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Updated checklist of Albanian aquatic beetles with first localities of some species of Hydradephaga, Hydrophiloidea and Byrrhoidea (Coleoptera)

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Abstract

New records of 34 aquatic beetle species from Albania are presented. Seventeen species are recorded for the first time from this country, including 3 species of Haliplidae, 6 of Dytiscidae, 6 of Hydrophilidae and 2 of Dryopidae. *Coelostoma hispanicum* (Küst.) is confirmed to occur in an area east of the Mediterranean Sea. An updated checklist of Albanian aquatic Coleoptera is also provided. The list counts 125 species belonging to 11 families. There are 3 species of Gyrinidae, 9 of Haliplidae, 1 of Noteridae, 44 of Dytiscidae, 4 of Helophoridae, 1 of Hydrochidae, 21 of Hydrophilidae, 33 of Hydraenidae, 5 of Elmidae, 3 of Dryopidae, and 1 of Limnichidae.

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INTRODUCTION

The aquatic beetle fauna of Albania is not well known. Until recently only one species of Dryopidae, one of Noteridae, 5 of Elmidae, 6 of Haliplidae, 15 of Hydrophilidae, 33 of Hydraenidae, and 38 species of Dytiscidae were known from Albania (Nilsson 2003, 2008; Vondel 2003; Jäch 2004; Jäch et al. 2006; Hansen 2004; Kodada, Jäch 2006). Przewoźny et al. 2008 reported three families not previously recorded in Albania: Gyrinidae (3 species), Limnichidae (1 species), and Hydrochidae (1 species). Compared with other neighboring Balkan countries this number is very low. For example, in the former Yugoslavia ca. 350 species of aquatic beetles have been recorded, with 12 species of Haliplidae, 149 of Dytiscidae, ca. 60 of Hydrophilidae (Guéorgiev 1971) and 13 species of Dryopidae (Kodada, Jäch 2006). In Greece 15 species of Haliplidae, 97 of Dytiscidae, 53 of Hydrophilidae and 18 of Dryopidae were found (Kodada, Jäch 2006, Hansen 2004, Nilsson 2008, Vondel 2003).

The present work summarizes the second part of studies focusing on the aquatic Coleoptera of Albania, collected during a scientific expedition to Albania in 2006 which was organized by the Department of Invertebrate Zoology & Hydrobiology at the University of Lodz.

MATERIALS AND METHODS

The material was collected by the second and third authors mainly using a hydrobiological hand net in rivers and mountain streams. The material was then preserved in ethanol. Some beetles were also caught at light. The geographical coordinates were noted using a GPS recorder. All the material was identified by the first author and is deposited in his collection. The collection localities are presented in Fig. 1 and in Table 1.

Systematics was given after the Catalogue of Palearctic Coleoptera (Löbl, Smetana 2003, 2004, 2006). The exception is the case of the family Dytiscidae, where we used systematics after Nilsson (2008).

RESULTS AND CONCLUSIONS

Altogether 189 individuals of 34 species belonging to 4 families were collected: Haliplidae, Dytiscidae, Hydrophilidae and Dryopidae. These new data are provided in the checklist of aquatic beetle species of Albania presented below.

With the finding of 17 species newly recorded for Albania, the number of aquatic Coleoptera in this country increases to 125 species belonging to 11 families. An actual checklist of Coleoptera aquatica includes 3 species of

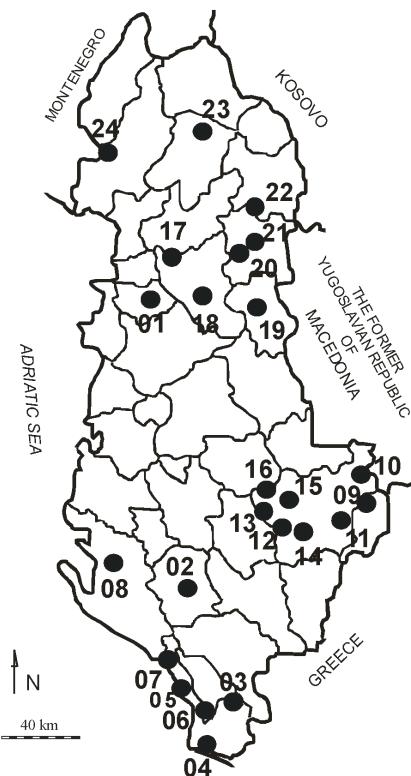


Fig.1. Sampling sites in Albania (localities numbers as in Table1).

