

Notes on Palaearctic species of the genus *Curelius* (Coleoptera: Cryptophagidae)

Poznámky k palearktickým druhům rodu *Curelius* (Coleoptera: Cryptophagidae)

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Abstract. The Afrotropical species *Curelius johnsoni* Esser, 2017 is recorded from the Palaearctic region from Tunisia, *C. exiguus* (Erichson, 1846) from Portugal and Slovenia, and *C. japonicus* (Reitter, 1878) from France, Greece, Portugal, Tunisia and China: Fujian Province, all for the first time. A key to the species of the genus *Curelius* Casey, 1900 occurring in the Palaearctic region is given, including figures of the genitalia.

Keywords: Coleoptera, Cryptophagidae, *Curelius*, distribution, key, Palaearctic

INTRODUCTION

Curelius Casey, 1900 is a small genus of beetles from the subfamily Atomariinae of the family Cryptophagidae. In the Palaearctic region, three species are known (Johnson et al. 2007), as follows. The globally widespread *C. japonicus* (Reitter, 1878), which extends into the subtropics and tropics (incl. China: Beijing Municipality, Hong Kong Special Administrative Region, and Heilongjiang, Hubei, Jiangsu and Shandong Provinces), *Curelius dilutus* (Reitter, 1883) which occurs in the Caucasus, Central Asia (Johnson et al. 2007), Ukraine, and southern Russia (Lyubarsky 2008), and *Curelius exiguus* (Erichson, 1846) which occurs in Europe apart from the north, in North Africa, the Middle East, and in Central Asia. In the Czech Republic, it is reported from Moravia (Reška 1993) and Bohemia (Ernest 2015). Esser (2017) described three species from southern Africa: *C. johnsoni*, *C. uhligi*, and *C. jaegeri*.

In the Nearctic region, *C. cactophilus* (Schwarz, 1899) was described from Arizona. It is only known from a type series of four specimens (Pelletier & Hébert 2019). Behura (1992), in his doctoral thesis, described four species from India (*C. himalayensis*, *C. bengalensis*, *C. assamensis*, and *C. narmadus*). The genus *Curelius* is similar to the genus *Ephistemus* Stephens, 1829. Differences are outlined in the key below.

MATERIAL AND METHODS

Material was observed using Meopta G11P stereoscopic microscope with magnification up to 100×. The abdomens of females and males were soaked for 12 hours in a 10% cold KOH solution before the genitalia were removed. The genitalia are fixed in Solakryl BMX (butylmethacrylate, methylmethacrylate, xylene), which is soluble in xylene. Habitus images were taken with a Canon EOS 5D mark II in combination with a Canon MP-E65 1–5× macro lens. Resulting images were focus stacked using Zerene Stacker and then post processed in Adobe Photoshop CC 2017. For Figs 1, 5, and 9–11, a Motic BA 210E-Trino microscope was used. The photographs were stacked in Zerene Stacker and edited in Adobe Photoshop 2024. All published specimens were determined by L. Ernest.

Acronyms of collections: EECZ – private collection of Eduard Ezer (Zlín, Czech Republic), JVCO – private collection of Jiří Vávra (Ostrava, Czech Republic), LECN – private collection of Ladislav Ernest (Nymburk, Czech Republic), MMCH – private collection of Marion Mantič (Hlučín-Bobrovniky, Czech Republic), NMPC – collection of the National Museum of the Czech Republic (Praha, Czech Republic).

RESULTS

The following records of species of the genus *Curelius* Casey, 1900 are listed from countries not listed in the Palaearctic catalogue (Johnson et al. 2007).

