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Source: Bulletin of the Biological Society of Washington, 15(1):127-129.

Published By: Biological Society of Washington

DOI: [http://dx.doi.org/10.2988/0097-0298\(2008\)15\[127:SAHIMF\]2.0.CO;2](http://dx.doi.org/10.2988/0097-0298(2008)15[127:SAHIMF]2.0.CO;2)

URL: <http://www.bioone.org/doi/full/10.2988/0097-0298%282008%2915%5B127%3ASAHIMF%5D2.0.CO%3B2>

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Scorpionflies and Hangingflies (Insecta: Mecoptera) from Plummers Island, Maryland

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Abstract.—The National Insect Collection was searched for specimens of Mecoptera collected on or near Plummers Island, Montgomery County, Maryland, and the records were taken from those found. A special effort was made in 2004 and 2005 to collect insects on or adjacent to Plummers Island, using a number of techniques. In addition to the usual ultraviolet light traps, two Malaise traps were operated during the season in 2005. Eleven species of Mecoptera were identified from this material: nine taken in the 1900s and three in 2004–2005. They belong to four families and four genera. Most are species widely distributed over eastern North America, and none is considered endangered.

Key words.—Inventory, Potomac River, blacklight trap, Malaise trap, historical records.

The Mecoptera is a small order of holometabolous insects closely related to butterflies and moths (Lepidoptera) and caddisflies (Trichoptera). They are found primarily in moist woodlands with plenty of lower herbaceous vegetation. They are almost exclusively diurnal in nature. The most effective way to collect them is by sweeping vegetation with a net or netting them as they fly when one moves through the undergrowth. On occasion, a Malaise trap has proven to be quite effective. General works on North American Mecoptera include Carpenter (1931), Byers (1962), and Webb et al. (1975), from which much of the general distributional information presented below is derived.

A search was made through the collection at the National Museum of Natural History (USNM), Washington, D.C. for all historical records of Mecoptera from or near Plummers Island, Montgomery County, Maryland. All specimens found are recorded herein. A special effort was made in 2004 and 2005 to collect insects on or adjacent to Plummers Island using ultraviolet light traps (2004–2005) and Malaise traps (2005). Eleven species of Mecoptera were identified from this material: nine from the 1900s and three from 2004–2005. They belong to four families and four genera. Most are species widely distributed over eastern North America, and none is considered endangered. Interestingly, many more species were taken in the first part of the 1900s than in the last few years. This is probably due to the near absence of diurnal collecting in recent years, although change in habitat also could be involved. The forest on Plum-

mers Island has become more mature with less herbaceous vegetation and ecotone habitat (Shetler et al. 2006), and as a result, the diversity could have declined. All specimens listed below are from Plummers Island and are deposited in the collection of the USNM.

Family Meropeidae

This is one of the most primitive families in Mecoptera, with one species in eastern North America and a second in western Australia.

Merope tuber Newman

The single eastern species is widespread from Georgia to Canada and west to Missouri and Minnesota. It is taken most commonly in Malaise traps nowadays, but before the widespread use of these traps, the species was taken rarely at light. In addition to Plummers Island, *Merope tuber* has been found in nearby localities in Maryland and Virginia.

Records.—13 June 1905, E. Schwarz; 19 June 1905, H. Barber & E. Schwarz; 27 June 1905, E. Schwarz; 9 September 1903, A. Busck; 11 September 1903, A. Busck.

Family Bittacidae (Hangingflies)

This family is widespread over most of the world. There are four genera in North America, with *Bittacus* being the most common and widespread. Seven species are known in the genus in North America, with five recorded from the East; all of these have

been taken on the Island. The monotypic *Hylobittacus apicalis* (Hagen) is widespread in the East, reaching into southwestern Virginia, West Virginia, and Pennsylvania but has not been recorded from the Piedmont or Coastal Plain.

Bittacus occidentis Walker

The species is widespread, but infrequently collected, over eastern North America, from Alabama to Canada and west to Kansas and Arizona.

Records.—16 July 190[5], H. Barber & E. Schwarz; 11 September (no year), A. Busck; 17 September 1903, E. Schwarz.

Bittacus pilicornis Westwood

The species has much the same distribution as the last—Florida to Canada, west to Minnesota and Kansas.

Records.—30 May 1901, E. Schwarz; 2 June 1916, W. McAtee. Also Maryland, near Plummers Island: 2 June 1916, W. McAtee; 4 June 1916, H. Viereck; 14 June 1916, W. McAtee; 18 June 1916, W. McAtee; 21 July 1915, W. McAtee & C. Alexander.