Gyrinidae, 9 of Haliplidae, 1 of Noteridae, 44 of Dytiscidae, 4 of Helophoridae, 1 of Hydrochidae, 21 of Hydrophilidae, 33 of Hydraenidae, 5 of Elmidae, 3 of Dryopidae, and 1 of Limnichidae. However, the fauna of aquatic beetles of this region is still far from being well known. Compared to the number of species from adjacent countries, several dozen or more species new for Albania can be expected. Specifically, new taxa from the families Dytiscidae, Hydrophilidae, Hydraenidae, and Elmidae are likely to be found.

Table 1**Details on collecting sites.**

Locality number	Geographic coordinates	Locality name	Elevation (m asl)	Collection date
01	N41°29'27.18" E19°43'26.1"	Fushë-Krujë ad Krujë	28	3 IX 2006
02	N40°18' NE20°1'	Tepelenë vic.	122	6 IX 2006
03	N39°54'54.6" E20°10'58.44"	Delvinë vic., distr. Sarandë,	145	6 IX 2006
04	N39° 44.804' E20° 00.235'	Butrinti, distr. Sarandë, ad lucem	1	7 IX 2006
05	N39° 59.181' E19° 55.072'	Ad Lukovë distr. Sarandë, stream,	212	7 IX 2006
06	N39°53'7.74" E20°5'22.38"	Dermisht vic., distr. Sarandë,	22	8 IX 2006
07	N40°3'43.02" E19°51'27.6"	Borsh ad Himarë	105	9 IX 2006
08	N40° 26.720' E19° 35.089'	Drashovicë ad Vlorë, Shushicës river,	55	10 IX 2006
09	N40°46'3.78" E20°55'34.68"	Prespa Lake	853	12 IX 2006
10	N40°51'39.9" E20°56'25.62"	Presepa Lake, Gollombec,	842	13 IX 2006
11	N40°42'28.92" E20°52'16.32"	Ad Zvezdë, near road from Presepanske Lake to Korçë	828	13 IX 2006
12	N40°37'22.32" E20°37'43.44"	Spring near road to Voskopojë from Korçë	1239	13 IX 2006
13	N40°38'16.92" E20°35'35.88"	Voskopojë ad Korçë, spring	1180	14 IX 2006
14	N40°36'56.04" E20°41'0.54"	River near the road from Voskopojë to Korçë	945	14 IX 2006
15	N40°43'17.7" E20°40'5.4"	Malik vic.,	850	14 IX 2006
16	N40°41'35.04" E20°30'19.68"	Devoil river	672	14 IX 2006
17	N41°40'40.98" E19°51'9.42"	Spring near road to Burrel	116	15 IX 2006
18	N41°32'46.8" E20°3'30.84"	Spring near road to Peshkopi	249	16 IX 2006
19	N41°30'37.68" E20°17'55.38"	Fushë-Bulgjizë vic., road to Peshkopi, spring	636	16 IX 2006
20	N41°44'17.88" E20°18'7.98"	Arras ad Peshkopi, spring	404	16 IX 2006
21	N41°45'6.18" E20°19'16.02"	Arras ad Peshkopi, tributary of the Drinittë river	385	16 IX 2006
22	N41°52'19.38" E20°19'27.24"	Zall-Reç vic., road from Peshkopi to Kukës	359	17 IX 2006
23	N42°12'49.86" E20°4'35.34"	Mëzi vic. ad Kryzezi	648	18 IX 2006
24	N42°7'21.18" E19°29'40.05"	Boriç i Math ad Shkodër	19	19 IX 2006

Updated checklist of the aquatic beetles in Albania:

Gyrinidae

1. *Gyrinus (Gyrinus) caspius* Ménetriés, 1832
2. *Gyrinus (Gyrinus) paykulli* Ochs, 1927
3. *Gyrinus (Gyrinus) substriatus* Stephens, 1928

Haliplidae

1. *Brychius elevatus* (Panzer, 1793) – locality no. 6 – 1♂, 2♀♀;
According to (Vondel 2003) this species was not known from Albania before. Stenobiotic, rheophilous species (Koch 1989).
2. *Haliplus (Haliplidius) obliquus* (Fabricius, 1787) – locality no. 5 – 1♂;
According to (Vondel 2003) this species was not known from Albania before. Stenobiotic, silicophilous species (Koch 1989).
3. *Haliplus (Liaphlus) dalmatinus* J. Müller, 1900

4. *Haliphus (Liaphlus) fulvus* (Fabricius, 1801)
5. *Haliphus (Liaphlus) laminatus* (Schaller, 1783) – locality no. 13 – 1♂, 1♀; locality no. 21 – 1♂
6. *Haliphus (Liaphlus) mucronatus* (Stephens, 1828)
7. *Haliphus (Neohaliphus) lineatocollis* (Marsham, 1802) - no. 12 – 1 ex.; locality no. 21 – 2 exx.; According to Vondel (2003) this species was not known from Albania before. Known throughout most of the continent of Europe Usually found in running waters.
8. *Peltodytes caesus* (Duftschmid, 1805)
9. *Peltodytes rotundatus* (Aubé, 1836) – locality no. 6 – 1♀; South-European species, recorded from several countries in the Mediterranean basin. Stenotopic species, inhabiting stagnant waters (Koch 1989).

