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## WATER SCAVENGER BEETLES (COLEOPTERA: HYDROPHILIDAE) AS FACULTATIVE NECROPHAGES

Sergey K Ryndevich, Denis S Lundyshev & Alexander Ю Machulski

Unlike obligate necrobiont beetles, Silphidae, Histeridae, etc., water scavenger beetles (Hydrophilidae) are rarely found on the corpses of vertebrates. The literature has a limited number of records - *Hydrochara caraboides* (L.) recorded on dead fish in Belarus (Ryndevich 2004) and *Cercyon lateralis* (Marsham) as necrobiont (Lundyshev 2014). Most of the water scavenger beetle species that have been found on the corpses of vertebrates are terrestrial in the subfamily Sphaeridiinae, *Cercyon nigriceps* (Marsham), *C. praetextatus* (Say), *Cryptopleurum subtile* Sharp and *Sphaeridium bipustulatum* Fab. on carrion in Canada and the USA (Smetana 1978, 1988). *Cercyon haemorrhoidalis* (Fab.) was recorded as necrobiontic in Ukraine (Prokopenko 2000). *Cercyon curi* Clarkson *et al.* and *C. inquinatus* Wollaston were collected in a pig carcass in a controlled forensic experiment in Brazil (Clarkson *et al.* 2020).

Pushkin (2004) indicates twelve hydrophilid species from the North-West Caucasus (Russia) as necrobionts including Asian species such as *Pachysternum haemorrhoum* Motschulsky, *Cercyon ovillus* Motschulsky, etc. These are most likely misidentified and cannot be considered reliable.

In Belarus, 18 out of 57 species of water scavenger beetles (Ryndevich 2005; Ryndevich *et al.* 2013) have been found on dead vertebrates and are listed below.

### Hydrophilinae Latreille

*Hydrochara caraboides* (L.) - Vitebsk reg., Lepel district, Berezinsky Biosphere Reserve, v. Domzheritsy, pond, in water, on dead Prussian carp (*Carassius gibelio*), 29.V.1996, leg. S.K. Ryndevich, 3 specimens.

### Sphaeridiinae Latreille

*Cercyon haemorrhoidalis* (Fab.) - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead chicken, 28.V.2012, leg. A. Ю. Machulski, 6 specimens.

*Cercyon impressus* (Sturm) - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat (*Rattus norvegicus*), 3.VII.2012, leg. A. Ю. Machulski, 1 specimen.

*Cercyon lateralis* (Marsham) - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat, 3.VII.2012, leg. A. Ю. Machulski, 1 specimen; same data but on dead cat, 1 specimen; same data but on dead rat and cat, 4.VIII.2013, 5 specimens; same data but pasture, dead calf, 29.VI.2013, 1 specimen; Brest reg., near Baranovichi, black alder forest, shore of reclamation channel, on chicken bones, 29.IV.2008, leg. D.S. Lundyshev & Ю.V. Tret'yak; 5 specimens; same data but 4.V.2008, 23 specimens; Brest reg, Lahovichi district, near v. Litva, forest, on chicken bones, 10.V.2008, leg. D.S. Lundyshev & M.A. Lukashenya, 7 specimens. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, the shore of Pripyat River, on rotting roach (*Rutilus rutilus*), 23.VIII.2010, leg D.S. Lundyshev, 1 specimen. Minsk reg., Nesvizh district, near Gorodeya, the edge of a pine forest, on a dead blackbird (*Turdus philomelos*), 1.VII.2004, leg. S.K. Ryndevich, 2 specimens.

*Cercyon marinus* Thomson - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 27.VII.2012, leg. Ю.V. Tret'yak; 1 specimen; Baranovichy district, near v. Gintsevichi, shore of Baranovichskoye Reservoir, on dead black-headed gull (*Chroicocephalus ridibundus*), 19.VII.2004, leg D.S. Lundyshev, 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, the

shore of Pripyat River, on dead white stork (*Ciconia ciconia*), 2.V.2010, leg D.S. Lundyshev, 3 specimens; same data but on rotten fish: Prussian carp, roach and pike (*Esox lucius*), 15.VII.2011, 6 specimens; same data but near Turov, on dead magpie (*Pica pica*), 16.VII.2011, 5 specimens.

***Cercyon tristis* (Illiger)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, floodplain meadow, on dead black-headed gull, 23.IV.2008, leg D.S. Lundyshev, 1 specimen. Mogilev reg., Bykhov district, near v. Varanino, field, on dead peregrine falcon (*Falco peregrinus*) 24.V.2013, leg. I.A. Bogdanovich, 1 specimen.

