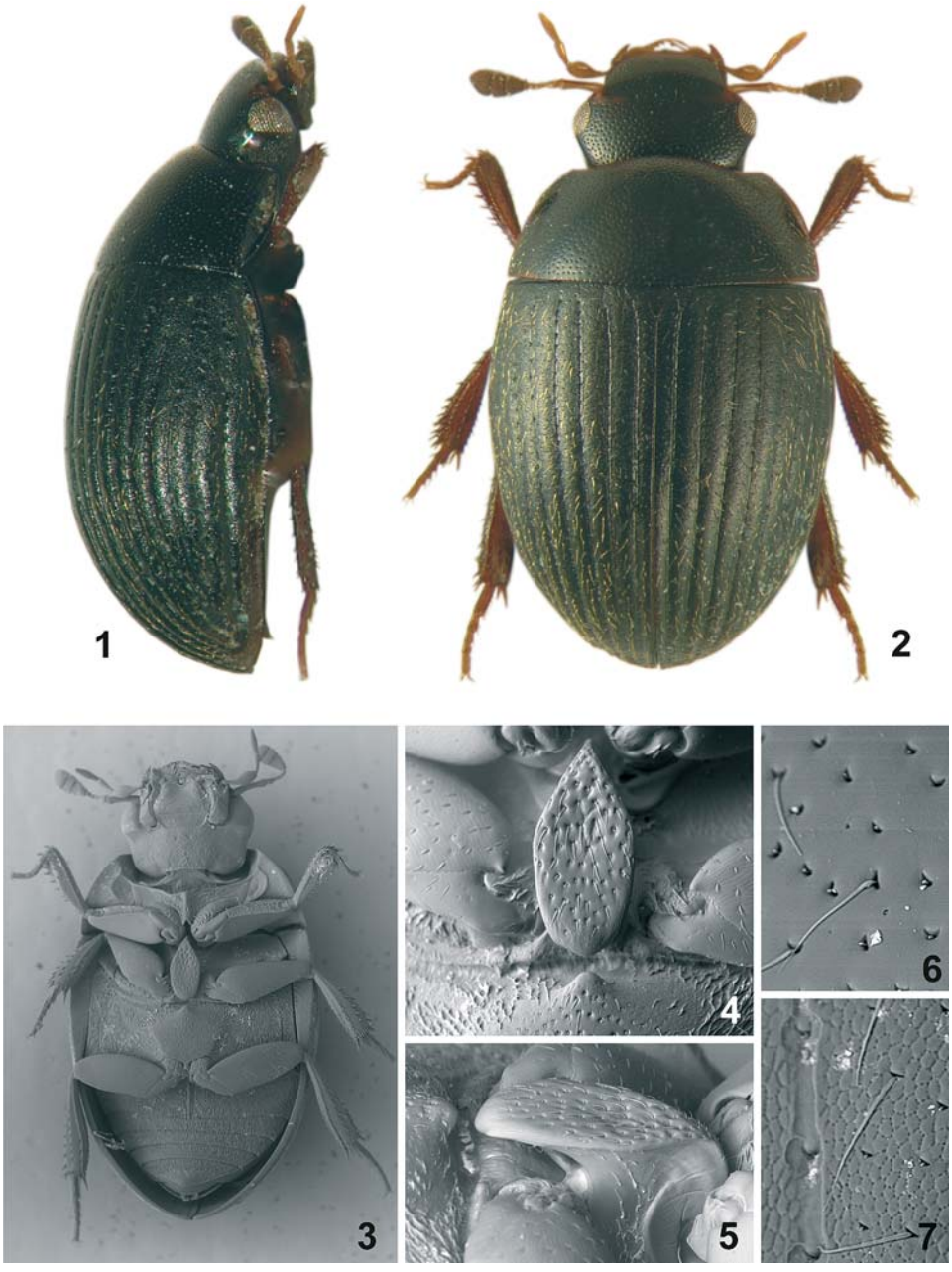
Type material examined. Lectotype (here designated): male, "[male sign] // Balatonlelle / coll. Peregi // Holotypus 1965 / Cercyon / hungaricus / Dr. Endrődy-Younga // aedeagophore / is contained into D.M.H.F. / by Shatrovskiy, 1984" (HNHM). Paralectotype: 1 spec., "[female sign] // Siófok / Lichtneckert // Paratypus 1965 / Cercyon / hungaricus / Dr. Endrődy-Younga" (HNHM). Remaining specimens considered so far as part of the type series are removed from it, thus classified as non-type status (see below for details).