Curelius exiguus (Erichson, 1846) (Fig. 2)

Portugal: Algarve region, Carapateira [ca. 37°09'52.876"N, 08°54'2.819"W], 9.iii.2007, 1 spec., sifting in forest-steppe, M. Mantič lgt. (MMCH); Algarve region, Trafal [ca. 37°03'32"N, 08°05'00"W], 19.iii.2017, 1 spec., salt marshes, sweeping up to 15 m altitude, M. Mantič lgt. (MMCH). **Slovenia:** Slovenia occ., Tolmin, 28.vi.2001, 1 spec., J. Vávra lgt. (JVCO); Slovenia or., Malo Mraševo, 28.v.2010, 1 spec., E. Ezer lgt. (EECZ).
New species for Portugal and Slovenia.

Curelius japonicus (Reitter, 1878) (Fig. 3)

France: Bouches-du-Rhône département, Miramas, 14.viii.2011, 10 spec., E. Ezer lgt. (EECZ: 6 spec., LECN: 4 spec.). **Greece:** Macedonia centr., Neí Pori [ca. 39°58'35"N, 22°39'05"E], 10.ix.2006, 1 spec., M. Mantič lgt. (MMCH). **Portugal:** Algarve region, Vilamoura, 8.iii.2014, 1 spec., swamp sifting, M. Mantič lgt. (MMCH). **Tunisia:** Tunisia or., Souse [ca. 35°49'32"N, 10°38'28"E], 11.iii.2006, ruderal, 41 spec., M. Mantič lgt. (MMCH: 36 spec., LECN: 15 spec.); Tunisia bor., Tabarka [ca. 36°57'16"N, 05°45'29"E], 7.vii.2008, 1 spec., in rotting grass, M. Mantič lgt. (MMCH); **China:** Fujian Province, Fu-čou [=Fuzhou, ca. 26°04'N 119°18'E], vi.1938, 1 spec., M. S. Zang lgt. (NMPC).
New species for France, Greece, Portugal, Tunisia, and China: Fujian Province.

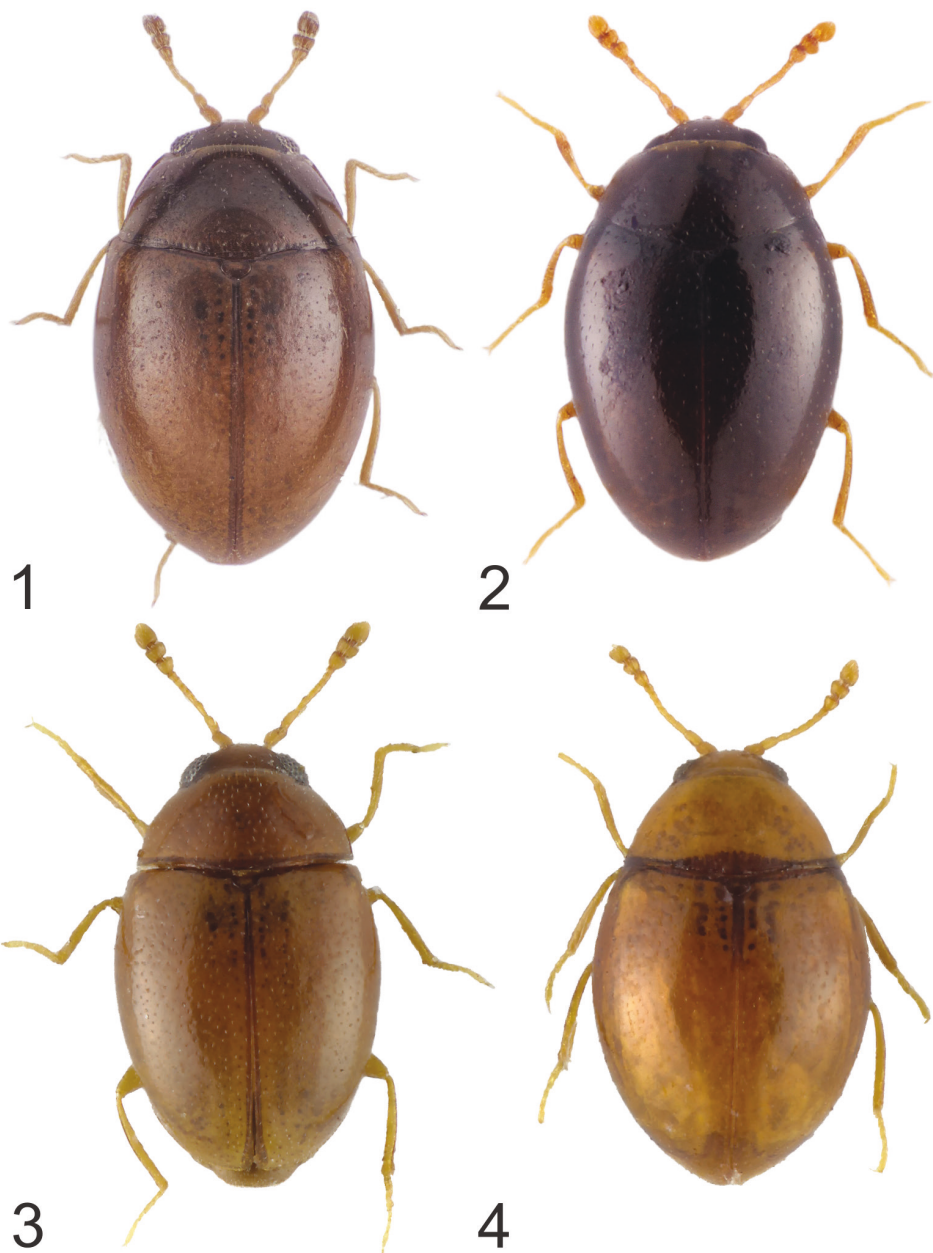
Curelius johnsoni Esser, 2017 (Fig. 1)