***Cercyon unipunctatus* (L.)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, on chicken bones, leg. D.S. Lundyshev & Ю.V. Tret'yak; 1 specimen; Brest district, near v. Tomashevka, pond shore, rotten chicken, 27.VII.2012, leg. Ю.V. Tret'yak; 2 specimen, Baranovichy distr., near v. Malaya Kolpenitsa, shore of reclamation channel, on dead black-headed gull, 25.VI.2004, leg D.S. Lundyshev, 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, on dead magpie, 16.VII.2011, leg D.S. Lundyshev, 1 specimen.

***Cercyon ustulatus* (Preysslér)** - Brest reg., Baranovichi, shore of Lake Zhlobinskoe, on dead black-headed gull, 17.VI.2008, leg D.S. Lundyshev, 1 specimen.

***Cercyon analis* (Paykull)** - Brest reg., Lahovichy district, near v. Litva, forest planting along the road, on dead black-headed gull, 10.V.2008, leg D.S. Lundyshev & M.A. Lukashenya, 1 specimen. Gomel reg., Loev district, near v. Abakumy, on dead great cormorant (*Phalacrocorax carbo*), 21.VI.2012, leg. I.A. Bogdanovich, 1 specimen.

***Cercyon laminatus* Sharp** - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 26.VII.2012, leg. Ю.V. Tret'yak; 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07528, E027.75232, the sandy shore of Pripyat River, on rotten Prussian carp, 5.VIII.2012, leg D.S. Lundyshev & A.Ю. Machulski, 1 specimen. Mogilev reg., Bykhov district, near v. Varanino, field, on dead peregrine falcon 24.V.2013, leg. I.A. Bogdanovich, 1 specimen.

***Coelostoma orbiculare* (Fab.)** - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 25.VII.2012, leg. Ю.V. Tret'yak; 2 specimens; Baranovichy district, near v. Gintsevichi, shore of Baranovichskoye Reservoir, on dead black-headed gull, 19.VII.2004, leg D.S. Lundyshev, 1 specimen; Ivatsevichi district, near v. Goshchevo, pasture, on a dead pig, 18.V.2013, leg. A. Ю. Machulski, 1 specimen.

***Cryptopleurum crenatum* (Kugelann)** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat and cat, 4.VIII.2013, leg. A.Ю. Machulski, 4 specimens.

***Cryptopleurum minutum* (Fab.)** - Brest reg., near Baranovichi, on the skull of a dead beaver (*Castor fiber*), 13.VIII.2013, leg. A.Ю. Machulski, 1 specimen; Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat, 3.VII.2012, leg. A.Ю. Machulski, 1 specimen; same data but on dead cat, 18.VII.2013, 1 specimen; same data but on dead rat and cat, 4.VIII.2013, 1 specimen; same data but 10.VIII.2013, 1 specimen.

***Cryptopleurum subtile* Sharp** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat and cat, 4.VIII.2013, leg. A.Ю. Machulski, 2 specimens.

***Megasternum concinum* (Marsham)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, shore of reclamation channel, on dead black-headed gull, 25.VI.2004, leg D.S. Lundyshev, 1 specimen; same data but floodplain meadow, on dead black-headed gull, 25.IV.2008, leg Ю.V. Tret'yak, 1 specimen; same data but willow thickets, on chicken bones, 4.V.2006, leg. D.S. Lundyshev & Ю.V. Tret'yak; 1

specimen; floodplain meadow, on dead rook (*Corvus frugilegus*), 4.V.2008, leg. Ю.В. Трет'як; 1 specimen.

*Sphaeridium bipustulatum* Fab. - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 12.VII.2013, leg. А.Ю. Machulski, 1 specimen.

*Sphaeridium lunatum* Fab. - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 18.VII.2013, leg. А.Ю. Machulski, 1 specimen.

*Sphaeridium scarabaeoides* (L.) - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 18.VII.2013, leg. А.Ю. Machulski, 2 specimens. Minsk reg., Nesvizh district, near Gorodeya, on dead dog, 6.VI.2010, leg. S.K. Ryndevich, 1 specimen.

Water scavenger beetles were collected on seventeen species of dead vertebrate (eight birds, six mammals, four fish). The largest number was collected on dead cats and chickens (seven each). black-headed gulls (six) and brown rats (five). From one to three species were observed on other vertebrate species. These beetles are not confined to carrion as food. Their presence on dead animals is optional. Hydrophilids can be seen as facultative necrophages.

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