

**Adephagan and hydrophiloid water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, and Hydrophilidae) of the Bílé Karpaty Protected Landscape Area and Biosphere Reserve (Czech Republic)**

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TRÁVNÍČEK D., HÁJEK J., STRAKA M. & SYCHRA J. 2012: Adephagan and hydrophiloid water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, and Hydrophilidae) of the Bílé Karpaty Protected Landscape Area and Biosphere Reserve (Czech Republic). In: MALENOVSKÝ I., KMENT P. & KONVIČKA O. (eds.): Species inventories of selected insect groups in the Bílé Karpaty Protected Landscape Area and Biosphere Reserve (Czech Republic). *Acta Musei Moraviae, Scientiae biologicae* (Brno) **96(2)** (2011): 629–665. – A total of 110 species of adephagan and hydrophiloid water beetles (Gyrinidae: 3 spp., Haliplidae: 6 spp., Noteridae: 2 spp., Dytiscidae: 45 spp., Helophoridae: 11 spp., and Hydrophilidae: 43 spp.) were recorded at 114 sites in the Bílé Karpaty Protected Landscape Area (south-eastern Moravia, Czech Republic). Most of the records come from surveys carried out in 1994–2010, with some additional data based on collection specimens. A complete list of all records from the area is supplemented by brief notes on the ecology and conservation status of each species. Three of the recorded species are classified as critically endangered (*Hydrophilus piceus* (Linnaeus, 1758), *Hygrotus parallellogrammus* (Ahrens, 1812) and *Laccobius simulatrix* Orchymont, 1932), four are regarded as endangered (*Gyrinus distinctus* Aubé, 1838, *Helochares lividus* (Forster, 1771), *Hydrovatus cuspidatus* (Kunze, 1818) and *Laccobius obscuratus* Rottenberg, 1874), eight as vulnerable (*Berosus frontifoveatus* Kuwert, 1888, *Cercyon nigriceps* (Marsham, 1802), *Deronectes latus* (Stephens, 1829), *Dytiscus circumflexus* Fabricius, 1801, *Hygrotus nigrolineatus* (Steven, 1808), *Helophorus redtenbacheri* Kuwert, 1885, *Laccobius gracilis* Motschulsky, 1855 and *Laccophilus poecilus* Klug, 1834) and four as near-threatened (*Enochrus fuscipennis* (Thomson, 1884), *Graptodytes bilineatus* (Sturm, 1835), *Helophorus arvernensis* Mulsant, 1846, and *Limnoxenus niger* (Gmelin, 1790)) according to the Red List of threatened species in the Czech Republic. These results show that the area harbours a rich water beetle fauna and may provide refuges for rare and endangered species.

**Key words.** Aquatic beetles, Adephaga, Hydrophiloidea, faunistics, biogeography, threatened species, aquatic habitats, White Carpathians, Moravia, Czech Republic

### Introduction

This paper addresses six families of water beetles that inhabit all kinds of wetland habitats in the Bílé Karpaty Protected Landscape Area and Biosphere Reserve (hereafter abbreviated to Bílé Karpaty PLA): the Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, and Hydrophilidae.

The Gyrinidae (whirligig beetles) comprise more than 900 species with a worldwide distribution (FRANCISCOLO 1979). Both larvae and adults are predaceous and they live in various types of running or standing water habitats. The body of the adults is usually oval and dorsoventrally flattened; central European species reach 3–8 mm in size. The antennae are shortened, forming a compact club. The eyes are adapted for a life on the surface of the water. They are divided into a ventral part, which enables underwater vision, and a dorsal part, which is used to see above the surface. Eleven species have been recorded from the Czech Republic; five of them are regarded as extinct here (BOUKAL *et al.* 2007).

The Haliplidae (crawling water beetles) include over 200 species and occur in all zoogeographical regions (VONDEL 2005). Both larvae and adults feed chiefly on algae. The size of the adults varies between 1.5 and 5.0 mm, and they have quite a uniform appearance, with a convex body and a yellow-and-black colour pattern. The adults also possess characteristically enlarged metacoxal plates, under which they store a bubble of air obtained by breaking the surface film with the tip of the abdomen, giving them a reservoir of oxygen underwater. Eighteen species have been recorded from the Czech Republic; one of them is regarded as extinct in the country (BOUKAL *et al.* 2007).

The Noteridae (burrowing water beetles) contain about 250 species with a worldwide distribution (NILSSON 2005). Both adults and larvae are largely predaceous, inhabiting various types of standing water. They prefer habitats with vegetation and a muddy bottom into which the adults can burrow using their modified forelegs. The adults of central European species are droplet-shaped and reach 3.5–5.0 mm in size. Two species are known from the Czech Republic (BOUKAL *et al.* 2007).

The Dytiscidae (predaceous diving beetles) make up a large family of about 4,000 species occurring all over the world (NILSSON 2001). Both larvae and adults of most species inhabit various types of standing or flowing water, but the family also includes blind species living in springs and artesian wells and species inhabiting subterranean cave systems; a few species in tropical areas are even terrestrial. The streamlined body shape and flattened hind legs in the more derived groups are the main adaptations of the adults to an underwater life. The size of central European species ranges between 1.7 mm and 44 mm. Both larvae and adults are predaceous; the prey is appropriate to body size, from small crustacean and insect larvae to tadpoles and fish fry. At present, 132 species are known from the Czech Republic, 10 of them are regarded as extinct here (BOUKAL *et al.* 2007).

The family Helophoridae includes 192 species (HANSEN 1999, SHORT & HEBAUER 2006, SHORT & FIKÁČEK 2011) and its members occur mainly in the Palaearctic and Nearctic Regions. Most adults inhabit shallow standing waters but some species live out of water in the burrows of rodents on steppes, in wet moss in peat-bogs, and on wet, sandy-loamy shores of streams. The larvae live on the surface of wet soil and under stones. While the adults are saprophagous and feed mainly on plant debris, most of the larvae are predaceous, with only minor exceptions. The appearance of the adults is quite uniform; they reach 2–9 mm in size, have an elongated body with regular striae on the

elytra, and five longitudinal grooves on the pronotum. Twenty-eight species are known from the Czech Republic, seven of which are regarded as extinct in the country (BOUKAL *et al.* 2007).

The Hydrophilidae (water scavenger beetles) are distributed worldwide and nearly 3,000 species have been described (HANSEN 1999, SHORT & HEBAUER 2006, SHORT & FIKÁČEK 2011). They are represented by two subfamilies in central Europe: the Hydrophilinae and the Sphaeridiinae. Both the habitus and the body size of adults are fairly variable. The smallest central European species are 1 mm long while the largest one, *Hydrophilus piceus*, may reach 50 mm. Most adults of the Hydrophilinae live in the littoral zone and along the shores of standing waters. Only a few species inhabit springs or live on the shores of flowing water. The Sphaeridiinae occur mainly in various decaying matter of organic origin. In most hydrophilid species, the larvae inhabit the same habitats as the adults, but while the adults feed on plant debris and other dead organic matter, the larvae are predatory and their prey includes various invertebrates, annelids and snails. Seventy-eight species are known to occur in the Czech Republic; eight of them are regarded as extinct here (BOUKAL *et al.* 2007, BOUKAL & BENEDIKT 2010).

More detailed treatments of all these families in terms of their morphology and biology may be found e.g. in BOUKAL *et al.* (2007) and HÁJEK (2007, 2009).

The Bílé Karpaty PLA was established to protect a unique landscape with an extraordinary richness of flora and fauna in the south-eastern part of the Czech Republic (Moravia), extending along the border with Slovakia. The area covers 715 km<sup>2</sup> at altitudes of 200–970 m, situated mostly in the White Carpathian [= Bílé Karpaty] Mts. A comprehensive overview of the area's natural history has been given e.g. by KUČA *et al.* (1992), MACKOVČIN & JATIOVÁ (2002), JONGEPIEROVÁ (2008), and KONVIČKA *et al.* (2011).

Water beetles were not thoroughly studied in the Bílé Karpaty PLA until recently. Only a few records occurred in the Catalogue of Water Beetles of the Czech Republic (BOUKAL *et al.* 2007). The first paper, centring upon on the water beetles inhabiting the stillwater habitats of the area, was published by TRÁVNÍČEK (2010a). The present study summarizes current knowledge and is based on this paper, as well as recent extensive surveys of running and standing waters in the Bílé Karpaty PLA, complemented by previously unpublished data extracted from personal and museum collections.

### Material and methods

Most of the data in the paper are based on surveys carried out in the Bílé Karpaty PLA between 1994 and 2010. While D. Trávníček sampled largely standing-water habitats, such as slope spring areas, pools in wet meadows, ponds, pools/lakes in abandoned quarries and clay plants or sand pits, P. Komzák, M. Straka and S. Větríček inspected flowing waters in the area. Standard collecting methods, as described in BOUKAL *et al.* (2007), were employed. Finally, data provided by other entomologists active in the area were also added.

Many records by P. Komzák, M. Straka and S. Větríček were obtained as part of a standard monitoring programme in which a three-minute multihabitat sample is taken and fixed with formaldehyde and then processed in the lab (KOKEŠ & NĚMEJCOVÁ 2006). Unfortunately, the samples from this monitoring are stored for only a limited period of time or immediately discarded, and voucher specimens are usually not available. These records are abbreviated as NC below. All other specimens are deposited in the following collections, abbreviated as:

EEZC	.....	Eduard Ezer collection, Zlín
JSBC	.....	Jan Sychra collection, Brno
JSPC	.....	Jan Schneider collection, Prague
JSOC	.....	Jiří Stanovský collection, Ostrava
JVOC	.....	Jiří Vávra collection, Ostrava
KRSC	.....	Květoslav Rešl collection, Šumice
LKOC	.....	Luboš Koloničný collection, Ostrava
MJMZ	.....	Museum of South-eastern Moravia, Zlín (Dušan Trávníček collection)
MHBC	.....	Michal Horsák collection, Brno
MSHC	.....	Michal Straka collection, Hustopeče
NMPC	.....	National Museum, Prague (Jiří Hájek collection)
OKZC	.....	Ondřej Konvička collection, Zlín
PKBC	.....	Petr Komzák collection, Brno
TSHK	.....	Tomáš Staněk collection, Hradec Králové
TSOC	.....	Tomáš Sitek collection, Ostrava

The following additional abbreviations are also used in the text: NM – Nature Monument, NNR – National Nature Reserve, NR – Nature Reserve, PLA – Protected Landscape Area (all of these are the various categories and terms specified by the Czech system of legally protected natural areas); CR – critically endangered, EN – endangered, VU – vulnerable, NT – near-threatened (all are specified categories defined in the Red List of threatened invertebrates of the Czech Republic, *cf.* FARKAČ *et al.* 2005, updated by BOUKAL *et al.* 2007); spec. – specimen(s) without an indication of sex.

The system, nomenclature and the classification into conservation categories used in this paper follow BOUKAL *et al.* (2007).