Noteridae

1. *Noterus clavicornis* (DeGeer, 1774)

Dytiscidae

1. *Agabus (Agabus) labiatus* (Brahm, 1790)
2. *Agabus (Agabus) undulatus* (Schrank, 1776)
3. *Agabus (Gaurodytes) biguttatus* (Olivier, 1795) – locality no. 5 – 1♀; locality no. 20 – 1♂, 1♀; Stenobiotic, rheophilous, crenophilous and sylvicolous species (Koch 1989).
4. *Agabus (Gaurodytes) bipustulatus* (Linnaeus, 1767) – locality no. 14 – 1♂
5. *Agabus (Gaurodytes) conspersus* (Marsham, 1802)
6. *Agabus (Gaurodytes) dilatatus* Brullé, 1832 – locality no. 3 – 3♀♀; According to Nilsson (2008) this species was not previously known from Albania. Distributed mainly in South-Eastern Europe, Asia Minor and Central Asia.
7. *Agabus (Gaurodytes) nebulosus* (Forster, 1771)
8. *Ilybius ater* (DeGeer, 1774)
9. *Ilybius fuliginosus fuliginosus* (Fabricius, 1792) – locality no. 13 – 1♀; According to Nilsson (2008) this species was not previously known from Albania.
10. *Platambus maculatus* (Linnaeus, 1758) – locality no. 9 – 2♂♂, 7♀♀; locality no. 10 – 6♂♂, 15♀♀; locality no. 13 – 4♂♂, 3♀♀; Stenobiotic, rheophilous species (Koch 1989). One of the most common beetles found in European running waters.
11. *Melanodytes pustulatus* (Rossi, 1792)
12. *Rhantus (Rhantus) bistriatus* (Bergsträsser, 1778)

13. *Rhantus (Rhantus) suturalis* (MacLeay, 1825) – locality no. 11 – 4♂♂, 7♀♀; According to Nilsson (2008) this species was not previously known in Albania.
14. *Acilius sulcatus* (Linnaeus, 1758)
15. *Cybister (Cybister) tripunctatus africanus* Laporte, 1835
16. *Dytiscus dimidiatus* Bergsträsser, 1778
17. *Dytiscus marginalis marginalis* Linnaeus, 1758 – locality no. 14 – 1♂
18. *Dytiscus semisulcatus* O.F. Müller, 1776
19. *Hydaticus (Guignotites) leander* (Rossi, 1790) – locality no. 4 – 3♂♂, 5♀♀; According to Nilsson (2008) this species was not known from Albania before. Rarely found species known only from a few countries in the Mediterranean basin, North Africa and the Middle East.
20. *Hydaticus (Hydaticus) transversalis transversalis* (Pontoppidan, 1763)
21. *Bidessus delicatulus* (Schaum, 1844)
22. *Bidessus goudotii* (Laporte, 1835)
23. *Hydroglyphus geminus* (Fabricius, 1792) – locality no. 4 – 5 exx.; locality no. 11 – 9 exx.; locality no. 18 – 1 ex.; locality no. 24 – 1 ex.
24. *Deronectus moestus inconspectus* (Leprieur, 1876) – locality no. 12 – 1♂; locality no. 14 – 1♂; South-European subspecies found in the Mediterranean basin.
25. *Deronectus platynotus platynotus* (Germar, 1834)
26. *Graptodytes bilineatus* (Strum, 1835)
27. *Hydroporus bodemeyeri* Ganglbauer, 1900
28. *Hydroporus discretus* Fairmaire & Brisout, 1859 – locality no. 19 – 1♀; Stenobiotic, rheophilous and crenophilous species (Koch 1989).
29. *Hydroporus hebaueri* Hendrich, 1990
30. *Hydroporus jonicus jonicus* L. Miller, 1862
31. *Hydroporus marginatus* (Duftschmid, 1805)
32. *Hydroporus planus* (Fabricius, 1781)
33. *Hydroporus pubescens* (Gyllenhal, 1808) – locality no. 13 – 1♂
34. *Hydroporus tessellatus* (Drapiez, 1819)
35. *Nebrioporus (Nebrioporus) suavis* (Sharp, 1882) – locality no. 14 – 1♂
36. *Oreodytes davisii davisii* (Curtis, 1831)
37. *Porhydrus lineatus* (Fabricius, 1775)
38. *Scarodytes halensis halensis* (Fabricius, 1787) – locality no. 1 – 1♀; locality no. 6 – 1♂; locality no. 11 – 2♂♂, 7♀♀
39. *Scarodytes savinensis savinensis* (Zimmermann, 1933) – locality no. 6 – 2♂♂, 4♀♀; According to Nilsson (2008) this species was not known from Albania before. Species with poorly known distribution. Very similar to and difficult to tell apart from other congeneric species. Probably occurs over the entire Balkan Peninsula.

