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Research article/Araştırma makalesi

Species Composition of Hydrophilidae and Helophoridae (Coleoptera) obtained from Abruzzo Region (L'Aquila, Teramo, Pescara) of Italy

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Abstract

Hydrophilidae and Helophoridae species collected from Abruzzo Region of Italy (including L'Aquila, Teramo, and Pescara provinces) were determined in this study. In total, 489 specimens belonging to 34 species, 12 genera and two families were identified. The general distributions of the whole species were reviewed and a chorotype analysis was presented in a table.

Key words: Hydrophilidae, Helophoridae, fauna, chorotype, Italy

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İtalya'nın Abruzzo Bölge'sinden (L'Aquila, Teramo, Pescara) Elde Edilen Hydrophilidae ve Helophoridae Tür Kompozisyonları

Özet

Bu çalışmada İtalya'nın Abruzzo Bölgesi'nde yer alan L'Aquila, Teramo ve Pescara illerinden toplanmış Hydrophilidae ve Helophoridae türleri araştırılmıştır. Toplamda iki familyaya ait 12 cins, 34 tür ve 489 birey teşhis edilmiştir. Bütün türlerin genel dağılışları gözden geçirilmiş ve bir korotip analizi tablo şeklinde sunulmuştur.

Anahtar kelimeler: Hydrophilidae, Helophoridae, fauna, korotip, İtalya

1. Introduction

Many species of Hydrophiloidea are strictly or widely aquatic, spending at least one part of their life under water (Rocchi, 2011). Hydrophilidae is one of the diverse groups of Hydrophiloidea represented by about 3000 species all over the world (Bloom et al., 2014). Of the six subfamilies recognized only two subfamilies, Hydrophilinae and Sphaeridiinae, inhabit in the Palearctic region (Löbl and Smetana, 2004), and the Italian hydrophilid fauna comprises about 117 species (Personal communication with Saverio Rocchi, Museo di Storia Naturale dell'Università degli Studi di Firenze, Florence, Italy).

The Helophoridae is a small hydrophiloid family classified into a single genus, *Helophorus* Fabricius, 1775, and comprises only about 200 species in the world. Species occur mainly in Palearctic and Nearctic regions and only a few species are known from the Afrotropical and Oriental regions (Fikáček, 2009; Yılmaz et al., 2014). The family members can be separated from other aquatic Coleoptera with the 5 distinct longitudinal furrows on the pronotum. The Italian helophorid fauna is represented by 35 species grouped in 4 subgenera, including *Empleurus*, *Trichohelophorus*, *Helophorus* and *Rhopalohelophorus* (Personal communication with Saverio Rocchi).

The Abruzzo Region is located in central Italy and mainly consists of the provinces L'Aquila, Teramo, Pescara and the Chieti. The Abruzzo National Park, Gran Sasso and Monti Della Laga National Park, Maiella National Park and Sirente-Velino Regional Park are located in the region. The area offers suitable conditions for species of both families in terms of topographic structure, natural habitats and numerous water sources. This study is a part of the studies conducted by the first author during her Erasmus Project in Italy (University of L'Aquila), in 2012. To our knowledge,

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faunistic studies on Italian hydrophilids and helophorids have not been published recently except the work of Rocchi (2011) which was based on Sardinian Hydrophiloidea. The study included a total of 24 Hydrophilidae species, but no helophorids were listed. The aim of the present study is to add new contributions to the aquatic insect knowledge of Italy.

2. Materials and methods

This study was based on insect material preserved in the laboratory of Prof. Dr. Maurizio Biondi from the University of L'Aquila (Department of Life, Health and Environmental Sciences) which was collected from L'Aquila, Teramo and Pescara provinces (Abruzzo Region except the Chieti) during the years 1992-2006 (Figure 1). The material was sorted and examined under a Leica EZ4 stereomicroscope. All specimens were identified to species level using the keys and figures given by Hansen (1987, 1991, 1999), Angus (1984, 1985, 1988, 1992), Shatrovskiy (1984), Gentili (1975, 1979), Gentili and Chiesa (1975), and Schödl (1991, 1993). Taglianti et al. (1999) and Löbl and Smetana (2004) were used for the zoogeographical characterization and chorotype classification of the species. Voucher specimens are deposited at the Biology Department of Süleyman Demirel University, Isparta, Turkey.