Tunisia: Port El-Kantaoui [ca. 35°53'35"N, 10°35'53"E], 17.ix.2011, 3 ♂♂, 2 ♀♀, M. Mantič lgt. (MMCH: 2 ♂♂, 1 ♀; LECN: 1 ♂, 1 ♀).
New species for Palaearctic region: Tunisia.

Key to Palaearctic species of the genus *Curelius* Casey, 1900

Note. In the original description of *C. johnsoni*, the genitalia of the new species are not mentioned (Esser 2017). Therefore, I provide a comparison of the genitalia of some species occurring in the Palaearctic region in Figs 5–11.

- 1 Antennal club asymmetrical, scutellum small and triangular. Head and pronotum ventrally with grooves for antennae. *Ephisthemus*
- Antennal club symmetrical, scutellum small and rectangular, with rounded corners. Head and pronotum ventrally with grooves for antennae absent. *Curelius*, 2
- 2 Pronotum and elytra indistinctly or very finely punctured. 2nd antennomere strong, about twice as long as wide. Dark coloured species. ... 3
- Pronotum and elytra distinctly punctured. 2nd antennomere slender, about 2.5 as long as wide. Yellow-red species. 4



Figs 1–4. Male habitus in dorsal view: 1 – *Curelius johnsoni* Esser, 2017, Tunisia; 2 – *C. exiguus* (Erichson, 1846), Bohemia; 3 – *C. japonicus* (Reitter, 1878), Tunisia; 4 – *C. dilutus* (Reitter, 1883), Caucasus. Not to scale.
 Obr. 1–4. Samec, habitus dorzálně: 1 – *Curelius johnsoni* Esser, 2017, Tunisko; 2 – *C. exiguus* (Erichson, 1846), Čechy; 3 – *C. japonicus* (Reitter, 1878), Tunisko; 4 – *C. dilutus* (Reitter, 1883), Kavkaz. Bez měřítka.