40. *Hydrovatus cuspidatus* (Kunze, 1818)
41. *Hygrotus (Coelambus) parallelogrammus* (Ahrens, 1812)
42. *Hyphydrus ovatus* (Linnaeus, 1781)
43. *Laccophilus hyalinus* (DeGeer, 1774) – locality no. 6 – 1♂, 3♀♀; locality no. 8 – 1♀; locality no. 19 – 2 exx.; locality no. 24 – 2 exx.; According to Nilsson (2008) this species was not known from Albania before.
44. *Laccophilus minutus* (Linnaeus, 1758) – locality no. 11 – 5♂♂, 5♀♀, 3 exx.
45. *Laccophilus poecilus* Klug, 1834

Helophoridae

1. *Helophorus (Embleurus) hirsutiventris* Angus, 1974
2. *Helophorus (Rhopalhelophorus) brevitarsis* Kuwert, 1890
3. *Helophorus (Rhopalhelophorus) nivalis* Giraud, 1852
4. *Helophorus (Rhopalhelophorus) singularis* Miller, 1881

Hydrochidae

1. *Hydrochus flavipennis* Küster, 1852

Hydrophilidae

1. *Anacaena globulus* (Paykull, 1798) - locality no. 3 – 2 exx.; According to Hansen (2004) this species was not known from Albania before.
2. *Anacaena limbata* (Fabricius, 1792) – locality no. 8 – 1 ex. According to Hansen (2004) this species was not known from Albania before.
3. *Paracymus aeneus* (Germar, 1824)
4. *Paracymus scutellaris* (Rosenhauer, 1856)
5. *Berosus (Berosus) affinis* Brullé, 1835 – locality no. 8 – 1♀
6. *Berosus (Berosus) luridus* (Linnaeus, 1760)
7. *Berosus (Berosus) signaticollis* (Charpentier, 1825)
8. *Berosus (Enoplurus) spinosus* (Steven, 1808)
9. *Enochrus (Lumetus) quadripunctatus* (Herbst, 1797) – locality no. 11 – 1♂, 2♀♀; According to Hansen (2004) this species was not previously known from Albania.
10. *Enochrus (Lumetus) segmentinotatus* (Kuwert, 1888)
11. *Enochrus (Methydrus) nigritus* (Sharp, 1872)
12. *Hydrochara caraboides* (Linnaeus, 1758)
13. *Laccobius (Dimorpholaccobius) bipunctatus* (Fabricius, 1775)
14. *Laccobius (Dimorpholaccobius) obscuratus obscuratus* Rottenberg, 1874 – locality no. 7 – 1♀; locality no. 8 – 2♂♂; locality no. 14 – 1♂,

- 1♀; locality no. 15 – 2♀♀; locality no. 17 – 1♂; locality no. 18 – 2♂♂;
 locality no. 19 – 1♂; locality no. 22 – 1♀; locality no. 23 – 1♂
15. *Laccobius (Dimorpholaccobius) simulatrix* d'Orchymont, 1932 –
 locality no. 8 – 1♀; locality no. 11 – 2♂♂, 1♀; According to Hansen
 (2004) this species was not previously known from Albania.
16. *Laccobius (Dimorpholaccobius) striatus* (Fabricius, 1801) – locality
 no. 1 – 1♀; 8 – 1♂, 1♀; locality no. 11 – 1♂, 1♀; locality no. 15 – 1♂;
 locality no. 16 – 3♂♂, 7♀♀
17. *Laccobius (Dimorpholaccobius) syriacus* Guillebeau, 1896 – locality
 no. 19 – 1♂, 1♀; According to Hansen (2004) this species was not
 previously known from Albania.
18. *Laccobius (Laccobius) albipes* Kuwert, 1890
19. *Laccobius (Microlaccobius) alternus* Motschulsky, 1855
20. *Laccobius (Microlaccobius) gracilis gracilis* Motschulsky, 1855 –
 locality no. 16 – 2♂♂, 1♀
21. *Coelostoma (Coelostoma) hispanicum* (Küster, 1848) – locality no. 8 –
 1♂; According to Hansen (2004) this species was not previously known
 from Albania. Species distributed mainly in the Western Mediterranean
 basin, recorded in Europe from Portugal, Spain, France and Italy.
 D'Orchymont (1936) found its isolated locality on Samos Island
 (Greece). This species is probably also distributed in the Eastern
 Mediterranean or at least in the Balkan Peninsula but not recorded due
 to the paucity of studies in the area.