New records. Slovakia: Gajary env. (7567), Rudavské jazero [lake], mrtvé rameno řeky [oxbow lake], prosev detritu na břehu [sifting of detritus on the shore], 14.x.2006, 1 male, S. Benedikt leg., M. Boukal det. (MBCP); Malé Leváre env. (7467d), Stará Morava [river], mrtvé rameno řeky [oxbow lake], prosev detritu na břehu [sifting of detritus on the shore], 14.x.2006, 1 male, S. Benedikt leg., M. Boukal det. (MBCP); Bajtava (8178a), 3.v.2003, 4 spec., Z. Kraus leg., M. Fikáček det. (NMPC, ZKCM). **Hungary:** Ungarn/Bal [= Hungary, Balaton Lake], Badacsony, 26.iv.1995, 1 spec., A. Skale lgt. (ASCH); Somogy county, Fonyód, Pogány-völgyi-víz part [*channel shore*] shore trampling, 1 female, 26–27.vi.2003, A. Lőkkös leg. et det. (ALCF); Somogy county, Fonyód, Keleti-főcsatorna part [channel shore], shore trampling, 1 female, 16.vii.2003 A. Lőkkös leg et det.(ALCF); Somogy county, Fonyód, Zardavári berek, netting air plankton at sunset , 1 female, 30.iv.2005, A.Lőkkös leg et det. (ALCF); Somogy county, Fonyód, Bézsenyi bozót, sifting from *Salix* leaf litter, 1 female, 25.xi.2005, A.Lőkkös leg et det. (ALCF).

Published records. Czech Republic: Šafov env. (7160), Jánský rybník [pond], more specimens collected between 22.iv.2004 and 26.iii.2005 (NMPC, JMMZ, MJMZ, RSCZ) (Boukal *et al.* 2007). **Hungary:** Bükki National Park, Lillafüred, without date (HNHM) (Endrődy-Younga 1969, 1970); Balaton lake env., Balatonlelle, without date (HNHM) (lectotype: Endrődy-Younga 1967, 1969, 1970); Balaton lake env., Zalavár env., Kisbalaton [pond], Diásszíget, sifted, 20.iii.1950 (HNHM) (Endrődy-Younga 1969, 1970); Balaton lake env., Siófok, without date (paralectotype: Endrődy-Younga 1967, 1969, 1970); Barcsi Ősborókásban [Barcs env.], 16.v.1979 (JPMP) (Gidó & Szél 1998). **Slovenia:** Hotiza env., Mura [= Mur river], 26.iii.1997, 1 male (BDCL) (Hebauer 2003).

Published descriptions and type material. Descriptions for *C. hungaricus* have been published three times: (1) by Endrődy-Younga (1967) in the key to Hungarian *Cercyon* species in the volume of the *Fauna Hungariae* series covering the hydrophiloid beetles; (2) by Endrődy-Younga (1969) in *Annales historico-naturales Musei Nationalis Hungarici* as a complete description; (3) by Endrődy-Younga (1970) in *Mitteilungen der Münchner Entomologischen Gesellschaft* as a complete description, nearly identical to that mentioned at (2). The date of publication of the description mentioned at (3) has been incorrectly given as 1968 by many authors, but it was actually published only on 1 June 1970, if the information is based on the front cover. Hansen (1999, 2004) gave the correct publication date.

The description mentioned at (1) fulfils all the conditions set out by the International Code of the Zoological Nomenclature (ICZN 1999) (Articles 11, 12, 13 and 15) and the name *Cercyon hungaricus* has therefore to be considered as available from 1967, with Endrődy-Younga (1967) being the original description. This was adopted by Hansen (1999, 2004), but not by the Hungarian authors (Csabai & Szél 1999, Csabai *et al.* 2002)



Figs 1–7. *Cercyon hungaricus* Endrődy-Younga, 1967, 1–3: general habitus (1 – lateral view, 2 – dorsal view, 3 – ventral view); 4–5: detail of pre-episternal elevation of mesothorax (4 – ventral view, 5 – lateral view); 6–7: detail of dorsal superficial structure (6 – pronotum, 7 – elytron).

who considered the 1967 paper as unavailable, treating the paper mentioned above at (3) as the original description but erroneously using 1968 as the year of its publication. Considering ENDRŐDY-YOUNGA (1967) as the original description is moreover in agreement with the current treatment of the hydraenid taxa (*Hydraena csikii* Endrődy-Younga, 1967 and *Ochthebius hungaricus* Endrődy-Younga, 1967) described in the three publications that include *C. hungaricus* (*cf*. JÄCH 2004).