Bittacus punctiger Westwood

This is a rather uncommon species, found in eastern United States from Florida to Pennsylvania and west to Texas.

Records.—Lower Malaise trap, 27 June–11 July 2005, J. Brown & D. Smith.

Bittacus stigmaterus Say

Another widespread eastern species, this one is known from Georgia to New York, west to Minnesota and Texas.

Records.—21 July 1915, W. McAtee; 27 July 1913, W. McAtee.

Bittacus strigosus Hagen

This, the commonest species of the genus in North America, is recorded from Louisiana and South Carolina to Canada and west to Manitoba and Montana.

Records.—15 June 1902, H. Barber; 28 June 1905, H. Barber; 30 June 1912, W. McAtee; 3 July 1919, H. Barber; 4 July 1907, E. Schwarz; 5 July 1953, Vogt & Parfin; 7 July 1912, W. McAtee; 8–20 July 1968, P. Spangler; 17 July 1971, G. Hevel; 29 July 1912, W. McAtee; 3 August 1912, J. Malloch; 3 August (no year), Currie; 17 August 1906, H. Barber & E. Schwarz; upper Malaise trap, 14–26 June 2005, 27 June–11 July, J. Brown & D. Smith; lower Malaise trap, 28 July–14 August 2005, J. Brown & D. Smith. Also Maryland, near Plummers Island, 22 August 1916, W. McAtee; C&O Canal, near Plummers Island, 8 July 1972, G. Hevel.

Family Boreidae (Snowfleas)

This family is widespread over Europe, Asia, and North America. The genus *Boreus* is widespread throughout this area, with ten species in North America, two of which occur in the East. In addition to the one recorded below, *B. nivoriundus* Fitch is found further to the north and west.

Boreus brumalis Fitch

This, the most widespread of the eastern species, is found from Tennessee to Canada and west to Illinois and Minnesota.

Record.—1 December 1912, J. Malloch.

Family Panorpididae

This rather small family is limited to eastern and western North America and eastern Asia. The New World genus *Brachypanorpa* contains five species, two known from the East. *B. carolinensis* (Banks) is known in the southern Appalachians and *B. jeffersoni* Byers from southwestern Virginia and adjacent North Carolina. It is very unlikely that any species will be found on Plummers Island.

Family Panorpidae (Scorpionflies)

This is a widespread family found throughout the Northern Hemisphere with a southern extension through Indonesia. It is lacking in Africa and south of Mexico in the New World. Only the genus *Panorpa* is known in North America, but it is speciose with around 50 species. Only four species have been taken on the Island, but another three, *P. dissimilis* Carpenter, *P. submaculosa* Carpenter, and *P. virginica* Banks, are known from nearby localities.

Panorpa consuetudinis Snodgrass

This is an eastern species, known from South Carolina to New York and west to Indiana and Mississippi.

Records.—6 July (no year), H. Barber; 13 July 1913, W. McAtee; 2 August 1905, Clemons; 9 August 1906, W. McAtee; 21 August 1907, Fisher; 25 August 1917, W. McAtee.

Panorpa helena Byers

This is a very common and widespread species throughout eastern North America. It ranges from Georgia to Massachusetts and west to Manitoba and Kansas.

Records.—16 May 1970, G. Steyskal; 31 May 1982, J. Clarke; lower Malaise trap, 12–23 April 2005, 24 April–8 May 2005, 9–22 May 2005, 22–29 May 2005, 30 May–13 June 2005, 28 July–14 August 2005, 29 August–11 September 2005, 12 Sep-

tember–2 October 2005, J. Brown & D. Smith; upper Malaise trap, 9–22 May 2005, 22–29 May 2005, 30 May–13 June 2005, 14–28 August 2005, J. Brown & D. Smith. Also Maryland, mainland across from Plummers Island, blacklight trap, 22 May 2004, J. Brown.

Panorpa isolata Carpenter

This is a rather uncommon species with a somewhat limited distribution in the East: Mississippi and Georgia north to the Potomac River.

Records.—7 June 1914, W. McAtee; 29 June 1913, W. McAtee; 28 September 1912, Shoemaker.

Panorpa maculosa Hagen

This is another eastern species known from Georgia to Vermont and west to Michigan.

Record.—28 June 1905, H. Barber.

Acknowledgments

I am indebted to John W. Brown, Systematic Entomology Laboratory, U.S. Department of Agriculture, for making the light trap collections and retrieving the Malaise trap material. David R. Smith helped set up the Malaise traps and sorted all the Mecoptera from the catches. I thank two anonymous reviewers for their valuable contributions.

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