### List of collecting sites

The records come from the 114 localities listed below. Each entry in the list of localities is arranged as follows: number of locality, name of the nearest village/town, local name of the collecting site or name of a small-scale protected area (reserve) if appropriate, code (in parentheses) of the respective field in the faunistic and floristic grid mapping system of central Europe (EHRENDORFER & HAMANN 1965, PRUNER & MÍKA 1996, each basic field divided into 16 subfields, *cf.* KONVIČKA *et al.* 2011), GPS coordinates, altitude, and habitat (if this is not evident from the name of the site itself). Some locality labels of collection specimens did not contain all this data, typically GPS coordinates; certain entries are therefore limited to the name of the corresponding village/town and a basic grid map field. In some cases, a specification of the collecting method is mentioned at the end of the entry.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

1. Petrůvka, pond on Petrůvka stream (6872d4), 49°07'01"N 17°48'55"E, 360 m a.s.l.
2. Petrůvka, Kladenka springs (6872d4), 49°06'11"N 17°49'17"E, 460 m a.s.l.
3. Slavičín, Lukšinka stream (6873c3), 49°06'19"N 17°52'17"E, 380 m a.s.l.
4. Nevšová (6873c3), abandoned swimming pool in village.
5. Vrbětice, Václavský potok stream (6873d3), 49°06'17"N 17°56'12"E, 340 m a.s.l.
6. Valašské Klobouky, Javorůvky NR (6874c1), spring fen.
7. Valašské Klobouky, nameless stream 600 m NW from Vrchy (6874c3), 49°07'27"N 18°02'05"E.
8. Brumov-Bylnice, Hložecký potok stream (6874c3), 49°06'07"N 18°00'02"E, 380 m a.s.l.
9. Brumov-Bylnice, Kloboucký potok stream (6874c3), 49°06'11"N 18°01'37"E, 338 m a.s.l.
10. Nedašova Lhota, Paseky (6874d1), 49°07'45"N 18°05'59"E, 550 m a.s.l.; sifting of dry cow excrements.
11. Nezdenice (6972).
12. Šumice (6972).
13. Rudice (6972a4).
14. Kladná-Žilín (6972b4), 49°04'49"N 17°48'01"E, 340 m a.s.l.; pond near forest edge.
15. Záhorovice, Kladenka stream (6972d1), 49°01'53"N 17°45'48"E, 245 m a.s.l.
16. Bojkovice, Koménka stream (6972d2), 49°01'52"N 17°48'20"E, 275 m a.s.l.
17. Nezdenice (6972d3), 49°00'35"N 17°45'20"E, 300 m a.s.l.; lake in quarry and its outflow.
18. Bojkovice, Koménka stream (6972d4), 49°01'11"N 17°48'03"E, 300 m a.s.l.
19. Slavičín (6973a1), 49°05'32"N 17°52'06"E, 370 m a.s.l.; pool in abandoned brick plant.
20. Slavičín (6973a1).
21. Pitín, Kolelač stream (6973a3), 49°03'27"N 17°51'41"E, 335 m a.s.l.
22. Vrbětice (6973b1), 49°06'02"N 17°56'18"E, 370 m a.s.l.; recently created pools.
23. Rokytice (6973b3), 49°03'49"N 17°55'15"E, 360 m a.s.l.; small neglected garden pool.
24. Rokytice, right tributary of Rokytěnka stream (6973b3), 49°03'25"N 17°55'18"E, 370 m a.s.l.
25. Štítná nad Vláří, Zelenský potok stream (6973b4), 49°03'14"N 17°58'23"E, 380 m a.s.l.
26. Popov, Zelenský potok stream (6973b4), 49°04'03"N 17°58'48"E, 325 m a.s.l.
27. Štítná nad Vláří (6973b4); pond.
28. Pitín, Olšava stream (6973c1), 49°01'41"N 17°52'32"E, 390 m a.s.l.
29. Bzová (6973c3), 48°59'59"N 17°51'29"E, 560 m a.s.l.; helocrene spring in quarry.
30. Brumov-Bylnice (6974a3).
31. Sidonie, Sidonie NR (6974a4), 49°02'49"N 18°03'29"E, 640 m a.s.l.; light trapping.
32. Svatý Štěpán, Vlára stream (6974c2), 49°02'12"N 18°03'03"E, 280 m a.s.l.
33. Sidonie, Vlára stream (6974c2), 49°02'14"N 18°03'02"E, 290 m a.s.l.
34. Suchov, Kazivec stream (7071d3), 48°54'16"N 17°36'51"E, 470 m a.s.l.
35. Suchov (7071d3), 48°54'06"N 17°35'32"E, 450 m a.s.l.; periodical pool near forest edge.
36. Horní Němčí, Drahy NR (7071d4), 48°55'16"N 17°38'29"E, 450 m a.s.l.; sheep pasture.
37. Horní Němčí, Okluky stream (7071d4), 48°55'11"N 17°37'48"E, 360 m a.s.l.
38. Horní Němčí, Uvezené NM (7071d4), 48°54'33"N 17°38'48"E, 500 m a.s.l.; pool.
39. Bystřice pod Lopeníkem (7072).
40. Lopeník (7072).
41. Bánov, Ordějov reservoir (7072a4), 320 m a.s.l.
42. Komňa, Bučník quarry (7072b1), 48°58'48"N 17°47'28"E; pool.
43. Komňa, Koménka stream (7072b2), 48°59'17"N 17°47'35"E, 391 m a.s.l.
44. Komňa, Lom Rasová NM (7072b2), 48°58'34"N 17°48'43"E, 540 m a.s.l.; pool in abandoned quarry.
45. Lopeník, Nivnička stream (7072b3), 48°57'17"N 17°46'48"E, 570 m a.s.l.; spring and stream.
46. Korytná, Lubná pond (7072c1), 317 m a.s.l.
47. Březová, Hradecký járek stream (7072c2), 48°56'07"N 17°43'06"E, 630 m a.s.l.; spring.
48. Březová, Kalábová NM (7072c2), 48°56'22"N 17°44'38"E, 520 m a.s.l.; meadow spring areas with tufa formation.
49. Strání, Klanečnice stream valley (7072c3); pool.
50. Strání, Hrnčárky NM (7072c3), 48°54'31"N 17°40'36"E, 450 m a.s.l.; spring fen.
51. Lopeník, Hrubý Mechnáč (7072d2), 48°56'33"N 17°47'54"E, 700 m a.s.l.; spring fen.

52. Žitková (7073).
53. Žitková (7073a2), 49°00'02"N 17°53'23"E, 620 m a.s.l.; pond in meadow near forest.
54. Žitková, Pod Žitkovským vrchem NR (7073a2), 48°59'09"N 17°52'53"E, 590 m a.s.l.; helocrene spring.
55. Starý Hrozenkov (7073a3).
56. Starý Hrozenkov, Krátkovský potok stream (7073a3), 48°57'39"N 17°52'16"E, 360 m a.s.l.
57. Žitková, Žitkovský potok stream (7073a4), 48°58'21"N 17°54'06"E, 380 m a.s.l.
58. Starý Hrozenkov, Drietomica stream (7073a4), 48°57'19"N 17°52'37"E, 360 m a.s.l.
59. Vyškovec (7073c1).
60. Petrov, Radějovka stream (7169b1), 48°52'43"N 17°16'47"E, 175 m a.s.l.
61. Sudoměřice, Sudoměřický potok stream (7169b3), 48°51'33"N 17°16'49"E, 205 m a.s.l.
62. Sudoměřice, Sudoměřický potok stream (7169b3), 48°51'39"N 17°15'52"E, 190 m a.s.l.
63. Sudoměřice, Sudoměřický potok stream valley (7169b3), 48°51'45"N 17°16'25"E, 200 m a.s.l.; pools.
64. Strážnice, Radějovka stream (7169b4), 48°52'46"N 17°19'12"E, 200 m a.s.l.
65. Radějov, Mandát stream (7169d2), 48°50'39"N 17°19'36"E, 260 m a.s.l.
66. Radějov, Sudoměřický potok stream (7169d2), 48°50'41"N 17°18'53"E, 252 m a.s.l.
67. Radějov, Mlýny reservoir (7169d2), 236 m a.s.l.
68. Radějov (7170); reservoir.
69. Tvarožná Lhota, Újezdský potok stream (7170a1), 48°52'43"N 17°22'02"E, 190 m a.s.l.
70. Kněždub, Kejda pond (7170a4), 48°52'41"N 17°24'35"E, 320 m a.s.l.
71. Tvarožná Lhota, Járkovec stream (7170a4), 48°51'41"N 17°23'52"E, 300 m a.s.l.
72. Tvarožná Lhota, Lučina (7170a4); 48°51'45"N 17°23'43"E, 240 m a.s.l.; pool near a reservoir.
73. Lipov, Kuželovský potok stream (7170b1), 48°53'53"N 17°26'18"E, 210 m a.s.l.
74. Hroznová Lhota, Velička stream (7170b1), 48°53'51"N 17°25'09"E, 195 m a.s.l.
75. Kněždub, Čertoryje NNR – Radějovka stream valley (7170b3), pools.
76. Hrubá Vrbka (7170b4).
77. Hrubá Vrbka, (7170b4), 48°52'17"N 17°28'45"E, 270 m a.s.l.; light trapping.
78. Radějov, Kútky NR (7170c1), 48°49'54"N 17°22'59"E, 380 m a.s.l.; helocrene spring.
79. Radějov, Kútky NR (7170c1), 48°49'44"N 17°23'14"E, 370 m a.s.l.; pond near forest edge.
80. Velká nad Veličkou, Zahrady pod Hájem NNR (7171a1), 48°53'05"N 17°31'54"E, 320 m a.s.l.; helocrene spring.
81. Velká nad Veličkou, right tributary of Velička stream (7171a1), 48°53'28"N 17°31'49"E, 280 m a.s.l.
82. Suchov, Kazivec stream (7171a2), 48°53'58"N 17°35'02"E, 410 m a.s.l.
83. Javorník (7171a3); pools in clay plant.
84. Javorník, Velička stream (7171a3), 48°51'56"N 17°32'29"E, 323 m a.s.l.
85. Javorník-Petruchovy Mlýny, Velička stream (7171a4), 48°52'17"N 17°33'02"E, 340 m a.s.l.
86. Suchov (7171b1), 48°54'00"N 17°36'20"E, 490 m a.s.l.; pools and puddles in a slope spring fen.
87. Nová Lhota, Porážky NNR (7171b1), 453 m a.s.l.
88. Horní Němčí, Za lesem NM (7171b2), 48°54'21"N 17°39'10"E, 600 m a.s.l.; pool in meadow.
89. Horní Němčí, Bahulské jamy NM (7171b2); pools in meadow.
90. Horní Němčí, Dolnoněmčanské louky NR (7171b2); pools.
91. Javorník, Machová NR – Rybnický potok stream (7171c1), 400 m a.s.l.
92. Javorník, Hrubý potok stream (7171c2), 48°50'52"N 17°33'05"E, 370 m a.s.l.
93. Javorník, Teplica stream (7171c3), 48°49'14"N 17°30'39"E, 341 m a.s.l.
94. Strání-Květná, Javořina Mt. (7172).
95. Strání, Mechnáčky NM (7172a1), 48°53'04"N 17°42'04"E, 510 m a.s.l.; pool at upper edge of the reserve.
96. Strání, Mechnáčky NM (7172a1), 48°52'58"N 17°42'16"E, 480 m a.s.l.; large pool in central part of the reserve.
97. Strání-Květná, Svinárský potok stream (7172a1), 48°52'48"N 17°42'28"E, 400 m a.s.l.
98. Strání-Květná, Klanečnice stream (7172a2), 48°53'02"N 17°43'25"E, 350 m a.s.l.
99. Luhačovice (6872d3), 49°06'71"N 17°45'20"E, 248 m a.s.l.; sifting of warp.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

100. Valašské Klobouky (6874c1), 49°08'17"N 18°01'13"E, 430 m a.s.l.; pond.
101. Valašské Klobouky, Javorůvky NR (6874c1), 49°08'03"N 18°01'57"E, 550 m a.s.l.
102. Valašské Klobouky (6874c1), 49°07'46"N 18°01'04"E, 450 m a.s.l.; pools in a meadow.
103. Valašské Klobouky, Bílé potoky NR (6874c3), 49°06'47"N 18°01'24"E, 420 m a.s.l.; calcareous fen.
104. Nedašov, Kaňoury NM (6874d3), 49°06'41"N 18°06'27"E, 640 m a.s.l.; cow excrements.
105. Popov, Vlára stream, (6973b2), 319 m a.s.l.
106. Nedašov, Pod Cigánem NM (6974b1), 580 m a.s.l.; pasture.
107. Lipov (7070d4), 48°54'36"N 17°28'32"E, 239 m a.s.l.
108. Horní Němčí (7071d2); reservoir.
109. Strání, Straňanská nádrž reservoir (7072c3), 448 m a.s.l.
110. Lopeník, Mechnáč (7072d1), 48°56'54"N 17°46'39"E, 544 m a.s.l.; pond.
111. Kněždub, Čertoryje NNR (7170b3).
112. Tvarožná Lhota (7170d1); sheep excrements.
113. Javorník, Velička stream (7171a3), 48°51'56"N 17°32'29"E, 323 m a.s.l.
114. Javorník, Machová NR (7171c1).

