

Shore Flies (Insecta: Diptera: Ephydriidae) of Plummers Island, Maryland

Wayne N. Mathis and Dianne Mathis

Department of Entomology, NHB 169, P.O. Box 37012, Smithsonian Institution,
Washington, D.C. 20013-7012, U.S.A.,
e-mail: mathisw@si.edu

Abstract.—Twenty-nine species of shore flies in 17 genera have been collected and identified from Plummers Island. Although relatively diverse, the shore-fly fauna known from the Island represents only 21% of the species known from the surrounding states, indicating that we probably are dealing with sampling error and that many more species are likely to be found there.

Key words.—Inventory, diagnosis, distribution, systematics.

Ephydriids or shore flies are well known among true flies (order Diptera) because of their rather unique ability to proliferate in environments that are normally inimical to life. Breeding habitats for some species include mineral and thermal springs, petroleum pools, highly saline lakes, salt marshes, and small carrion (Foote 1995). Their unusual ability to breed in such a diverse array of habitats prompted Oldroyd (1964:189), a renowned English dipterist, to write: "Evidently we are seeing in the Ephydriidae a family of flies in the full flower of its evolution, and as such they offer attractive material for study, not only to the dipterist, but also to students of insect physiology and behavior." Obviously we concur and submit this faunal survey to document the diversity of shore flies on Plummers Island.

Shore flies are diverse and often abundant in the Potomac River gorge, but being small flies, usually less than 3 mm, they are not often collected or identified. The North American fauna includes 464 species (not including *nomina dubia*) and is now reasonably well known, although some genera, such as *Allotrichoma* Becker, have not been revised in the last 50 years, and we are aware of several undescribed or unreported species. According to the Maryland Natural Heritage Program, there are no shore flies on the rare and endangered or threatened species in the state.

This faunal survey is based on study of 174 specimens, representing 29 species in 17 genera. Twenty-nine species represents 21% of the fauna from the Delmarva states. Specimens have been collected from April to October. We highlight the collecting efforts of Raymond C. Shannon (1894–1945), who collected most of the 174 specimens. Ten species are represented by specimens that he alone collected.

We provide a diagnosis for each species and note specific data for all specimens examined, such as the date of collection, collector, depository of the specimens and the number of specimens we examined by

gender. Although many specimens examined for this study are in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM), we also borrowed and studied numerous specimens, especially primary types, that are deposited in the following museums: AMNH—American Museum of Natural History, New York, New York; ANSP—Academy of Natural Sciences of Philadelphia, Pennsylvania; BMNH—The Natural History Museum, former British Museum (Natural History), London, England; KU—Snow Entomological Museum, University of Kansas, Lawrence, Kansas; MCZ—Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts; NMW—Naturhistorisches Museum, Vienna, Austria; NRS—Naturhistoriska Riksmuseet, Stockholm, Sweden; OHSU—Ohio State University, Columbus, Ohio; SMN—Staatliches Museum für Naturkunde in Stuttgart, Stuttgart, Germany; ZIL—Zoological Institute, Lund University, Lund, Sweden; ZMO—Zoological Museum, University of Oslo, Oslo, Norway.

For each species, including junior synonyms that occur in the Nearctic Region, we list the status and depository of the primary type(s) and have used the abbreviations HT (= holotype), LT (= lectotype), and ST (= syntype). In the synonymy provided for each species, we include papers where nomenclatural changes were made and selected others that provide information on the identification (especially if figures were included) and natural history of the species.

Systematics

Leptopsilopa atrimana (Loew)

Psilopa atrimana Loew 1878:197 [United States. District of Columbia and Texas; ST ♂, MCZ (11141)].

Leptopsilopa atrimana: Cresson 1942:126 [generic combination].—1946a:155, 162 [review; key].—Wirth 1965:741 [Nearctic catalog].—Deonier

1965:502 [natural history].—Scheiring & Foote 1973:159 [natural history].—Steinly & Runyan 1979:139–147 [life history]; Mathis & Zatwarnicki 1995:35 [world catalog]; 2006:90–95 [revision].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head:* Face above cruciate facial setae with transverse striae. *Thorax:* Wing infusate over cross-vein dm-cu; foreleg, including forecoxa and tarsomeres, entirely black; mid- and hindfemora yellowish, concolorous with tibiae. *Abdomen:* Male Terminalia: Epandrium robustly developed, in posterior view as an inverted U, slightly wider ventrally; in lateral view subrectangular, essentially parallel-sided, with height about twice width, in posterior view as an inverted U, ventral arms thickly developed; cercus in posterior view semihemispherical, in lateral view more or less lunate, slightly narrower ventrally than dorsally; postsurstylus robust, prominent, in posterior view with dorsomedial projection, medial margin concave, bearing several setulae, in lateral view subrectangular with rounded angles; pregonite in lateral view very elongate, rodlike to digitiform, almost parallel sided process, bearing 2 apical, moderately long setulae; postgonite in lateral view elongate, L-shaped, with base extended posterodorsally, apical extension irregularly sided, posterior margin with subapical, angulate bulge, apical one-third bearing setulae, especially on subapical bulge, apex bluntly rounded, thumblike, bearing shorter setulae; subepandrial plate in lateral view narrow, apical one-third slightly curved and tapered to acute point, in posterior view very broadly and shallowly U-shaped with each arm spatulate; aedeagus in posterior view with basal two-thirds as a trapezoid, narrower at base, slightly wider apically, apical one-third as a bluntly pointed triangle, in lateral view L-shaped, with extension narrow, about twice length of basal portion, tapered gradually, apex bluntly rounded; phallapodeme in lateral view irregularly triangular, keel pointed, in posterior view like an hourglass with base wider than apex; hypandrium in lateral view concave, pouchlike, pouch broadly rounded, posterior margin in ventral view conspicuously emarginate.