Within the original description, ENDRŐDY-YOUNGA (1967) mentioned material from three localities (Balatonlelle, Siófok, and Zamárdi) without designating the holotype. Based on Article 73.2 of the Code (ICZN 1999), all specimens available to S. Endrődy-Younga coming from these localities have therefore to be considered syntypes. In the following descriptions (ENDRŐDY-YOUNGA 1969, 1970), one male specimen from Balatonlelle and two specimens from Siófok are mentioned (as holotype and paratypes), along with additional specimens from Zalavár (as allotype) and Lillafüred (as paratype); the specimens from Zamárdi are not mentioned. Based on Articles 73.1.3. and 72.4.1. of the Code (ICZN 1999), the subsequent designations of the holotype by ENDRŐDY-YOUNGA (1969, 1970), as well as the subsequent designation of the specimen from Zalavár as the allotype and that from Lillafüred as paratype, are invalid. The absence of the specimen from Zamárdi from the subsequent descriptions (ENDRŐDY-YOUNGA 1969, 1970) and the absence of the respective specimen from the collection of HNHM moreover suggest that this locality was mentioned in the original description (ENDRŐDY-YOUNGA 1967) in error. Of the specimens from Siófok, only one specimen with this locality is deposited in HNHM, in contrast to the data given by ENDRŐDY-YOUNGA (1969, 1970). Hence, only the specimen from Balatonlelle and a single specimen from Siófok may be considered as syntypes of *C. hungaricus* and the specimen from Balatonlelle is hereby designated as the lectotype in order to fix the complicated situation described above.

Diagnosis. Based on the presence of strong microsculpture in the elytral intervals (Fig. 7), *Cercyon hungaricus* belongs to the *C. tristis* species group represented in Central Europe by an additional four species: *C. tristis* (Illiger, 1801), *C. granarius* Erichson, 1837, *C. convexiusculus* Stephens, 1829 and *C. sternalis* Sharp, 1918. *C. hungaricus* may easily be distinguished from these four species by several features: its large body size (2.1–2.8 mm); body somewhat depressed in lateral view (Fig. 1 – the other four species are highly convex in lateral view); widely oval pre-episternal plate of mesothorax (= "mesosternal plate") (Figs 3–5) isolated from the metaventrite (= "metasternum") by a narrow gap (as in *C. trisis* and *C. granarius*); pre-episternal plate of the mesothorax (= mesosternal plate") bearing a more or less distinct, shallow, rounded depression in the anterior half (Figs 4–5 – the impression is absent from all the other species); distinctly impressed elytral series (Figs 1–2, 7 – series are not impressed in all the other species); and elytra bearing sparse but rather long, yellowish, semi-erect pubescence (Figs 1–2, 7 – elytra are bare in all the other species). The weak depression in the pre-episternal plate is a little difficult to observe in some specimens, but is usually clearly visible, at least in horizontal lighting. The pubescence of the elytra may be rubbed away on the dorsal surface of some specimens, but is usually very distinct, at least from the side.

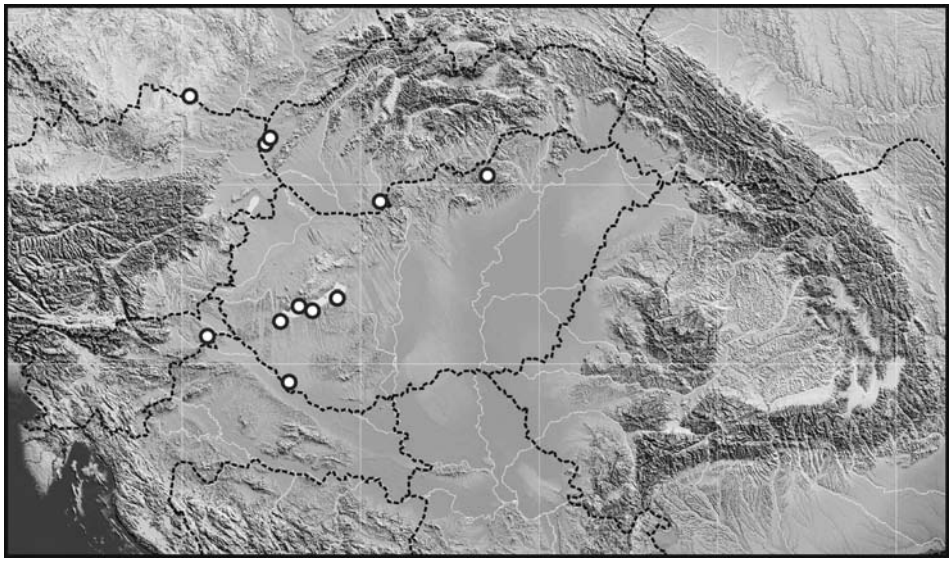


Fig. 8. Distribution of *Cercyon hungaricus* Endrődy-Younga, 1967.