### Annotated list of species

All the material examined for each species is listed; individual records are ordered according to the number of the collecting site. Each record is arranged as follows: name of the collecting site and its number (in parentheses), date(s) of collection(s), number of specimens, person who collected and identified the material, and place of deposition of the material (in parentheses). Published data are cited in a shortened form including the name of the collecting site and its number (in parentheses); additional information may be found in the original papers.

### Family GYRINIDAE

#### *Gyrinus distinctus* Aubé, 1838

(EN)

**Published record.** TRÁVNÍČEK (2010a): Suchov, Kazivec stream (82).

**Additional material examined.** Tvarožná Lhota, Járkovec stream (71), 25.ix.2010, 2 spec., M. Straka lgt. & det. (MSHC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at two sites in the southern part of the area. **General distribution:** Palaearctic. **Habitat preferences:** Potamal. **Red List status:** EN.

**Comments.** Rare in the Czech Republic and recently known from only a few localities in southern and south-eastern Moravia (BOUKAL *et al.* 2007).

#### *Gyrinus substriatus* Stephens, 1828

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Additional material examined.** Brumov-Bylnice, Hložecký potok stream (8), 8.x.2008, 1 spec., 1 ♀, M. Straka lgt. & det. (NC). Šumice (12), vii.2003, 1 ♂ 3 ♀♀, K. Resl lgt., J. Hájek det. (KRSC). Radějov (68), 11.vii.1998, 1 ♂ 2 ♀♀, P. Kment lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Járkovec stream (71), 8.ix.2000, 1 ♀, P. Kment & I. Malenovský lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina (72), 14.vii.1998, 2 ♀♀, P. Kment lgt., J. Hájek det. (NMPC); 30.viii.2005, 2 ♀♀, M. Horsák lgt., J. Hájek det. (MHBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Distributed throughout the area, common. **General distribution:** Western Palearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Orectochilus villosus* (O. F. Müller, 1776)**

**Material examined.** Brumov-Bylnice, Kloboucký potok stream (9), 11.iv.2008, 4 larvae, P. Komzák lgt. & det. (NC). Bojkovice, Koménka stream (16), 24.ix.2009, 5 larvae, P. Komzák lgt. & det. (NC). Kolelač stream (21), 8.x.2008, 2 larvae, P. Komzák lgt. & det. (NC). Svatý Štěpán, Vlára stream (32), 1.x.2007, 7 larvae, M. Straka lgt. & det. (NC). Sidonie, Vlára stream (33), 24.ix.2009, 11 larvae, P. Komzák lgt. & det. (NC). Starý Hrozenkov, Krátkovský potok stream (56), 5.x.2009, 2 spec., 2 larvae, P. Komzák lgt. & det. (NC). Žitková, Žitkovský potok stream (57), 5.x.2009, 4 larvae, P. Komzák lgt. & det. (NC). Sudoměřice, Sudoměřický potok stream (62), 5.v.2009, 1 larva, S. Větríček lgt. & det. (NC). Javorník, Velička stream (84), 18.x.2008, 4 larvae, P. Komzák lgt. & det. (NC). Javorník, Teplica stream (93), 19.ix.2006, 4 larvae, P. Komzák lgt. & det. (NC). Strání-Květná, Klanečnice stream (98), 6.x.2009, 8 larvae, P. Komzák lgt. & det. (NC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area. **General distribution:** Palearctic. **Habitat preferences:** Potamal. **Red List status:** –.

**Comments.** A species with nocturnal activity that hides under stones, in the vegetation or accumulated debris during the day (BOUKAL *et al.* 2007).

**Family HALIPLIDAE**

***Haliplus flavicollis* Sturm, 1834**

**Published record.** TRÁVNÍČEK (2010a): Slavičín (19).

**Additional material examined.** Nevšová (4), 6.viii.1999, 2 spec., P. Kment lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina (72), 13.v.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded only in three localities. **General distribution:** Euro-Siberian. **Habitat preferences:** Euryecious. **Red List status:** –.

***Haliplus heydeni* Wehncke, 1875**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (78); Radějov, Kútky NR (79); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (96).

**Additional material examined.** Valašské Klobouky (100), 22.v.1999, 1 ♀, P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** The most common species of the family in the Czech Republic and also in the Bílé Karpaty PLA. It occurs throughout the area in all types of standing water bodies. **General distribution:** Euro-Siberian. **Habitat preferences:** Euryecious. **Red List status:** –.

***Haliplus immaculatus* Gerhardt, 1877**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22).

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at two sites in the north of the area. **General distribution:** Euro-Siberian. **Habitat preferences:** Euryecious, detritophilous. **Red List status:** –.

*Haliplus laminatus* (Schaller, 1783)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Žitková (53); Kněždub, Kejda pond (70). **Additional material examined.** Tvarožná Lhota, Lučina (72), 30.viii.2005, 1 spec., J. Sychra lgt. et det. (JSBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, with localities scattered across the area. **General distribution:** European. **Habitat preferences:** Euryecious. **Red List status:** –.

*Haliplus lineatocollis* (Marsham, 1802)

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Strání, Mechnáčky NM (96).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only two sites, but probably more common. **General distribution:** Western Palearctic. **Habitat preferences:** Potamal, detritophilous. **Red List status:** –.

*Haliplus obliquus* (Fabricius, 1787)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Žitková (53); Radějov, Kútky NR (78); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Horní Němčí, Uvezené NM (38), 14.viii.2003, 1 spec., D. Trávníček lgt. & det. (MJMZ). Strání, Mechnáčky NM (95), 28.vi.2007, 1 spec., O. Konvička lgt., M. Boukal det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered records across the area, common in suitable habitats. **General distribution:** Western Palearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

Family NOTERIDAE

*Noterus clavicornis* (De Geer, 1774)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Komňa, Lom Rasová NM (44), 9.v.2008, 2 spec., P. Komzák lgt., M. Straka det. (PKBC). Radějov, Mlýnky reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area. **General distribution:** Western Palearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Noterus crassicornis* (O. F. Müller, 1776)**

**Published records.** TRÁVNÍČEK (2010a): Vrbětice (22); Komňa, Lom Rasová NM (44); Strání, Mechnáčky NM (95).

**Additional material examined.** Radějov, Mlýnky reservoir (67), 25.viii.1999, 2 spec., M. Fikáček lgt. & det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered across the area. **General distribution:** Euro-Siberian. **Habitat preferences:** Acidophilous. **Red List status:** –.

**Comments.** *Noterus crassicornis* is less common than *N. clavicornis* in the Bílé Karpaty Mts., although in most of other regions of the Czech Republic it is quite the reverse.

**Family DYTISCIDAE**

***Acilius canaliculatus* (Nicolai, 1822)**

**Material examined.** Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 ♂, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from a single record. **General distribution:** Northern Palaearctic. **Habitat preferences:** Acidophilous. **Red List status:** –.

***Acilius sulcatus* (Linnaeus, 1758)**

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Additional material examined.** Bystřice pod Lopeníkem (39), 15.viii.2008, 1 ♀, K. Resl lgt., J. Hájek det. (KRSC). Žitková (52), 22.vi.2007, 1 ♂, J. Schneider lgt., J. Hájek det. (JSPC). Radějov (68), 11.vii.1998, 1 ♂, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Uncommon; confined to larger standing water bodies which are rare in the area. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Agabus biguttatus* (Olivier, 1795)**

**Material examined.** Petrůvka, Kladenska springs (2), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Lopeník (40), 11.vii.1970, 1 spec., S. Krause lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 30.vii.1983, 1 ♂, K. Resl lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Quite a rare species, known from a few isolated records. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Agabus bipustulatus* (Linnaeus, 1767)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Suchov, Kazivec stream (34); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

**Additional material examined.** Nezdenice (11), 24.iv.1969, 1 ♀, S. Krause lgt., J. Hájek det. (NMPC). Šumice (12), 16.vi.2002, 1 ♂, K. Resl lgt., J. Hájek det. (KRSC). Kněždub, Čertoryje NNR (75), 17.iv.2000, 1 ♀, 18.vi.2000, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Nová Lhota, Porážky NNR (87), 24.viii.1999, 3 spec., M. Fikáček lgt., J. Hájek det. (NMPC). Horní Němčí, Za lesem NM (88), 11.ix.2008, 20 spec., J. Stanovský lgt., J. Hájek det. (JSOC). Strání-Květná, Javořina (94), 17.vii.1985, 1 ♀, K. Resl lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** One of the most common dytiscid beetles in the Czech Republic including the Bílé Karpaty PLA. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

#### *Agabus guttatus guttatus* (Paykull, 1798)

**Published records.** TRÁVNÍČEK (2010a): Suchov, Kazivec stream (35); Žitková, Pod Žitkovským vrchem NR (54); Suchov, Kazivec stream (82).

**Additional material examined.** Bzová (29), 11.vi.2004, 1 ♂ 2 ♀♀, D. Trávníček lgt. & det. (MJMZ). Horní Němčí, Okluky stream (37), 4.x.2006, 1 spec., M. Straka lgt. & det. (MSHC). Bánov, Ordějov reservoir (41), v.1987, 1 ♀, K. Resl lgt., J. Hájek det. (NMPC). Lopeník, Nivnička stream (45), 15.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Březová, Hradecký járek stream (47), 15.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Strání, Hrnčárky NM (50), 2.ix.2005, 1 spec., J. Sychra lgt. & det. (JSBC). Javorník, Machová NR (91), 14.v.1998, 2 ♂♂, P. Kment lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 17.vii.1985, 1 ♀ (NMPC); vi.1998, 1 ♂ (KRSC); both K. Resl lgt., J. Hájek det.

**Distribution and frequency in the Bílé Karpaty PLA:** Occurring throughout the area, common in suitable habitats. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious, preferring flowing water such as small streams and spring areas. **Red List status:** –.

#### *Agabus melanarius* Aubé, 1837

**Published records.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44); Březová, Kalábová NM (48); Žitková, Pod Žitkovským vrchem NR (54).

**Additional material examined.** Válašské Klobouky, Javorůvky NR (6), 28.ii.2008, 1 ♂, O. Konvička lgt., D. Trávníček det. (OKZC). Bzová (29), 11.vi.2004, 2 ♂♂ 1 ♀, D. Trávníček lgt. & det. (MJMZ). Komňa, Bučnick quarry (42), 16.v.2007, 1 ♀, D. Trávníček lgt. & det. (MJMZ). Nová Lhota, Porážky NNR (87), 24.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 26.iv.1998, 1 spec., K. Resl lgt., J. Hájek det. (KRSC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded from throughout the area, common. **General distribution:** Central and northern Europe. **Habitat preferences:** Acidophilous. **Red List status:** –.

#### *Agabus sturmi* (Gyllenhal, 1808)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from only two localities in the north; less common than in most other regions of the Czech Republic. **General distribution:** Palaearctic. **Habitat preferences:** Acidophilous. **Red List status:** –.

**Comments.** Continuing sampling effort may bring more records from the area.

***Colymbetes fuscus* (Linnaeus, 1758)**

**Material examined.** Lopeník, Mechnáč (110), 30.viii.2006, 1 spec., J. Sychra lgt. et det. (MHBC).

**Distribution and frequency in the Bílé Karpaty PLA:** The only available record is from the central part of the area. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Deronectes latus* (Stephens, 1829)**

**(VU)**

**Material examined.** Slavičín, Lukšinka stream (3), 4.ix.2010, 3 spec., M. Straka lgt. & det. (MSHC). Záhorovice, Kladenka stream (15), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Sudoměřice, Sudoměřický potok stream (61), 25.viii.2009, 2 spec., M. Straka lgt. & det. (MSHC). Radějov, Mandát stream (65), 25.ix.2010, 3 spec., M. Straka lgt. & det. (MSHC). Radějov, Sudoměřický potok stream (66), 17.x.2007, 1 spec., M. Straka lgt. & det. (NC).