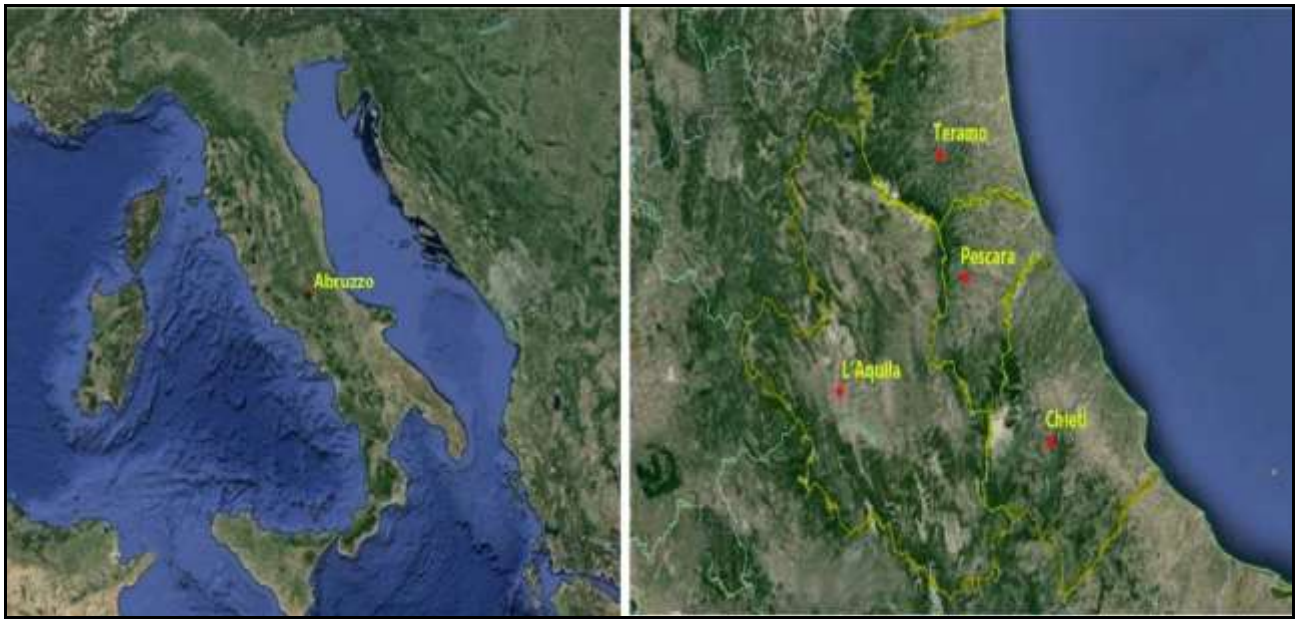

Figure 1. General view of the sampled area

3. Results

As a result of this study, 489 aquatic beetles arranged in 12 genera and 34 species (29 species from Hydrophilidae and 5 from Helophoridae) were identified. The species list is given below in Table 1, together with number of specimens and their chorotype classifications.