Specimen examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 23 Apr 1914, R. C. Shannon (1♂; ANSP).

Distribution.—*Nearctic:* Canada (Manitoba, Ontario, Quebec), United States (Alabama, Arizona, California, Connecticut, District of Columbia, Florida, Georgia, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Hampshire, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennes-

see, Texas, Virginia, Wisconsin, West Virginia). *Neotropical:* Guatemala, West Indies (Cuba).

Natural history.—Deonier (1965) and Scheiring & Foote (1973) reported respectively from studies conducted in Iowa and Ohio what little is known on the natural history of this species. They collected specimens from marsh-reed, sedge-meadow, and *Eragrostis*-mat habitats in Iowa, and from limnic-wrack habitats in Ohio. In addition, Scheiring & Foote (1973) reared larvae in the laboratory on decaying lettuce but noted that the larvae were probably feeding primarily on saprophytic microorganisms. They also remarked that adults were found abundantly in a flower bed of chrysanthemums in Tucson, Arizona.

Remarks.—Malloch (1934:314) wrote that this "... species had been placed in a separate genus, *Leptopsilopa* Cresson, but the only characters cited for the separation from *Psilopa* consist of the minute cross striation of the face, and the thickened foretarsi of both sexes, which hardly entitle the group to even subgeneric segregation in our opinion." Although we have some evidence to substantiate the monophyly of New World *Leptopsilopa*, we acknowledge that it may be an included lineage within the larger complex now recognized as *Psilopa* (Mathis & Zatwarnicki 2006). An obvious solution would be to combine species of both genera into a single genus, perhaps recognizing subgenera or species groups. We have not done so for two reasons. First, the Old World species are very inadequately known, and second, no one has conducted comprehensive, comparative studies of all included species, especially structures of the male and female terminalia. For the present, therefore, we defer acting upon a "merger" until the Old World fauna is better known and we have had an opportunity to analyze the evidence more comprehensively.

In distribution, this is mostly an eastern species and *L. varipes* is the western equivalent. There are, however, a few records of *L. atrimana* from the West.

Paralimna (Paralimna) punctipennis (Wiedemann)

Notiphila punctipennis Wiedemann 1830:590 [not given (? United States); LT ♀ (designated by Cresson 1929:184), NMW].

Paralimna punctipennis: Cresson 1929:184 [generic combination].—1946b:229 [review].—Wirth 1965:748 [Nearctic catalog].—Mathis & Zatwarnicki 1995:124 [world catalog].

Paralimna appendiculata Loew 1862:138 [United States. "Middle States" and "Georgia"; ST ♂ ♀, MCZ (11134)]; Cresson 1929:184 [synonymy].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Body generally bicolored, dorsum, especially frons and mesonotum, mostly grayish brown to brown, lateral surfaces mostly gray, sometimes sil-

very white. *Head*: Arista bearing 11–13 dorsal branches; eye round, about as wide as high; gena high, height subequal or slightly greater than length of basal flagellomere; frons mottled, dark to whitish brown. *Thorax*: Scutellum guttate, mostly brown, especially base of setae; anepisternum and katepisternum mostly concolorous (anepisternum with dorsal margin sometimes brown), faintly yellowish gray to silvery gray; wing mostly hyaline; crossvein dm-cu lacking infusate halo; femora mostly gray; forefemur of male bearing anteroventral, comblike row of distinctly flattened, long setae; and posteroventral surface of male forefemur bearing patch of long setae at basal 1/3.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 20 May–17 Aug 1914, 1988, 1989, A. Freidberg, F. K. Knab, R. C. Shannon, P. J. Spangler (3♂, 4♀; USNM).

Distribution.—*Nearctic*: United States (California, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Maryland, Minnesota, New Jersey, New York, North Carolina, Ohio, South Dakota, Virginia, West Virginia).

Remarks.—This is one of the more common species on Plummers Island. It is often found abundantly on exposed muddy and/or sandy banks and shorelines.