**Distribution and frequency in the Bílé Karpaty PLA:** Quite a rare species occurring locally. **General distribution:** Europe, except for the Iberian and Apennine Peninsulas. **Habitat preferences:** Potamal, rhitral. **Red List status:** VU.

***Dytiscus circumflexus* Fabricius, 1801**

**(VU)**

**Material examined.** Tvarožná Lhota, Lučina (72), 30.viii.2005, 1 spec., 1 ♀, J. Sychra lgt. & det. (JSBC).

**Distribution and frequency in the Bílé Karpaty PLA:** The only available record was made in the south of the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Silicophilous. **Red List status:** VU.

**Comments.** Currently, the species is generally rare in the Czech Republic. It was found more frequently only in Sokolov and Znojmo environs and the Třeboňsko region (BOUKAL *et al.* 2007).

***Dytiscus marginalis marginalis* Linnaeus, 1758**

**Material examined.** Komňa, Lom Rasová NM (44); 20.iv.2008, 7 ♂♂ 2 ♀♀, K. Resl lgt., J. Hájek det. (KRSC). Tvarožná Lhota, Újezdský potok stream (69), 19.ix.1997, 1 ♂, M. Horsák lgt., P. Kment det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded from only two localities; nevertheless, it may be common in the area similarly to elsewhere in the Czech Republic. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Graphoderus austriacus* (Sturm, 1834)**

**Material examined.** Radějov, Mlýnky reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, found at only one locality in the southern part of the area. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

***Graphoderus cinereus* (Linnaeus, 1758)**

**Published records.** TRÁVNÍČEK (2010a): Kněždub, Kejda pond (70); Komňa, Lom Rasová NM (44); Strání, Mechnáčky NM (95).

**Distribution and frequency in the Bílé Karpaty PLA:** Quite a rare species, known from three isolated localities. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, preferring larger water bodies with dense vegetation. **Red List status:** –.

***Graptodytes bilineatus* (Sturm, 1835) (NT)**

**Published records.** TRÁVNÍČEK (2010a): Suchov, periodical pool near forest edge (35); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (96).

**Additional material examined.** Horní Němčí, Za lesem NM (88), 29.v.2008, 11 spec. J. Stanovský lgt., J. Hájek det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** All records are situated in the central part of the area where it is common in suitable habitats. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** NT.

***Graptodytes pictus* (Fabricius, 1787)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Strání, Mechnáčky NM (96).

**Additional material examined.** Radějov, Mlýnky reservoir (67), 25.viii.1999, 2 spec., M. Fikáček lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Quite common, known from several records scattered throughout the area. **General distribution:** Central and northern Europe. **Habitat preferences:** Euryecious. **Red List status:** –.

***Hydroglyphus geminus* (Fabricius, 1781)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Nevšová (4), 6.viii.1999, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Šumice (12), 19.vii.1999, 1 spec, K. Resl lgt., J. Hájek det. (KRSC). Korytná, Lubná pond (46), 5.vii.2001, 3 spec., P. Kment lgt., J. Hájek det. (NMPC). Kněždub, Kejda pond (70), 14.vii.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina (72), 14.vii.1998, 4 spec., P. Kment lgt., J. Hájek det. (NMPC). Hroznová Lhota, Velička stream (74), 25.ix.2010, 1 spec., M. Straka lgt. & det. (MSHC). Kněždub, Čertoryje NNR (75), 28.vi.2008, 2 spec., T. Sitek lgt., J. Hájek det. (TSOC). Nová Lhota, Porážky NNR (87), 24.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Very common throughout the area. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

### *Hydroporus angustatus* Sturm, 1835

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63).

**Additional material examined.** Šumice (12), 21.vii.2003, 1 spec., K. Resl lgt., J. Hájek det. (KRSC). Radějov, Mlýnský reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Uncommon, scattered in the southern part of the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Acidophilous. **Red List status:** –.

### *Hydroporus discretus discretus* Fairmaire et Brisout, 1859

**Published records.** TRÁVNÍČEK (2010a): Žitková, Pod Žitkovským vrchem NR (54); Velká nad Veličkou, Zahrady pod Hájem NNR (80).

**Additional material examined.** Kladná-Žilín (14), 19.iv.1994, 1 ♀, D. Trávníček lgt. & det. (MJMZ). Tvarožná Lhota, Lučina, (72), 26.viii.1999, 5 spec., M. Fikáček lgt. & det. (NMPC). Kněždub, Čertoryje NNR (75), 18.vi.2000, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Javorník, pools in clay plant (83), 8.vi.2008, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Javorník, Machová NR (91), 14.v.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 26.iv.1998, 1 spec., K. Resl lgt., J. Hájek det. (KRSC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common, occurring throughout the area. **General distribution:** Europe. **Habitat preferences:** Euryecious. **Red List status:** –.

**Comments.** Slope springs typical for the Western Carpathian region provide suitable habitats to the species.

### *Hydroporus ferrugineus* Stephens, 1828

**Published record.** TRÁVNÍČEK (2010a): Březová, Kalábová NM (48).

**Additional material examined.** Petrůvka, Kladenka springs (2), 8.v.2010, 3 spec., M. Straka lgt. & det. (MSHC). Bzová (29), 11.vi.2004, 1 spec., D. Trávníček lgt. & det. (MJMZ). Strání, Hrnčárky NM (50), 2.ix.2005, 5 spec., J. Sychra lgt. & det. (JSBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Occurring scattered across the area, locally common. **General distribution:** Central Europe. **Habitat preferences:** Acidophilous, crenophilous. **Red List status:** –.

**Comments.** Quite a numerous population was recorded in the meadow spring with tufa formation in the Kalábová NM near Březová.

### *Hydroporus incognitus* Sharp, 1869

**Material examined.** Starý Hrozenkov (55), 28.iv.2001, 1 ♀, T. Staněk lgt., J. Hájek det. (TSHK).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from only one locality in the area; as the species is quite common throughout the Czech Republic, other records may be anticipated with continuing sampling effort. **General distribution:** Central and northern Europe. **Habitat preferences:** Euryecious. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

### *Hydroporus memnonius* Nicolai, 1822

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Radějov, Kútky NR (78, 79); Horní Němčí, Za lesem NM (88).

**Additional material examined.** Strání, Hrnčárky NM (50), 2.ix.2005, 1 spec., J. Sychra lgt., J. Hájek det. (JSBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered across the area, common in suitable habitats. **General distribution:** Western Palaearctic. **Habitat preferences:** Acidophilous, potamal. **Red List status:** –.

### *Hydroporus palustris* (Linnaeus, 1761)

**Material examined.** Kněždub, Čertoryje NNR (75), 17.iv.2000, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Horní Němčí, Za lesem NM (88), 29.v.2008, 11 spec., J. Stanovský lgt., J. Hájek det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded from only two localities, although it is generally very common in the Czech Republic. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

### *Hydroporus planus* (Fabricius, 1781)

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Březová, Kalábová NM (48); Radějov, Kútky NR (78); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Šumice (12), 28.iv.1999, 1 spec., K. Resl lgt., J. Hájek det. (KRSC); Rudice (13), 14.vi.2005, 3 spec., K. Resl lgt., J. Hájek det. (KRSC). Strání, Klanečnice stream valley (49), 10.vii.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Kněždub, Čertoryje NNR (75), 17.iv.2000, 2 spec.; 18.vi.2000, 5 spec. P. Kment lgt., J. Hájek det. (NMPC). Javorník (83), 8.vi.2008, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Nová Lhota, Porážky NNR (87), 24.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC). Horní Němčí, Za lesem NM (88), 29.v.2008, 1 spec., J. Stanovský lgt., J. Hájek det. (LKOC). Javorník, Machová NR (91), 14.v.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 15.v.1971, 1 spec., S. Krause lgt., J. Hájek det. (NMPC); 26.iv.1998, 1 spec., K. Resl lgt., J. Hájek det. (KRSC).

**Distribution and frequency in the Bílé Karpaty PLA:** One of the most common diving beetles in the area, as well as in other regions of the Czech Republic. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

### *Hydroporus pubescens* (Gyllenhal, 1808)

**Published record.** TRÁVNÍČEK (2010a): Žitková, Pod Žitkovským vrchem NR (54).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded from only one site. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

**Comments.** A recent occurrence of the species in Moravia has been confirmed by TRÁVNÍČEK (2010a,b).

***Hydroporus striola* (Gyllenhal, 1826)**

**Material examined.** Šumice (12), 26.vi.2006, 1 spec., K. Resl lgt., J. Hájek det. (KRSC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from only one locality; additional records may be awaited with continuing sampling effort. **General distribution:** Holarctic. **Habitat preferences:** Acidophilous, detritophilous. **Red List status:** –.

***Hydroporus tristis* (Paykull, 1798)**

**Published record.** TRÁVNÍČEK (2010a): Horní Němčí, Za lesem NM (88).

**Additional material examined.** Kněždub, Kejda pond (70), 14.vii.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Horní Němčí, Za lesem NM (88), 29.v.2008, 1 spec., J. Stanovský lgt., J. Hájek det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded from only two localities. **General distribution:** Holarctic. **Habitat preferences:** Acidophilous. **Red List status:** –.

***Hydrovatus cuspidatus* (Kunze, 1818) (EN)**

**Published record.** TRÁVNÍČEK (2010a): Strání, Mechnáčky NM (96).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, found at only one site. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** EN.

***Hygrotus decoratus* (Gyllenhal, 1810)**

**Published record.** TRÁVNÍČEK (2010a): Horní Němčí, Za lesem NM (88).

**Additional material examined.** Horní Němčí, Za lesem NM (88), 29.v.2008, 1 spec., J. Stanovský lgt., J. Hájek det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, found at only one site. **General distribution:** Western Palaearctic. **Habitat preferences:** Acidophilous. **Red List status:** –.

***Hygrotus impressopunctatus* (Schaller, 1783)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95).

**Additional material examined.** Šumice (12), 21.vii.1998, 2 spec., K. Resl lgt., J. Hájek det. (KRSC). Sidonie, Sidonie NR, light trapping (31), 1 spec., 22.vi.2008, O. Konvička lgt., D. Trávníček det. (OKZC). Korytná, Lubná pond (46), 5.vii.2001, 1 ♂, P. Kment lgt., J. Hájek det. (NMPC). Strání-Květná, Javořina (94), 26.iv.1998, 1 spec., K. Resl lgt., J. Hájek det. (KRSC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area, common. **General distribution:** Holarctic. **Habitat preferences:** Euryecious. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

***Hygrotus inaequalis* (Fabricius, 1777)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Komňa, Lom Rasová NM (44).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only two sites; as the species is fairly common throughout the Czech Republic, other records from the area may be anticipated. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Hygrotus nigrolineatus* (Steven, 1808) (VU)**

**Material examined.** Radějov, Mlýnský reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt. & det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at only one site. **General distribution:** Palaearctic. **Habitat preferences:** Silicophilous. **Red List status:** VU.

***Hygrotus parallelogrammus* (Ahrens, 1812) (CR)**

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at only one site. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** CR.