Table 1. Species list of Hydrophilidae and Helophoridae gathered from Abruzzo Region of Italy with their chorotype information and number of specimens

Species	L'Aquila	Teramo	Pescara	Chorotype
Hydrophilidae Latreille, 1802				
***Anacaena* Thomson, 1859**				
A. lutescens (Stephens, 1829)	3			Holarctic
A. bipustulata (Marsham, 1802)	5		1	Europeo-Mediterranean
A. globulus (Paykull, 1798)	39	7	3	Europeo-Mediterranean
A. limbata (Fabricius, 1792)	2			Holarctic
A. rufipes (Guillebeau, 1896)	8	5		Turano-European
***Berosus* Leach, 1817**				
B.signaticollis (Charpentier, 1825)	5			Sibero-European
***Enochrus* Thomson, 1859**				
E. ater (Kuwert, 1888)	8			Centralasiatic-Europeo Mediterranean

				+ Mediterraneo-Sindian
E. quadripunctatus (Herbst, 1797)	48		4	Asiatic-European
E. fuscipennis (Thomson, 1884)	31	1		Centralasiatic-European
E. halophilus (Bedel, 1878)	1			European
***Helochares* Mulsant, 1844**				
H. lividus (Forster, 1771)	2			Europeo-Mediterranean
***Hydrobius* Leach, 1815**				
H. fuscipes (Linnaeus, 1758)	37	57	7	Asiatic-European
***Hydrochara* Berthold, 1827**				
H. caraboides (Linnaeus, 1758)	3			Sibero-European
***Laccobius* Erichson, 1837**				
L. neapolitanus Rottenberg, 1874	4		10	Europeo-Mediterranean
L. bipunctatus (Fabricius, 1775)			6	Asiatic-European
L. obscuratus Rottenberg, 1874	2			Turano-European+Afrotropical Region
L. albescens Rottenberg, 1874	4			Turano-European
***Cercyon* Leach, 1817**				
C. haemorrhoidalis (Fabricius, 1775)	7		1	Holarctic+Oriental
C. marinus Thomson, 1853	1		2	Holarctic
C. impressus (Sturm, 1807)	1			Holarctic
C. quisquilius (Linnaeus, 1761)	1			Cosmopolitan
C. lateralis (Marsham, 1802)	1			Holarctic
C. ustulatus (Preyssler, 1790)	10		2	Holarctic
C. castaneipennis Vorst, 2009			1	Centraleuropean
***Sphaeridium* Fabricius, 1775**				
Sp. scarabaeoides (Linnaeus, 1758)	1			Palearctic
Sp. bipustulatum Fabricius, 1781			1	Holarctic
Sp. lunatum Fabricius, 1792	1	1		Holarctic
***Megasternum* Mulsant, 1844**				
M. concinnum (Marsham, 1802)	20		11	Holarctic
***Coelostoma* Brullé, 1835**				
C. orbiculare (Fabricius, 1775)	27	6	1	Palearctic
Helophoridae Leach, 1815				
***Helophorus* Fabricius, 1775**				
H. minutus Fabricius, 1775			65	W-Palearctic
H. aquaticus (Linnaeus, 1758)	2		7	Sibero-European
H. milleri Kuwert, 1886	3			Centralasiatic-Mediterranean
H. obscurus Mulsant, 1844	7		5	European
H. rufipes (Bosc, 1791)	1			W-Palearctic
Species number	30	6	16	
Individual number	285	77	127	

In total, 15 different chorotypes were represented by the hydrophilid and helophorid species. Classification of chorotypes follows as suggested by Taglianti et al. (1999), except the three chorotypes identified for some hydrophilid species: Centralasiatic-Europeo-Mediterranean+Mediterraneo-Sindian for *Enochrus ater*; Turano-European +Afrotropical region for *Laccobius obscuratus*, and Holarctic+Oriental for *Cercyon haemorrhoidalis*. The most common chorotypes in terms of species numbers included are; Holarctic (9 species), Europeo-Mediterranean (4 species), Asiatic-European (3 species) and Sibero-European (3 species) with a percentage of about 55% among all others.

4. Conclusions

Hydrophilidae and Helophoridae represent two important groups among aquatic beetle fauna of Italy. This study constitutes one more contribution in order to complete the data for Italian aquatic beetles and similar studies contribute to assess the actual Hydrophilidae and Helophoridae fauna in Italy.

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