- 3 Pronotum and elytra with indistinct, irregular and distant punctuation. Black or black-brown species, antennae yellow-brown with a dark club (Fig. 2). Aedeagus in Fig. 7, spermatheca in Fig. 10. Body length 0.8–1.1 mm. .
..... *C. exiguus* (Erichson, 1846)
- Pronotum and elytra with clear, very fine punctuation, the distance between punctures more than twice their diameters. Chestnut brown species with a lightened posterior half of the elytra (Fig. 1). Aedeagus in Fig. 5, spermatheca in Fig. 9. Body length 1.1–1.2 mm. *C. johnsoni* Esser, 2017
- 4 Eyes large, when viewed in dorsal view, about as large as half the distance between the eyes (Fig. 3). Punctuation distinct, spaced about 1.5 a puncture diameter. Yellow or yellow-red species, almost elliptical (Fig. 3). Aedeagus in Fig. 8, spermatheca in Fig. 11. Body length 1.0–1.3 mm. *C. japonicus* (Reitter, 1878)
- Eyes normal, when viewed in dorsal view, less than 1/3 of the distance between the eyes (Fig. 4). Punctures minute, spaced by more than twice a puncture diameter. Yellowish brown or yellowish red species, posteriorly expanding, pronotum therefore appears narrower and smaller than in the previous species (Fig. 4). Body length 1.3–1.4 mm. *C. dilutus* (Reitter, 1883)

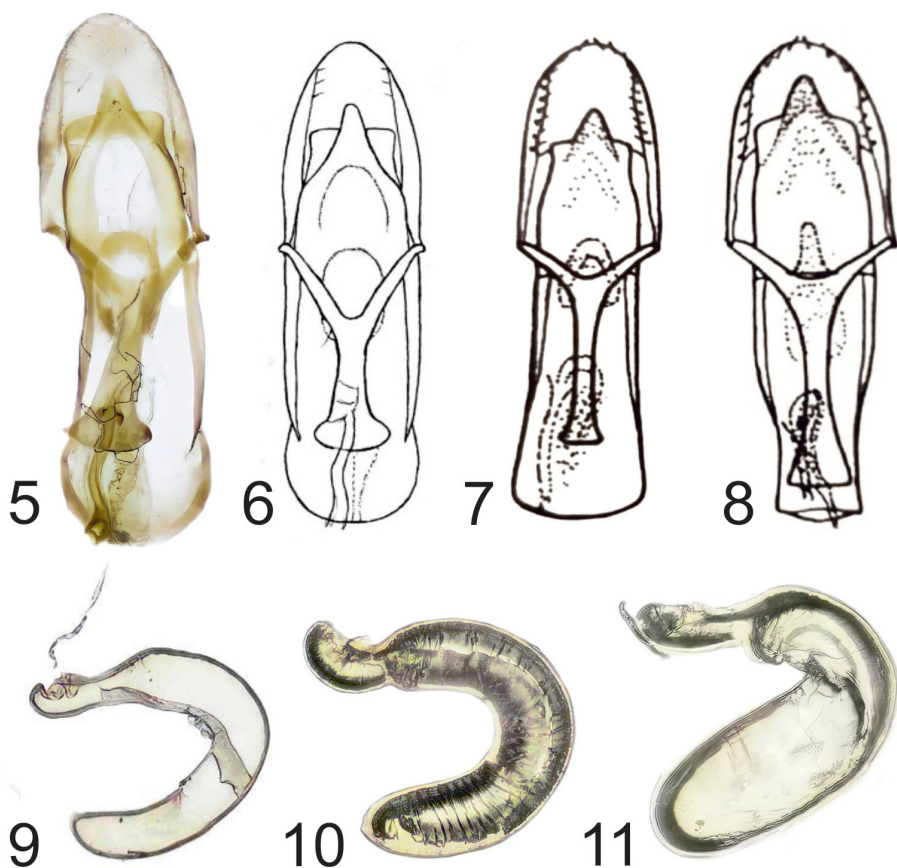
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SOUHRN

Curelius johnsoni Esser, 2017 popsaný z Jihoafrické republiky, a proto považovaný za afrotropický druh, byl nalezen i v palearktické oblasti, a to v severní Africe v Tunisku. Další dva druhy rodu jsou uvedeny nově z následujících zemí, *C. exiguus* (Erichson, 1846) z Portugalska a Slovinska, a *C. japonicus* (Reitter, 1878) z Francie, Řecka, Portugalska, Tuniska a čínské provincie Fu-tien.