**Comments.** Recent records in the Czech Republic come from a few sites in southern Moravia (BOUKAL *et al.* 2007).

***Hyphydrus ovatus* (Linnaeus, 1761)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Strání, Mechnáčky NM (96).

**Additional material examined.** Slavičín (20), 25.v.2006, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at four sites; as it is very common throughout the Czech Republic, more records may be anticipated. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Ilybius chalconatus* (Panzer, 1797)**

**Published records.** TRÁVNÍČEK (2010a): Velká nad Veličkou, right tributary of Velička stream (81).

**Additional material examined.** Tvarožná Lhota, Járkovec stream (71), 14.vii.1998, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Kněždub, Čertoryje NNR (75), 18.vi.2000, 1 ♂ 4 ♀♀, P. Kment lgt., J. Hájek det. (NMPC). Javorník (83), 1.vi.2008, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Javorník, Machová NR (91), 14.v.1998, 1 ♂ 1 ♀, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** All records come from the southern part of the area, locally common. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Ilybius fenestratus* (Fabricius, 1781)**

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Additional material examined.** Kněždub, Čertoryje NNR (75), 18.vi.2000, 1 ♂, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at two sites in the southern part of the area. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Ilybius fuliginosus fuliginosus* (Fabricius, 1792)**

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Radějov, Kútky NR (79).

**Additional material examined.** Šumice (12), 26.vi.2006, 1 ♀, K. Resl lgt., J. Hájek det. (KRSC). Korytná, Lubná pond (46), 5.vii.2001, 1 ♂ 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Strání, Klanečnice stream valley (49), 10.vii.1998, 1 ♂ 2 ♀♀, P. Kment lgt., J. Hájek det. (NMPC). Výškovec (59), vi.1986, 1 ♀, F. Kopeček lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 ♂, P. Kment lgt., J. Hájek det. (NMPC). Hrubá Vrbka (76), 25.vi.2010, 1 ♂, J. Schneider lgt., J. Hájek det. (JSPC). Javorník, Machová NR (91), 14.v.1998, 1 ♀, M. Horsák lgt. & det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from records scattered throughout the area, quite common in suitable habitats. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Ilybius quadriguttatus* (Lacordaire, 1835)**

**Material examined.** Šumice (12), 19.vii.1998, 1 ♂, K. Resl lgt., J. Hájek det. (KRSC). Hrubá Vrbka, light trapping (77), 8.vii.2007, 1 ♂, O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from only two records. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

**Comments.** The species prefers larger water bodies (BOUKAL *et al.* 2007). For this reason, it is rare in the Bílé Karpaty PLA which is poor in such habitats.

***Ilybius subaeneus* Erichson, 1837**

**Material examined.** Strání, Klanečnice stream valley (49), 16.v.1998, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one site. **General distribution:** Holarctic. **Habitat preferences:** Euryecious. **Red List status:** –.

**Comments.** Generally a common diving beetle in the Czech Republic; its rarity in the Bílé Karpaty PLA may be explained by the absence of larger water bodies which it prefers.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

### *Laccophilus hyalinus* (De Geer, 1774)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Šumice (12), 21.vii.1999, 1 spec., K. Resl lgt., J. Hájek det. (KRSC). Slavičín (20), 25.v.2006, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Korytná, Lubná pond (46), 5.vii.2001, 3 spec., P. Kment lgt., J. Hájek det. (NMPC). Kněždub, Kejda pond (70), 14.vii.1998, 1 spec., P. Kment lgt., J. Hájek det. (NMPC). Kněždub, Čertoryje NNR (75), 18.vi.2000, 1 spec., P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common, found throughout the area. **General distribution:** Palaearctic. **Habitat preferences:** Potamal. **Red List status:** –.

### *Laccophilus minutus* (Linnaeus, 1758)

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Nevšová (4), 6.viii.1999, 7 spec., P. Kment lgt., J. Hájek det. (NMPC). Šumice (12), 18.viii.2004, 1 spec., K. Resl lgt., J. Hájek det. (KRSC). Radějov, Mlýnský reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina (72), 14.vii.1998, 9 spec., P. Kment lgt., J. Hájek det. (NMPC). Hroznová Lhota, Velička stream (74), 25.ix.2010, 1 spec., M. Straka lgt. & det. (MSHC). Kněždub, Čertoryje NNR (75), 18.vi.2000, 1 spec., P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common, found throughout the area. **General distribution:** Palaearctic, Oriental. **Habitat preferences:** Euryecious. **Red List status:** –.

### *Laccophilus poecilus* Klug, 1834

(VU)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Sudoměřice, Sudoměřický potok stream valley (63).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at only two localities. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, preferring shallow water bodies with dense vegetation and warm water, such as old inundated sand- and clay-pits. **Red List status:** VU.

### *Platambus maculatus* (Linnaeus, 1758)

**Published records.** TRÁVNÍČEK (2010a): Vrbětice (22); Suchov, Kazivec stream (34); Radějov, Kútky NR (79); Suchov, Kazivec stream (82). KŘOUPALOVÁ *et al.* (2011): Valašské Klobouky, Bílé potoky NR (103).

**Additional material examined.** Petrůvka, pond on Petrůvka stream (1), 6.viii.1999, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Slavičín, Lukšinka stream (3), 4.ix.2010, 1 spec., M. Straka lgt. & det. (MSHC). Vrbětice, Václavský potok stream (5), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Brumov-Bylnice, Kloboucký potok stream (9), 9.x.2008, 12 larvae, P. Komzák lgt. & det. (NC). Záhorovice, Kladenka stream (15), 8.v.2010, 2 spec., M. Straka lgt. & det. (MSHC). Záhorovice, Kladenka stream (15), 4.v.2009, 8 spec., P. Komzák lgt. & det. (PKBC). Bojkovice, Koménka stream (16), 24.ix.2009, 20 larvae, P. Komzák lgt. & det. (NC). Pítín, Kolelač stream (21), 8.x.2008, 8 spec., P. Komzák lgt. & det. (NC). Rokytnice, right tributary of Rokytěnka stream (24), 4.ix.2010, 2 spec., M. Straka lgt. & det. (MSHC). Štítná nad Vláří, Zelenský potok stream (25),

4.ix.2010, 2 spec., M. Straka lgt. & det. (MSHC). Popov, Zelenský potok stream (26), 5.v.2009, 1 spec., S. Větríček lgt. & det. (NC). Pitín, Olšava stream (28), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Sidonie, Vlára stream (33), 28.vii.2006, 1 spec., P. Komzák lgt. & det. (PKBC). Starý Hrozenkov, Krátkovský potok stream (56), 5.x.2009, 4 spec., P. Komzák lgt. & det. (NC). Starý Hrozenkov, Drietomica stream (58), 6.x.2009, 20 larvae, P. Komzák lgt. & det. (PKBC). Petrov, Radějovka stream (60), 9.x.2008, 5 larvae, P. Komzák lgt. & det. (NC). Sudoměřice, Sudoměřický potok stream (61), 25.viii.2009, 1 spec., M. Straka lgt. & det. (MSHC). Strážnice, Radějovka stream (64), 4.vi.2009, 1 spec., M. Straka lgt. & det. (MSHC). Tvarožná Lhota, Lučina, (72), 30.viii.2005, 1 spec., M. Horsák lgt. & det. (MHBC). Kněždub, Čertoryje NNR (75), 17.iv.2000, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Javorník, Velička stream (84), 18.x.2008, 26 larvae, P. Komzák lgt. & det. (NC). Javorník, Hrubý potok stream (92), 7.x.2009, 2 larvae, P. Komzák lgt. & det. (NC). Javorník, Teplica stream (93), 19.ix.2006, 147 spec., P. Komzák lgt. & det. (NC). Strání-Květná, Klanečnice stream (98), 6.x.2009, 49 larvae, P. Komzák lgt. & det. (NC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area. **General distribution:** Euro-Siberian. **Habitat preferences:** Potamal, rhitral. **Red List status:** –.

#### *Rhantus bistriatus* (Bergsträsser, 1778)

**Material examined.** Šumice (12), 20.vii.1998, 1 ♀, K. Resl lgt., J. Hájek det. (KRSC). Brumov-Bylnice (30), 5.viii.1999, 1 spec., K. Resl lgt., J. Hájek det. (KRSC). Kněždub, Čertoryje NNR (75), 17.iv.2000, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Uncommon, found at three sites. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

#### *Rhantus frontalis* (Marshall, 1802)

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Distribution and frequency in the Bílé Karpaty PLA:** The only finding so far available comes from the southern part of the area; more records may be anticipated with a continuing sampling effort. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

#### *Rhantus suturalis* (Macleay, 1825)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63).

**Additional material examined.** Šumice (12), 19.vii.1998, 1 ♂ 1 ♀; 8.viii.1999, 1 spec.; 16.vi.2002, 1 ♀; 26.vi.2006, 2 ♂♂; 15.vii.2007, 1 ♀; all K. Resl lgt., J. Hájek det. (KRSC). Komňa, Lom Rasová NM (44), 9.v.2008, 1 spec., P. Komzák lgt., M. Straka det. (PKBC). Radějov, Mlýnky reservoir (67), 25.viii.1999, 1 spec., M. Fikáček lgt. & det. (NMPC). Tvarožná Lhota, Lučina, (72), 14.vii.1998, 1 ♀, P. Kment lgt., J. Hájek det. (NMPC). Tvarožná Lhota, Lučina, (72), 25.viii.1999, 1 spec., M. Fikáček lgt. & det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common, occurring throughout the area. **General distribution:** Palaearctic, Oriental and Australian. **Habitat preferences:** Euryecious. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

### Family HELOPHORIDAE

#### *Helophorus arvernicus* Mulsant, 1846 (NT)

**Material examined.** Popov, Vlára stream (105), 3.viii.2011, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only one site, rare.  
**General distribution:** European. **Habitat preferences:** Semiaquatic. **Red List status:** NT.

#### *Helophorus aquaticus* (Linnaeus, 1758)

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Komňa, Lom Rasová NM (44); Žitková (53); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95).

**Additional material examined.** Rokytnice (23), 3.vi.2008, 1 ♂ 2 ♀♀, O. Konvička lgt., D. Trávníček det. (OKZC). Štítná nad Vláří (27), 29.vi.2005, 1 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Komňa, Bučnick quarry (42), 16.v.2007, 1 ♂, D. Trávníček lgt. & det. (MJMZ). Horní Němčí, Bahulské jamy NM (89), 28.v.2008, 1 spec., L. Koloničný lgt., D. Trávníček det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area.  
**General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

#### *Helophorus brevipalpis* Bedel, 1881

**Published records.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44); Suchov (86); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Rokytnice (23), 3.vi.2008, 1 ♀, O. Konvička lgt., D. Trávníček det. (OKZC). Štítná nad Vláří, Zelenský potok stream (25), 29.vi.2005, 1 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Štítná nad Vláří (27), 29.vi.2005, 1 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Komňa, Bučnick quarry (42), 16.v.2007, 1 ♀, D. Trávníček lgt. & det. (MJMZ). Korytná, Lubná pond (46), 5.vii.2001, 1 spec., P. Kment & M. Horsák lgt., M. Fikáček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area, common. **General distribution:** Western Palaearctic; introduced into North America. **Habitat preferences:** Euryecious. **Red List status:** –.