Hydraenidae

1. *Hydraena (Hydraena) croatica* Kuwert, 1888
2. *Hydraena (Hydraena) excisa* Kiesenwetter, 1849
3. *Hydraena (Hydraena) morio* Kiesenwetter, 1849
4. *Hydraena (Hydraena) nigrita* Germar, 1824
5. *Hydraena (Hydraena) phallica* d'Orchymont, 1930
6. *Hydraena (Hydraena) simonidea* d'Orchymont, 1931
7. *Hydraena (Hydraena) subintegra subintegra* Ganglbauer, 1901
8. *Hydraena (Hydraena) vedrasi* d'Orchymont, 1931
9. *Limnebius atomus* (Duftschmid, 1805)
10. *Limnebius perparvulus* Ray, 1884
11. *Limnebius stagnalis* Guillebeau, 1890
12. *Ochthebius (Asiobates) corcyreus* Jäch, 1990
13. *Ochthebius (Asiobates) dilatatus* Stephens, 1829
14. *Ochthebius (Asiobates) hebaueri* Jäch, 1983
15. *Ochthebius (Asiobates) montanus* J. Frivaldszky, 1881
16. *Ochthebius (Asiobates) striatus* Laporte, 1840

17. *Ochthebius (Calobius) brevicollis steinbuehleri* (Reitter, 1886)
18. *Ochthebius (Enicocerus) albanicus* d'Orchymont, 1941
19. *Ochthebius (Enicocerus) colveranus* Ferro, 1979
20. *Ochthebius (Ochthebius) adriaticus adriaticus* Reitter, 1886
21. *Ochthebius (Ochthebius) balcanicus* (Ieniștea, 1988)
22. *Ochthebius (Ochthebius) difficilis* Mulsant, 1844
23. *Ochthebius (Ochthebius) lanuginosus* Reiche & Saulcy, 1856
24. *Ochthebius (Ochthebius) mediterraneus* (Ieniștea, 1988)
25. *Ochthebius (Ochthebius) metallescens metallescens* Rosenhauer, 1847
26. *Ochthebius (Ochthebius) nobilis* A. Villa & G.B. Villa, 1835
27. *Ochthebius (Ochthebius) pusillus* Stephens, 1835
28. *Ochthebius (Ochthebius) ragusae* Kuwert, 1887
29. *Ochthebius (Ochthebius) sidanus* d'Orchymont, 1942
30. *Ochthebius (Ochthebius) subinteger* Mulsant & Rey, 1861
31. *Ochthebius (Ochthebius) subpictus deletus* Rey, 1885
32. *Ochthebius (Ochthebius) uskubensis* Hebauer, 1986
33. *Ochthebius (Ochthebius) viridis viridis* Peyron, 1858

Elmidae

1. *Elmis aenea* (P.W.J. Müller, 1806)
2. *Elmis bosnica bosnica* (Zaitzev, 1908)
3. *Elmis riolooides* (Kuwert, 1890)
4. *Elmis syriaca zoufali* (Reitter, 1910)
5. *Limnius perrisi perrisi* (Dufour, 1843)

Dryopidae

1. *Dryops viennensis* (Laporte, 1840)
2. *Dryops lutulentus* (Erichson, 1847) – locality no. 2 – 1♀; According to Kodada and Jäch (2006) this species was not previously known from Albania.
3. *Pomatinus substriatus* (P.W.J. Müller, 1806) – locality no. 11 – 1♂, 1♀, 2 exx.; locality no. 14 – 3♂♂, 5♀♀; locality no. 15 – 1♀; According to Kodada and Jäch (2006) this species was not previously known from Albania.

Limnichidae

1. *Limnichus incanus* Kiesenwetter, 1851

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