Figs 5–11. 5–8: aedeagus, dorsal view: 5 – *Curelius johnsoni* Esser, 2017, photography; 6 – *C. johnsoni* Esser, 2017, line drawing, L. Ernest; 7 – *C. exiguus* (Erichson, 1846), line drawing (following Johnson 1971); 8 – *C. japonicus* (Reitter, 1878), line drawing (following Johnson 1971). 9–11: spermatheca, photography: 9 – *C. johnsoni* Esser, 2017; 10 – *C. exiguus* (Erichson, 1846); 11 – *C. japonicus* (Reitter, 1878). Not to scale.

Obr. 5–11. 5–8: aedeagus, dorzální pohled: 5 – *Curelius johnsoni* Esser, 2017, fotografie; 6 – *C. johnsoni* Esser, 2017, perokresba, L. Ernest; 7 – *C. exiguus* (Erichson, 1846), perokresba (podle Johnsona 1971); 8 – *C. japonicus* (Reitter, 1878), perokresba (podle Johnsona 1971). 9–11: spermatéka, fotografie: 9 – *C. johnsoni* Esser, 2017; 10 – *C. exiguus* (Erichson, 1846); 11 – *C. japonicus* (Reitter, 1878). Bez měřítka.

Klíč druhů rodu *Curelius* Casey, 1900 vyskytujících se v palearktické oblasti

- 1 Palička tykadel asymetrická, štítek má tvar malého trojúhelníku, na spodku hlavy a štítu je přítomný žlábek pro uložení tykadel. *Ephisthemus*
- Palička tykadel symetrická, štítek má tvar malého obdélníku se zakulacenými rohy, na spodku hlavy a štítu není žlábek pro uložení tykadel. *Curelius*, 2
- 2 Štít a krovky nezřetelně nebo velmi jemně tečkovány, 2. tykadlový článek silný a asi dvakrát delší než široký, tmavě zbarvené druhy. 3

- Štít a krovky zřetelně tečkovány, 2. tykadlový článek tenčí a asi 2,5 delší než široký, žlutočervené druhy. 4
- 3 Štít a krovky s nezřetelným, nepravidelným a vzdáleným tečkováním, černý nebo černohnědý druh, tykadla žlutohnědá s tmavou paličkou (obr. 2). Aedeagus na obr. 7, spermatéka na obr. 10. Délka těla 0,8–1,1 mm. *C. exiguus* (Erichson, 1846)
- Štít a krovky zřetelně, velmi jemně tečkovány, vzdálenost teček je více než dva jejich průměry, kaštanově hnědý s projasněnou zadní polovinou krovek (obr. 1). Aedeagus na obr. 5, spermatéka na obr. 9. Délka těla 1,1–1,2 mm. *C. johnsoni* Esser, 2017
- 4 Oči velké, při pozorování shora asi tak velké jako polovina vzdálenosti mezi očima (obr. 3), tečky výrazné, vzdálené asi 1,5 průměru tečky. Žlutý nebo žlutočervený druh, téměř eliptický (obr. 3). Aedeagus na obr. 8, spermatéka na obr. 11. Délka těla 1,0–1,3 mm. *C. japonicus* (Reitter, 1878)
- Oči normální, při pozorování shora menší než 1/3 vzdálenosti mezi očima (obr. 4), tečky drobné a vzdálené více než 2 jejich průměry. Žlutohnědý nebo žlutočervený druh, dozadu se rozšiřuje, štít se proto jeví užší a menší než u přecházejícího druhu (obr. 4). Délka těla 1,3–1,4 mm. *C. dilutus* (Reitter, 1883)