#### *Helophorus dorsalis* (Marsham, 1802)

**Published records.** TRÁVNÍČEK (2010a): Nezdence (17); Komňa, Lom Rasová NM (44); Žitková, Pod Žitkovským vrchem NR (54); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Suchov (86); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Štítná nad Vláří (27), 29.vi.2005, 2 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Komňa, Bučnick quarry (42), 16.v.2007, 2 ♂♂, D. Trávníček lgt. & det. (MJMZ). Horní Němčí, Za lesem NM (88), 29.v.2008, 2 spec. J. Stanovský lgt., D. Trávníček det. (LKOC). Horní Němčí, Bahulské jamy NM (89), 1.vii.2008, 4 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Horní Němčí, Dolnoněmčanské louky NR (90), 2.vii.2008, L. Koloničný lgt., D. Trávníček det. (LKOC). Strání, Straňanská nádrž reservoir (109), 10.vii.1998, 1 spec., P. Kment lgt., D. Trávníček (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common, distributed throughout the area. **General distribution:** European. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

***Helophorus granularis* (Linnaeus, 1761)**

**Published record.** TRÁVNÍČEK (2010a): Strání, Mechnáčky NM (95).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only one locality. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

**Comments.** Apparently rare in the Bílé Karpaty PLA, although it is common elsewhere in the Czech Republic.

***Helophorus griseus* Herbst, 1793**

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Suchov (86); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Distribution and frequency in the Bílé Karpaty PLA:** Found mainly in the central and southern parts of the area; more records may be anticipated with a continuing sampling effort. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Helophorus minutus* Fabricius, 1775**

**Published record.** TRÁVNÍČEK (2010a): Strání, Mechnáčky NM (96).

**Additional material examined.** Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 spec., P. Kment lgt., D. Trávniček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only two localities. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

**Comments.** Apparently rare in the Bílé Karpaty PLA, although it is common elsewhere in the Czech Republic.

***Helophorus montenegrinus* Kuwert, 1885**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Komňa, Lom Rasová NM (44); Suchov (86); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Rokytnice (23), 3.vi.2008, 1 ♂ 1 ♀, O. Konvička lgt., D. Trávniček det. (OKZC). Štítná nad Vláří (27), 29.vi.2005, 2 spec., L. Koloničný lgt., D. Trávniček det. (LKOC). Komňa, Bučnick quarry (42), 16.v.2007, 1 ♀, D. Trávniček lgt. & det. (MJMZ). Strání, Hrnčárky NM (50), 2.vii.2008, 1 spec., L. Koloničný lgt., D. Trávniček det. (LKOC). Javorník (83), 8.vi.2008, 1 ♀, O. Konvička lgt., D. Trávniček det. (OKZC). Horní Němčí, Za lesem NM (88), 1.vii.2008, 2 spec. L. Koloničný lgt., D. Trávniček det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area. **General distribution:** Distributed from the Czech Republic across eastern Austria,

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

Slovakia, Hungary and the Balkans to Turkey and the Caucasus. **Habitat preferences:** Detritophilous. **Red List status:** –.

#### *Helophorus nanus* Sturm, 1836

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (78).

**Distribution and frequency in the Bílé Karpaty PLA:** Uncommon, found at only two sites. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

#### *Helophorus obscurus* Mulsant, 1844

**Published record.** TRÁVNÍČEK (2010a): Horní Němčí, Za lesem NM (88).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one locality; continuing sampling effort may probably result in more records from the area. **General distribution:** European. **Habitat preferences:** Euryecious, detritophilous. **Red List status:** –.

**Comments.** The occurrence of the species at the above-cited locality is remarkable because of its high altitude; *H. obscurus* generally prefers lowland habitats in the Czech Republic.

#### *Helophorus redtenbacheri* Kuwert, 1885 (VU)

**Published record.** TRÁVNÍČEK (2010a): Strání, Mechnáčky NM (95).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one site, rare. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** VU.

### Family HYDROPHILIDAE

#### *Anacaena globulus* (Paykull, 1798)

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Suchov, Kazivec stream (34); Březová, Kalábová NM (48); Žitková, Pod Žitkovským vrchem NR (54); Velká nad Veličkou, right tributary of Velička stream (81). KRŮPALOVÁ *et al.* (2011): Valašské Klobouky, Bílé potoky NR (103).

**Additional material examined.** Petrůvka, Kladenska springs (2), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Valašské Klobouky (7), 10.vi.1997, 1 spec., D. Trávníček lgt. & det. (MJMZ). Štítná nad Vláří, Zelenský potok stream (25), 4.ix.2010, 1 spec., M. Straka lgt. & det. (MSHC). Pitín, Olšava stream (28), 8.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Bzová (29), 11.vi.2004, 3 spec., D. Trávníček lgt. & det. (MJMZ). Komňa, Koménka stream (43), 15.v.2010, 2 spec., M. Straka lgt. & det. (MSHC). Lopeník, Nivnička stream (45), 15.v.2010, 2 spec., M. Straka lgt. & det. (MSHC). Březová, Hradecký járek stream (47), 15.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Petrov, Radějovka stream (60), 4.6.2009, 3 spec., M. Straka lgt. & det. (MSHC). Tvarožná Lhota, Járkovec stream (71), 25.ix.2010, 4 spec., M. Straka lgt. & det. (MSHC). Javorník-Petruchovy Mlýny, Velička stream (85), 25.ix.2010, 1 spec., M. Straka lgt. & det. (MSHC). Strání-Květná, Svinárský potok stream (97), 15.v.2010, 1 spec., M. Straka lgt. & det. (MSHC). Luhačovice, sifting of warp (99), 2.vi.2010, 1 ♀, O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous, crenophilous, potamal. **Red List status:** –.

***Anacaena limbata* (Fabricius, 1792)**

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Radějov, Kútky NR (78); Velká nad Veličkou, Zahrady pod Hájem NNR (80).

**Additional material examined.** Suchov, Kazivec stream (34), 15.v.1998, 2 spec., P. Kment lgt., D. Trávníček det. (NMPC). Javorník (83), 8.vi.2008, 2 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Horní Němčí (108), 15.v.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

***Anacaena lutescens* (Stephens, 1829)**

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Suchov (35); Komňa, Lom Rasová NM (44); Březová, Kalábová NM (48); Žitková, Pod Žitkovským vrchem NR (54); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (78, 79); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Velká nad Veličkou, Zahrady pod Hájem NNR (80), 12.v.2011, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Valašské Klobouky (102), 30.vi.1999, 1 ♀, P. Kment lgt., D. Trávníček det. (NMPC). Javorník, Machová NR (114), 14.v.1998, 2 spec., P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found throughout the area, more common than *Anacaena limbata*. **General distribution:** Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Berosus frontifoveatus* Kuwert, 1888**

**(VU)**

**Material examined.** Hrubá Vrbka, light trapping (77), 25.vii.2007, 1 ♀, O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one site in the south of the area, rare. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** VU.

***Berosus signaticollis* (Charpentier, 1825)**

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one locality in the south of the area but additional records may be anticipated with a continuing sampling effort – the species is generally common in the Czech Republic. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

### *Cercyon castaneipennis* Vorst, 2009

**Material examined.** Horní Němčí, Drahy NR (36), 15.v.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC); 29.vi.2008, 1 ♂, O. Konvička lgt., D. Trávníček det. (OKZC). Strání, Mechnáčky NM (96), 7.v.2007, 2 ♂♂ 2 ♀♀, P. Komzák leg., M. Straka det. (PKBC). Nedašov, Kaňoury NM (104), 3.vii.1999, 2 spec., M. Horsák lgt., D. Trávníček det. (MHBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from only three sites. **General distribution:** Western Palaearctic. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** This species has recently been recognized and separated from the very similar *C. obsoletus* (Gyllenhal, 1808) by VORST (2009). The occurrence of *C. obsoletus* in the Czech Republic is questionable, and a revision of collection specimens is needed. *C. castaneipennis* may be more common in the Bílé Karpaty PLA; its apparent rarity is probably due to an insufficient sampling effort.

### *Cercyon haemorrhoidalis* (Fabricius, 1775)

**Material examined.** Hrubá Vrbka, light trapping (77), 30.x.2009, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one locality in the south of the area but additional records may be anticipated with a continuing sampling effort - the species is rather common across the Czech Republic. **General distribution:** Palaearctic, introduced and widely distributed in North America, Australia, New Zealand, the Philippines, and Argentina. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

### *Cercyon impressus* (Sturm, 1807)

**Material examined.** Valašské Klobouky, Javorůvky NR (6), 20.v.2006, 4 spec., P. Komzák leg., M. Straka det. (PKBC). Horní Němčí, Drahy NR (36), 30.vi.2001, 1 spec., P. Kment & H. Omesová lgt., M. Fikáček det. (NMPC). Valašské Klobouky, Javorůvky NR (101), 2.vii.1999, 1 spec., P. Kment lgt., D. Trávníček det. (MHBC). Nedašov, Kaňoury NM (104), 3.vii.1999, 1 spec., 2 m\*m\*, M. Horsák lgt., D. Trávníček det. (MHBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only four localities in the area, additional records may be anticipated with continuing sampling effort in excrements and dead organic matter of plant or animal origin. **General distribution:** Palaearctic. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

### *Cercyon laminatus* Sharp, 1873

**Material examined.** Hrubá Vrbka, light trapping (77), 8.vii.2007, 4 spec., 25.vii.2007, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Hrubá Vrbka, light trapping (77), 23.vii.2007, 1 spec., J. Vávra lgt., M. Fikáček det. (JVOC). Hrubá Vrbka, light trapping (77), 26.vi.2010, 1 spec., E. Ezer lgt., D. Trávníček det. (EEZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only one site in the south of the area. **General distribution:** Eastern Asia, introduced to the western

Palaeartic Region in the middle of the 20th century. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** As the species is quite common throughout the Czech Republic, its rarity in the Bílé Karpaty PLA is probably due to an insufficient sampling effort in excrements and dead organic matter of plant or animal origin.

***Cercyon lateralis* (Marsham, 1802)**

**Material examined.** Nedašov, Pod Cigánem NM (106), 6.ix.2005, 1 spec., I. Malenovský lgt., M. Fikáček det. (NMPC). Kněždub, Čertoryje NNR (111), 13.v.1998, 2 spec., P. Kment & P. Šmarda lgt., D. Trávníček det., (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only two sites in the area. **General distribution:** Palaeartic, introduced and widespread also in North America. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** As the species is quite common throughout the Czech Republic, its rarity in the Bílé Karpaty PLA is probably due to an insufficient sampling effort in excrements and dead organic matter of plant or animal origin.

***Cercyon marinus* Thomson, 1853**

**Material examined.** Hrubá Vrbka, light trapping (77), 8.vii.2007, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only one locality in the south of the area, but probably not rare. **General distribution:** Holarctic. **Habitat preferences:** Semiaquatic, detritophilous. **Red List status:** –.

***Cercyon nigriceps* (Marsham, 1802)**

**(VU)**

**Material examined.** Hrubá Vrbka, light trapping (77), 23.vii.2007, 1 spec., J. Vávra lgt., M. Fikáček det. (JVOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at a single locality in the south of the area, rare. **General distribution:** Cosmopolitan. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** VU.

***Cercyon pygmaeus* (Illiger, 1801)**

**Material examined.** Nedašova Lhota, Paseky, sifting (10), 22.ix.2009, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at a single locality in the north of the area, but probably more common. **General distribution:** Palaeartic. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** The small number of records is probably due to an insufficient sampling effort.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

***Cercyon quisquilius* (Linnaeus, 1761)**

**Material examined.** Hrubá Vrbka, light trapping (77), 26.vi.2010, 1 spec., E. Ezer lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at a single locality in the south of the area, but undoubtedly more common. **General distribution:** Palaearctic, introduced and widespread also in the Nearctic and Neotropical Regions, Australia, and Hawaii. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** The small number of records is probably due to an insufficient sampling effort.

***Cercyon sternalis* Sharp, 1918**

**Material examined.** Lopeník, Mechnáč (110), 29.iv.2000, 1 spec, M. Horsák lgt., D. Trávníček det. (MHBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only one site in the central part of the area, rare. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous, semiaquatic. **Red List status:** –.

***Cercyon unipunctatus* (Linnaeus, 1758)**

**Material examined.** Hrubá Vrbka, light trapping (77), 1.v.2007, 1 spec., 23.vii.2007, 1 spec., J. Vávra lgt., M. Fikáček det. (JCOC); 25.vii.2007, 2 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at only one site in the south of the area. **General distribution:** Palaearctic Region, introduced into North America. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

**Comments.** The species is quite common in the Czech Republic; further sampling of decaying plant matter and dung in the Bílé Karpaty PLA would probably result in more records.

***Cercyon ustulatus* (Preyssler, 1790)**

**Published record.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44).

**Additional material examined.** Strážnice, Radějovka stream (64), 4.vi.2009, 1 spec., M. Straka lgt. & det. (MSHC). Kněždub, Kejda pond (70), 14.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC). Luhačovice, sifting of warp (99), 2.vi.2010, 2 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Strání, Straňanská nádrž reservoir (109), 10.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, semiaquatic. **Red List status:** –.

