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Source: Bulletin of the Biological Society of Washington, 15(1):151-152.

Published By: Biological Society of Washington

DOI: [http://dx.doi.org/10.2988/0097-0298\(2008\)15\[151:HICOP\]2.0.CO;2](http://dx.doi.org/10.2988/0097-0298(2008)15[151:HICOP]2.0.CO;2)

URL: <http://www.bioone.org/doi/full/10.2988/0097-0298%282008%2915%5B151%3AHICOP%5D2.0.CO%3B2>

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Hydrophiloidea (Insecta: Coleoptera) of Plummers Island, Maryland

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Abstract.—Eighteen species of Hydrophiloidea were collected on Plummers Island, Maryland between 1903 and 1972, representing 17.5% of the known fauna of Maryland. Of these, eight species are aquatic and ten are terrestrial. The most commonly collected species were *Cymbiodyta chamberlaini* Smetana and *Enochrus cinctus* (Say).

Key words.—Aquatic invertebrates, inventory, Potomac River, water scavenger beetles.

The Hydrophiloidea contains the families Hydrophilidae, Helophoridae, Epimetopidae, Georissidae, and Hydrochidae (Hansen 1999). Alternatively, some authors treat the five as subfamilies of Hydrophilidae (Van Tassell 2001). Hydrophilidae, water scavenger beetles, are mainly aquatic, but members of the subfamily Sphaeridiinae are mostly terrestrial and live in animal dung, fungi, and decaying plant material; a few species are semiaquatic and feed on decaying plant material in wet situations. Aquatic species are found in stagnant pools, littoral areas of lakes and ponds, shallow quiet water of streams, and springs. Aquatic species are predaceous as larvae; adults are predaceous on snails or other small invertebrates, omnivorous, or phytophagous.

A number of aquatic species are important predators of mosquito larvae. *Hydrophilus triangularis* Say has been reported as a pest in fish hatcheries (Wilson 1923).

The family Helophoridae contains the genus *Helophorus* (Hansen 1999), which are easily distinguished by their elongate shape and the longitudinal grooves on the pronotum. Adults are poorly adapted for swimming and mostly crawl about on aquatic vegetation. Eggs are laid in moist vegetation or debris at the margin of aquatic habitats. Known larvae are predaceous, but the biology is unknown for most North American species (McCorkle 1967, Smetana 1985).

According to the Maryland Natural Heritage Program, *Hydrochus spangleri* Hellman (Coleoptera: Hydrochidae) is a state endangered species, and *Hydrochara occulata* d'Orchymont and *Sperchopsis tessellatus* Ziegler (Coleoptera: Hydrophilidae) are candidates for endangered or threatened status (Anonymous 2003).

The 225 North American species are fairly well

known (Van Tassell 2001). There are 103 species reported from Maryland (Staines 1986). Of these, 75 are aquatic and 28 terrestrial.

The insect collection at the National Museum of Natural History (USNM), Smithsonian Institution, Washington, D.C., was examined for specimens collected on Plummers Island. This collection is the major repository for specimens from Plummers Island since most of the entomologists who worked on the Island were affiliated with the USNM. Species identifications were confirmed, and label data was recorded for specimens. In addition, literature on various genera was examined for Plummers Island records.

The USNM collection contains 85 specimens from Plummers Island representing 18 species (17.5% of the Maryland fauna). Of these species, eight are aquatic and 10 are terrestrial. Specimens were collected from January to October with more specimens collected in June than any other month (i.e., 28 specimens or 33% of total).

Species Accounts

Helophoridae

Helophorus linearis LeConte is found in shallow water with emergent vegetation (Smetana 1985). Two specimens were collected 1 September 1960.

Hydrophilidae

Berosus peregrinus (Herbst) prefers quiet water along streams or ditches but occasionally can be found in temporary pools (Van Tassell 1966). Seven specimens were collected from 4 June 1911 to 25 June 1914.

Cercyon analis (Paykull) is found on carrion, in fungi, and in compost piles; adults are attracted to

lights (Smetana 1978). One specimen was collected 8 September 1907.

Cercyon assecla Smetana has been collected in gill fungi, dung, compost, and leaf litter (Smetana 1978). Five specimens were collected from 23 June 1905 to 7 June 1908.

Cercyon lateralis (Marsham) has been found in compost piles, fungi, manure, and plant debris; it can be collected at lights (Smetana 1978). Eight specimens were collected from 17 August 1905 to 4 August 1909.

Cercyon mendax Smetana has been collected at lights (Smetana 1978). One specimen was collected 25 August 1960.

Cercyon minisculus Melsheimer is found in fungi, dung, and leaf litter; it also can be collected in fruit traps (Smetana 1978). Two specimens were collected 3 September 1918.

Cercyon occallatus (Say) is found in fungi and leaf litter; it can be collected in pitfall traps (Smetana 1978). Two specimens were collected: 8 August 1905 and 3 September (no year).

Cercyon praetextatus (Say) is found on carrion and dung; adults are attracted to lights (Smetana 1974). Six specimens were collected from 24 June 1908 to 8 August 1914.

Cercyon versicolor Smetana is found in dung, fungi, and carrion; according to Smetana (1978) adults are attracted to lights. One specimen was collected 29 September 1907.

Chaetarthria atra (LeConte) burrows in sand along the margins of streams or rivers (Miller 1974). One specimen was collected 17 April 1903.

Cryptopleurum americanum Horn has an unknown biology; other members of the genus are found in rotting vegetation (Smetana 1978). One specimen was collected 19 April 1903.

Cymbiodyta blanchardi Horn has been collected in ponds, under rocks by water, in seepages, and at light (Smetana 1974). Two specimens were collected: 11 May 1905 and 27 October (no year).

Cymbiodyta chamberlaini Smetana was the most commonly collected species with 25 specimens taken from 23 March 1907 to 19 April 1972; most specimens (13) were collected in 1960 and 1961. This is a habitat generalist that is found in both lentic and lotic situations (Smetana 1974).

Cymbiodyta vindicata Fall has been collected in streams, lakes, seepage pools, sphagnum moss, and at lights (Smetana 1974). One specimen was collected 14 June 1966.

Enochrus cinctus (Say) was represented by 18 specimens collected from 2 July 1903 to 7 June 1961. While this species seems to prefer lentic situations, especially detritus filled pools and woodland pools,

some specimens have been collected from streams (Testa & Lago 1994).

Hydrochara soror Smetana is found on ponds, streams, and ditches; adults commonly come to lights (Smetana 1980). One specimen was collected 5 May 1913.

Oosternum costatus (LeConte) has been collected under carrion, in dung, in leaf litter, and in meat traps (Smetana 1978). One specimen was collected 24 May 1908.

Thirteen of the 18 hydrophilid species from Plummers Island are habitat- and food-generalists (five aquatic and eight terrestrial species). Two terrestrial species have unknown biologies.

The Hydrophiloidea is an excellent group to continue to monitor. Owing to the existence of collections prior to 1920 and in the 1960s, comparisons can be made to evaluate species turnover for the site.

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