Collecting circumstances. Most recently-collected specimens of *C. hungaricus* were either sifted from detritus and rotting vegetation (rotting remains of *Carex* spp. and grasses (Czech Republic, Šafov; Slovakia, Bajtava), leaf litter and fallen leaves under low bushes of *Salix* sp. (Slovakia, Rudavské jezero; Hungary: Fonyód), massive deposits of old *Phragmites* and *Carex* debris (Slovakia: Velké Leváre)) or collected by sifting or trampling of accumulated debris on the shores of ponds, oxbow lakes and channels, including those stocked with fish (Czech Republic: Šafov) and village ponds (Slovakia: Bajtava). One specimen was collected by netting air plankton at sunset along the shore of a channel (Hungary: Fonyód). Hind wings are fully developed in all specimens examined for this character. The Czech specimens were collected together with some rare and uncommon carabid beetles (*Anthracus consputus* (Duftschmid, 1812), *A. longicornis* (Schaum, 1857), *Badister dorsiger* (Duftschmid, 1812), *Dyschirius globosus* (Herbst, 1784), *Paratachys bistriatus* (Duftschmid, 1812)), specimens from Bajtava (Slovakia) together with *Fagniezia impressa* (Panzer, 1905) (Pselaphidae) and *Stenolophus steveni* Krynicki, 1832 (Carabidae).

Distribution. Czech Republic (southern Moravia), Hungary, southern Slovakia, eastern Slovenia (Fig. 8).

Discussion

Most known localities of *Cercyon hungaricus* are situated in the Pannonian Basin (Fig. 8) and the species may therefore be considered as Pannonian endemic. The only locality outside the Pannonian Basin is that in the Czech Republic, situated in the basin of the Thaya (= Dyje) river. A rather high number of thermophilous insect species, distributed mainly in the southernmost Pannonian part of the Czech Republic, are known from the area (e.g. *Crocothemis erythraea* (Brullé, 1832) (Libellulidae), *Dendroleon pantherinus* (Fabricius, 1787) (Myrmeleontidae), *Pterostichus elongatus* (Duftschmid, 1812), *Dyschirius chalybaeus gibbifrons* Apfelbeck, 1899, *Harpalus marginellus* Gyllenhal, 1827 (Carabidae)), some of which are known to reach this area along the Thaya river (e.g. *Arethusana arethusa* (Denis & Schiffermüller, 1775) (Nymphalidae), *Maculinea alcon rebeli* (Hirschke, 1904) (Lycaenidae)), and some even find the northern border of their distribution here (e.g. *Zygaena brizae* (Esper, 1800) (Zygaenidae)).

Based on current knowledge of its distribution, *Cercyon hungaricus* may be expected to occur not only in the southern Czech Republic, southern Slovakia, Hungary and eastern Slovenia, where it has been recorded, but also in eastern Austria, northern Croatia, northern Serbia, north-western Romania and south-western Ukraine. The absence of records from these areas, as well as the overall scarcity of specimens, may be attributed to the biology of the species, which seems to differ from that of all other European *Cercyon* species, at least in terms of the data available. The collecting circumstances of the recent specimens suggest that *C. hungaricus* is actually a terrestrial species living in the detritus and decaying plant debris on the shores of standing waters. In contrast to the remaining species of the *C. tristis* group, collected mostly from wet plant debris at the edge of standing waters but also to be found in the water itself, *C. hungaricus* appears to prefer drier habitats, not submerged or even seasonally submerged, even though its association with bodies of water is still apparent. Moreover, the species appears to be rare at all known localities.

Because of its rarity and habitat preferences, *Cercyon hungaricus* may easily be overlooked those collectors who concentrate upon aquatic beetles. For a better understanding of the distribution of this species it would appear desirable, therefore, to cooperate with specialists on the leaf-litter inhabiting beetles (e.g. Carabidae, Staphylinidae and Curculionidae) who collect by sifting and trampling as a matter of routine.

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