***Chaetarthria seminulum* (Herbst, 1797)**

**Material examined.** Strání, Hrnčárky NM (50), ix.2006, 2 spec., J. Sychra lgt. & det. (JSBC). Luhačovice, sifting of warp (99), 2.vi.2010, 1 ♀, O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at two sites in the area.

**General distribution:** Europe and Turkey. **Habitat preferences:** Semiaquatic, detritophilous. **Red List status:** –.

**Comments.** Probably overlooked due to its small size, more sampling effort is needed.

***Coelostoma orbiculare* (Fabricius, 1775)**

**Published records.** TRÁVNÍČEK (2010a): Horní Němčí, Za lesem NM (88); Slavičín (19); Strání, Mechnáčky NM (96); Vrbětice (22).

**Additional material examined.** Lopeník, Hrubý Mechnáč (51), vii.2005, 1 spec., J. Bojková lgt., J. Sychra det. (JSBC). Radějov (68), 11.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC). Kněždub, Kejda pond (70), 14.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area, common in suitable habitats. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

***Cryptopleurum minutum* (Fabricius, 1775)**

**Material examined.** Nedašov, Kaňoury NM (104), 3.vii.1999, 2 spec., M. Horsák lgt., D. Trávníček det. (MHBC). Lipov (107), 17.iv.2010, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Kněždub, Čertoryje NNR (111), 7.x.2010, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Tvarožná Lhota (112), 13.v.1998, 2 spec., P. Kment & P. Šmarda lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Scattered throughout the area, common in suitable habitats. **General distribution:** Palaearctic, introduced and widely distributed also in the Nearctic Region. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** –.

***Cymbiodyta marginella* (Fabricius, 1792)**

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (78); Strání, Mechnáčky NM (96).

**Distribution and frequency in the Bílé Karpaty PLA:** Uncommon, found at three sites in the southern part of the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

***Enochrus bicolor* (Fabricius, 1792)**

**Material examined.** Hrubá Vrbka, light trapping (77), 8.vii.2007, 1 ♂, O. Konvička lgt., D. Trávníček det. (OKZC).

**Additional material examined.** Hrubá Vrbka, light trapping (77), 23.vii.2007, 1 spec., J. Vávra lgt., M. Fikáček det. (JVOC).

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

**Distribution and frequency in the Bílé Karpaty PLA:** Apparently rare, recorded at a single locality in the south of the area. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** –.

*Enochrus fuscipennis* (Thomson, 1884) (NT)

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (78).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, found at a single site in the south of the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous, acidophilous. **Red List status:** NT.

**Comments.** BOUKAL *et al.* (2007) could not decide whether the species should be classified in some of the categories of the Red List of threatened animals of the Czech Republic. TRÁVNÍČEK (2010b) investigated additional material and classified it as near-threatened.

*Enochrus quadripunctatus* (Herbst, 1797)

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79).

**Additional material examined.** Sidonie, Sidonie NR, light trapping (31), 22.vi.2008, 1 ♀, O. Konvička lgt., D. Trávníček det. (OKZC). Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 ♂, P. Kment lgt., D. Trávníček det. (NMPC). Javorník, Machová NR (114), 14.v.1998, 1 ♂, P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only five sites in the area; probably not as common as in most other regions of the Czech Republic. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

*Enochrus testaceus* (Fabricius, 1801)

**Published record.** TRÁVNÍČEK (2010a): Slavičín (19).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at a single site in the northern part of the area; probably not as common as in most other regions of the Czech Republic. **General distribution:** Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

*Helochares lividus* (Forster, 1771) (EN)

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (78).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, recorded at a single locality. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** EN.

**Comments.** The species has recently been known from only one locality in Bohemia and three localities in Moravia, all situated in warmer areas (BOUKAL *et al.* 2007).

***Helochaers obscurus* (O. F. Müller, 1776)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Suchov (35); Sudoměřice, Sudoměřický potok stream valley (63); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96).

**Additional material examined.** Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 spec., P. Kment lgt., D. Trávniček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Common throughout the area; generally one of the most common species of the family in the Czech Republic. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous, euryecious.

**Red List status:** –.

***Hydrobius fuscipes* (Linnaeus, 1758)**

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Březová, Kalábová NM (48); Žitková, Pod Žitkovským vrchem NR (54); Sudoměřice, Sudoměřický potok stream valley (63); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (96).

**Additional material examined.** Slavičín (20), 10.iv.2008, 1 spec., O. Konvička lgt., D. Trávniček det. (OKZC). Rokytnice (23), 3.vi.2008, 1 spec., O. Konvička lgt., D. Trávniček det. (OKZC); Suchov, Kazivec stream (34), 25.iv.2006, 1 spec., O. Konvička lgt., D. Trávniček det. (OKZC). Horní Němčí, Uvezené NM (38), 14.viii.2003, 1 spec., D. Trávniček lgt. & det. (MJMZ). Komňa, Bučník quarry (42), 16.v.2007, 1 spec., D. Trávniček lgt. & det. (MJMZ). Javorník (83), 8.vi.2008, 1 spec., O. Konvička lgt., D. Trávniček det. (OKZC). Javorník, Machová NR (114), 14.v.1998, 1 spec., P. Kment lgt., D. Trávniček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Fairly common throughout the area. **General distribution:** Holarctic. **Habitat preferences:** Detritophilous, euryecious.

**Red List status:** –.

***Hydrochara caraboides* (Linnaeus, 1758)**

**Published records.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (79); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from scattered records throughout the area, in suitable habitats not rare. **General distribution:** Palaearctic.

**Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

***Hydrochara flavipes* (Steven, 1808)**

**Published record.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44).

**Additional material examined.** Tvarožná Lhota, Lučina (72), 15.v.1998, 1 spec., P. Kment lgt., D. Trávniček det. (NMPC). Horní Němčí (108), 15.v.1998, 1 spec., P. Kment lgt., D. Trávniček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at a single site, rarer than the previous species. **General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

***Hydrophilus piceus* (Linnaeus, 1758)**

**(CR)**

**Published record.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at a single locality, rare.

**General distribution:** Western Palaearctic. **Habitat preferences:** Detritophilous. **Red List status:** CR.

**Comments.** The species is generally rare in the Czech Republic, more findings come only from the Třeboňsko Protected Landscape Area and southern Moravia (BOUKAL *et al.* 2007). The above-cited record is remarkable because of a high altitude which most likely surpasses all other recent records of *H. piceus* in the Czech Republic.

***Laccobius bipunctatus* (Fabricius, 1775)**

**Published records.** TRÁVNÍČEK (2010a): Nezdenice (17); Slavičín (19); Vrbětice (22); Suchov (35); Březová, Kalábová NM (48); Žitková (53); Žitková, Pod Žitkovským vrchem NR (54); Sudoměřice, Sudoměřický potok stream valley (63); Radějov, Kútky NR (78); Horní Němčí, Za lesem NM (88); Strání, Mechnáčky NM (95, 96). **Additional material examined.** Bojkovice, Koměnka stream (18), 8.v.2010, 1 spec., 1 ♂, M. Straka lgt. & det. (MSHC). Strání, Hrnčárky NM (50), 2.ix.2005, 3 spec., 2 ♂♂ 1 ♀, M. Straka lgt., J. Klečka det. (MSHC); Radějov, Kútky NR (78), 11.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC). 2.vii.2008, 3 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Strání, Mechnáčky NM (96), 11.ix.2009, 3 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Javorník, Machová NR (114), 14.v.1998, 1 ♂, P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Fairly common throughout the area. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

***Laccobius gracilis* Motschulsky, 1855**

**(VU)**

**Published records.** TRÁVNÍČEK (2010a): Sudoměřice, Sudoměřický potok stream valley (63).

**Distribution and frequency in the Bílé Karpaty PLA:** Found unusually abundant at a single locality in the southern part of the area. **General distribution:** A Mediterranean species reaching into central Europe in the north; distributed probably as far as to Central Asia in the east. **Habitat preferences:** Silicophilous, preferring exposed sites with a sandy bottom and sparse vegetation. **Red List status:** VU.

***Laccobius minutus* (Linnaeus, 1758)**

**Published records.** TRÁVNÍČEK (2010a): Slavičín (19); Vrbětice (22); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63); Kněždub, Kejda pond (70); Velká nad Veličkou, Zahrady pod Hájem NNR (80); Strání, Mechnáčky NM (95).

**Additional material examined.** Tvarožná Lhota, Lučina (72), 14.vii.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC). Tvarožná Lhota, Lučina (72), 30.viii.2005, 2 spec., 1 ♂ 1 ♀, J. Sychra lgt. & det. (JSBC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from scattered records throughout the area, common in suitable habitats. **General distribution:** Northern Palaearctic. **Habitat preferences:** Detritophilous, euryecious. **Red List status:** –.

***Laccobius obscuratus* Rottenberg, 1874 (EN)**

**Published records.** TRÁVNÍČEK (2010a): Březová, Kalábová NM (48); Velká nad Veličkou, Zahrady pod Hájem NNR (80).

**Additional material examined.** Strání, Hrnčárky NM (50), 2.vii.2008, 1 ♀, L. Koloničný lgt., D. Trávníček det. (LKOC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded at three sites, rare. **General distribution:** Western Palaearctic. **Habitat preferences:** Crenophilous, semiaquatic. **Red List status:** EN.

***Laccobius simulatrix* Orchymont, 1932 (CR)**

**Published record.** TRÁVNÍČEK (2010a): Nezdenice (17).

**Distribution and frequency in the Bílé Karpaty PLA:** Very rare, found at a single site. **General distribution:** Eastern Europe, Near East and Central Asia. **Habitat preferences:** Silicophilous, inhabiting edges of exposed, standing or slow-flowing waters. **Red List status:** CR.

**Comments.** The recent occurrence of the species in the Czech Republic has been known from only three localities, all situated in southern and south-eastern Moravia (TRÁVNÍČEK 2010c).

***Laccobius sinuatus* Motschulsky, 1849**

**Published record.** TRÁVNÍČEK (2010a): Radějov, Kútky NR (79).

**Distribution and frequency in the Bílé Karpaty PLA:** Rare, found at only one site. **General distribution:** European. **Habitat preferences:** Euryecious. **Red List status:** –.

***Laccobius striatulus* (Fabricius, 1801)**

**Published records.** TRÁVNÍČEK (2010a): Komňa, Lom Rasová NM (44); Žitková (53); Sudoměřice, Sudoměřický potok stream valley (63); Strání, Mechnáčky NM (95). KŘOUPALOVÁ *et al.* (2011): Valašské Klobouky, Bílé potoky NR (103).

**Additional material examined.** Záhorovice, Kladenka stream (15), 8.v.2010, 2 spec., M. Straka lgt. & det. (MSHC). Štítná nad Vláří (27), 29.vi.2005, 2 spec., L. Koloničný lgt., D. Trávníček det. (LKOC). Tvarožná Lhota, Lučina (72), 13.v.1998, 1 spec., P. Kment lgt., D. Trávníček det. (NMPC). Lipov, Kuželovský potok stream (73), 25.ix.2010, 2 spec., M. Straka lgt. & det. (MSHC). Hroznová Lhota, Velička stream (74), 25.ix.2010, 5 spec., M. Straka lgt. & det. (MSHC). Hrubá Vrbka, light trapping (77), 23.vii.2007, 1 spec., J. Vávra lgt., M. Fikáček det. (JVOC). Popov, Vlára stream (105), 3.viii.2011, 1 ♂, O. Konvička lgt. D. Trávníček det. (OKZC). Javorník, Velička stream (113), 18.iv.2000, 1 ♂, P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Recorded throughout the area, common. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** –.

Water beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae)

***Limnoxenus niger* (Gmelin, 1790)**

**(NT)**

**Published records.** TRÁVNÍČEK (2010a): Kněždub, Kejda pond (70); Komňa, Lom Rasová NM (44); Sudoměřice, Sudoměřický potok stream valley (63).

**Distribution and frequency in the Bílé Karpaty PLA:** Found in low numbers of specimens at three sites. **General distribution:** Western Palaearctic. **Habitat preferences:** Euryecious. **Red List status:** NT.

***Megasternum concinnum* (Marsham, 1802)**

**Material examined.** Hrubá Vrbka, light trapping (77), 30.x.2009, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC). Luhačovice, sifting of warp (99), 2.vi.2010, 1 spec., O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at two sites, but undoubtedly under-recorded. **General distribution:** Palaearctic, introduced and widespread also in the Nearctic and Neotropical Regions, Australia, and Hawaii. **Habitat preferences:** Coprophilous, saprophilous. **Red List status:** -.

**Comments.** The small number of records is probably due to an insufficient sampling effort.

***Sphaeridium lunatum* Fabricius, 1792**

**Material examined.** Horní Němčí, Drahy NR (36), 15.v.1998, 1 ♂, P. Kment lgt., D. Trávníček det. (NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Known from a single record in the south-western part of the area, probably under-recorded due to an insufficient sampling effort in excrements. **General distribution:** Palaearctic, introduced to the Nearctic Region. **Habitat preferences:** Coprophilous. **Red List status:** -.

***Sphaeridium marginatum* Fabricius, 1787**

**Material examined.** Horní Němčí, Drahy NR (36), 15.v.1998, 1 spec., J. Nerudová & M. Horsák lgt., M. Fikáček det. (MHBC). Nedašov, Kaňoury NM (104), 3.vii.1999, 2 spec., Horsák lgt., M. Fikáček det. (MHBC & NMPC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at two sites, but undoubtedly more common. **General distribution:** Palaearctic. **Habitat preferences:** Coprophilous. **Red List status:** -.

**Comments.** The small number of records is probably due to an insufficient sampling effort in excrements.

***Sphaeridium scarabaeoides* (Linnaeus, 1758)**

**Material examined.** Horní Němčí, Drahy NR (36), 15.v.1998, 1 ♂, J. Nerudová & M. Horsák lgt., M. Fikáček det. (MHBC); 15.v.1998, 2 ♀♀, P. Kment lgt., D. Trávníček det. (NMPC). Hrubá Vrbka, light trapping (77), 30.x.2009, 3 ♀♀, O. Konvička lgt., D. Trávníček det. (OKZC).

**Distribution and frequency in the Bílé Karpaty PLA:** Found at only two sites, but undoubtedly more common and probably under-recorded. **General distribution:** Holarctic, introduced to the Afrotropical Region. **Habitat preferences:** Coprophilous. **Red List status:** –.

**Comments.** The small number of records is probably due to an insufficient sampling effort in excrements.

### Discussion and conclusions

The water beetle fauna of the Bílé Karpaty Mts. was comparatively unknown until a recent study by TRÁVNÍČEK (2010a), which dealt mainly with water beetles inhabiting standing waters. The present study raises the number of species of adephagan and hydrophiloid water beetles known from the area to 110, including 3 spp. of Gyrinidae, 6 spp. of Haliplidae, 2 spp. of Noteridae, 45 spp. of Dytiscidae, 11 spp. of Helophoridae and 43 spp. of Hydrophilidae. The families Hydraenidae and Elmidae are treated in detail in a parallel paper by STRAKA *et al.* (2011).

Based on habitat preferences, the largest group among the water beetle fauna of the Bílé Karpaty PLA consisted of the euryecious species. Detritophilous species are also significantly represented in the material collected. The lack of larger bodies of standing water in the Bílé Karpaty is the main reason for the comparatively rare occurrence of species that prefer such sites and are quite common elsewhere in the Czech Republic, e.g. *Acilius sulcatus*, *Ilybius fenestratus*, *I. quadriguttatus*, *I. subaeneus*, *Rhantus frontalis*, and *Enochrus quadripunctatus*. Similarly, three species of the family Helophoridae, common in other regions of the Czech Republic (*Helophorus granularis*, *H. griseus*, and *H. minutus*) are also found only sporadically in the area studied. It is possible that other (generally much rarer) representatives of the genus, namely *H. montenegrinus* and *H. dorsalis*, replace the three former species in the Bílé Karpaty PLA.

Slope helocrene springs in the Bílé Karpaty Mts. are a habitat that merits more detailed discussion. Slope helocrene springs are typical of the Western Carpathian region, and because of a calcareous subsoil are often accompanied by tufa formations. Several rare species, such as *Hydroporus pubescens*, *Helochares lividus*, and *Laccobius obscuratus*, were recorded in this type of habitat.

No species of the family Hydrochidae was recorded in the area, probably due to the absence of suitable habitats. *Spercheus emarginatus* (Schaller, 1783), the only European representative of the family Spercheidae that is locally common in the Czech Republic, has not been found in the Bílé Karpaty PLA either. It is plausible that the presence of these two families is prevented by the highly calcareous character of the aquatic habitats in the White Carpathians. For the family Georissidae, only historical voucher specimens of *Georissus crenulatus* (Rossi, 1794) from the vicinity of the town of Valašské Klobouky, dating back to 1930's, are available (BOUKAL & TRÁVNÍČEK 1995). The Georissidae are easily overlooked due to their minute size and cryptic lifestyle; while the investigators remained aware of this, their recent occurrence in the area was not

confirmed. Finally, the low number of records of saprophilous and coprophilous water scavenger beetles from the subfamily Sphaeridiinae in this paper is mainly due to insufficient sampling of corresponding microhabitats in the Bílé Karpaty PLA.

The most remarkable discovery among the aquatic beetles of the Bílé Karpaty PLA is the water scavenger beetle *Laccobius simulatrix*. This population is apparently isolated at the north-western border of the species' distribution area (TRÁVNÍČEK 2010c). The record of *Helochares lividus* previously published by TRÁVNÍČEK & BOUKAL (1999) still remains one of the few recently known sites for the species in the Czech Republic (one in Bohemia, three in Moravia; BOUKAL *et al.* 2007). The pool which is part of an abandoned brick plant near the town of Slavičín (site no. 19), is quite remarkable for the syntopic occurrence of five Haliplid species.

Nineteen of the recorded species are included in the Red List of threatened invertebrates of the Czech Republic (FARKAČ *et al.* 2005, BOUKAL *et al.* 2007). Three of them are classified as critically endangered (*Hydrophilus piceus*, *Hygrotus parallellogrammus*, and *Laccobius simulatrix*), four as endangered (*Gyrinus distinctus*, *Helochares lividus*, *Hydrovatus cuspidatus*, and *Laccobius obscuratus*), eight as vulnerable (*Berosus frontifoveatus*, *Cercyon nigriceps*, *Deronectes latus*, *Dytiscus circumflexus*, *Hygrotus nigrolineatus*, *Helophorus redtenbacheri*, *Laccobius gracilis*, and *Laccophilus poecilus*), and four as near-threatened (*Enochrus fuscipennis*, *Graptodytes bilineatus*, *Helophorus arvernicus*, and *Limnoxenus niger*). This means that the Bílé Karpaty PLA is a highly valuable region with a wide range of rare and endangered water beetle species.

### Acknowledgements

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### Souhrn

#### **Vodní brouci (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrophilidae) Chráněné krajinné oblasti a biosférické rezervace Bílé Karpaty.**

V článku jsou shromážděny výsledky z faunistického výzkumu vodních brouků, který byl na území Chráněné krajinné oblasti a Biosférické rezervace Bílé Karpaty prováděn v období 1994 až 2010. Nasbíraný materiál byl doplněn o údaje získané ze sbírek dalších entomologů aktivních v této oblasti. Vyhodnocený materiál pochází celkem z 114 lokalit. Recentně byl v oblasti potvrzen výskyt 3 druhů z čeledi Gyrinidae, 6 druhů z čeledi Haliplidae, 2 druhů z čeledi Noteridae, 45 druhů z čeledi Dytiscidae, 11 druhů z čeledi Helophoridae a 43 druhů z čeledi Hydrophilidae; dohromady bylo zjištěno 110 druhů vodních brouků z uvedených čeledí. Ke každému druhu je uveden kompletní přehled dříve publikovaných dat i nových nálezů na sledovaném území, který je doplněn krátkými poznámkami k jejich celkovému rozšíření, ekologii a ochraně. Na území CHKO Bílé Karpaty se vyskytuje jen málo větších vodních ploch. Z toho důvodu jsou zde poměrně vzácné druhy, které upřednostňují právě takový typ biotopů (např. *Acilius sulcatus*, *Ilybius fenestratus*, *I. quadriguttatus*, *I. subaeneus*, *Rhantus frontalis* a *Enochrus quadripunctatus*). Překvapivá je i relativní vzácnost tří druhů z čeledi Helophoridae (*Helophorus granularis*, *H. griseus* a *H. minutus*), které jinde na území České republiky patří k velmi hojným živočichům. Zdá se, že je ve zdejších podmínkách nahrazují jinde mnohem vzácnější zástupci

tohoto rodu, *H. montenegrinus* a *H. dorsalis*. Pro Západní Karpaty, kam sledovaná oblast náleží, je charakteristický hojný výskyt svahových prameništ. Díky vápenatému podloží jsou prameniště často doprovázena tvorbou pěnovců. Několik vzácných druhů, jako *Hydroporus pubescens*, *Helochares lividus* a *Laccobius obscuratus*, bylo zjištěno právě v pěnovcových prameništích. Během průzkumu Bílých Karpat nebyl zjištěn žádný druh z čeledi Hydrochidae a stejně tak nebyl prokázán ani *Spercheus emarginatus*, jediný evropský zástupce čeledi Spercheidae. Na vině je s největší pravděpodobností absence vhodných biotopů. Překážkou těmto druhům může být i zvýšený obsah vápníku ve zdejších mokřadech. Pokud se týká čeledi Georissidae, jsou známy pouze historické dokladové exempláře druhu *Georissus crenulatus* ze 30. let minulého století z okolí Valašských Klobouků. V této práci je také prezentováno poměrně málo nálezů saprofilních a koprofilních vodomilů z podčeledi Sphaeridiinae, protože sběr byl zaměřen především na mokřady a v materiálu byly úlovky, získané z exkrementů či jiného rozkládajícího se materiálu organického původu, zastoupeny jen sporadicky. K nejzajímavějším nálezům patří vodomil *Laccobius simulatrix*, jehož izolovaná populace se v Bílých Karpatech nachází na severozápadní hranici jeho areálu. Jiný vzácný vodomil, *Helochares lividus*, se v ČR kromě jedné lokality v CHKO Bílé Karpaty recentně vyskytuje pouze na dalších čtyřech místech. Pozoruhodný je rovněž výskyt hned pěti druhů z čeledi Haliplidae v jediné tůni (lokality 19, někdejší cihelna u Slavičína). Tři ze zaznamenaných druhů jsou v ČR klasifikovány jako kriticky ohrožené (*Hydrophilus piceus*, *Hygrotus parallellogrammus*), čtyři jsou považovány za ohrožené (*Gyrinus distinctus*, *Helochares lividus*, *Hydrovatus cuspidatus*), osm patří ke zranitelným (*Berosus frontifoveatus*, *Cercyon nigriceps*, *Deronectes latus*, *Dytiscus circumflexus*, *Hygrotus nigrolineatus*, *Helophorus redtenbacheri*, *Laccobius gracilis*, *Laccophilus poecilus*) a čtyři jsou hodnoceny jako téměř ohrožené (*Enochrus fuscipennis*, *Graptodytes bilineatus*, *Helophorus arvernicus*, *Limnoxenus niger*). Tyto výsledky dokládají, že z hlediska ochrany vodních brouků CHKO Bílé Karpaty patří k nejcennějším oblastem v rámci České republiky.

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