Hydrellia decens Cresson

Hydrellia decens Cresson 1931:107 [United States. Maryland. Montgomery Co.: near Plummers Island; HT ♀, USNM (43455)]; 1944:170 [review].—Wirth 1965:744 [Nearctic catalog]; Deonier 1971:55–56 [revision].—Mathis & Zatwarnicki 1995:69 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Parafrons and mesofrons except for ocellar triangle, densely microtomentose, appearing velvety black or dark reddish brown; ocellar setae present; 2 fronto-orbitals, both setae proclinate. Pedicel concolorous with frons; 9–11 arisal rays. Face in anterior view light yellowish brown to yellowish gray; maxillary palpus blackish brown. *Thorax*: 3–4 presutural and 2 postsutural dorsocentral setae; mesonotum and abdomen (latter to a lesser extent) dark, shiny, metallic bluish green to greenish blue; pleural areas faintly bluish gray; legs dark, femora with some grayish microtomentum, otherwise blackish; tarsi with some brownish orange at joints of tarsomeres.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 2 Sep 1914, R. C. Shannon (3♀; ANSP, USNM).

Distribution.—*Nearctic*: United States (Maryland, Virginia).

Remarks.—This is apparently a rare species, and until we collected the male from Great Falls (Clay Pond) and Pocahontas State Park, Virginia, it was only known from females.

Hydrellia fascitibia (von Roser)

Notiphila fascitibia von Roser 1840:62 [Germany. Württemberg; HT ♀, SMN].

Hydrellia fascitibia: Becker 1905:198 [generic combination].

Hydrellia cruralis Coquillett 1910:131 [United States. New Jersey. Burlington: Riverton; HT ♀, USNM (13102)].—Berg 1950:378–382 [immature stages, biology].—Deonier 1971:53–55 [revision, immature stages; host plants].—Zatwarnicki 1988:595 [synonymy].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Frons tannish to grayish black with parafrons lighter, usually grayer; ocellar setae present; 2 fronto-orbitals, anterior seta proclinate, posterior seta reclinate. Scape and pedicel dark brown, basal flagellomere partially to wholly yellow to orange; 5–9 (usually 6–7) arisal rays. Face in anterior view light yellow brown or silvery, contrasted with silvery to gray parafacial, face in lateral view very slightly convex with indistinct antennal grooves; maxillary palpus yellowish, broadly triangular, spatulate. *Thorax*: 3–4 presutural and 4 postsutural dorsocentral setae; mesonotum conspicuously darker than pleural areas, pleural areas substantially gray, not densely microtomentose and appearing velvety; forecoxa dark, gray to blackish brown; tibiae moderately grayish yellow to yellow; at least apical 2–3 tarsomeres dark. *Abdomen*: Male terminalia: Fused surstylus pentagonal, basal 3rd rectangular with lateral margins slightly angled laterally, apical two-thirds triangular, anterior margin narrowly rounded and lacking a medial notch.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 28 Apr–1 Sep 1914, 1962, K. Krombein, R. C. Shannon (11♂, 7♀; ANSP, USNM).

Distribution.—*Nearctic*: Canada (Ontario, Quebec), United States (Alabama, Alaska, Connecticut, Florida, Idaho, Illinois, Iowa, Kansas, Maryland, Massachusetts, Michigan, New Jersey, Ohio, Pennsylvania, Texas, Virginia, West Virginia). *Palaearctic*: Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Italy, Poland, Romania, Sweden, Switzerland.

Remarks.—This species has a Holarctic distribution and is especially widespread in the Nearctic Region, although it apparently does not occur in the Southwest. On Plummers Island, this is the most frequently collected species of *Hydrellia*.

Hydrellia formosa Loew

Hydrellia formosa Loew 1861:355 [United States. "Pennsylvania"; HT ♀, MCZ (11153)].—Cresson 1944:163 [review].—Deonier 1971:61–63 [revision], 1998:130–135 [revision]; Wirth 1965:744 [Nearctic catalog].—Mathis & Zatwarnicki 1995:72 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head:* Frons mostly densely microtomentose, appearing velvety black except for semi-glossy ocellar triangle; ocellar setae lacking; 2 fronto-orbitals, anterior seta proclinate, posterior seta reclinate. Antenna generally black, somewhat concolorous with frons except for some yellowish coloration along venter of basal flagellomere; 7–11 (usually 9) arisal rays. Face in anterior view unicolorous, silvery to slightly grayish white microtomentose, in lateral view slightly receding, with indistinct antennal grooves; maxillary palpus yellowish, short, length about or less than twice width. *Thorax:* 3–4 presutural and 2–3 postsutural dorsocentral setae; scutellar disc, notopleuron (and adjacent supra-alar area), and ventral area of anepisternum and katepisternum densely microtomentose, black, appearing velvety; femora and tibiae concolorous, black; tarsi yellowish. *Abdomen:* Male terminalia: Fused surstylus shallowly bilobed, widely and moderately shallowly concave medially, width only slightly longer than length.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 5 Jun–5 Aug 1913, 1963, W. L. McAtee, R. C. Shannon, G. C. Steyskal (2♂, 2♀; USNM); Plummers Island (near; at light; 38°58.2'N, 77°10.6'W), 23 May–26 Jul 1914, 1915, R. C. Shannon (4♂, 3♀; USNM).

Distribution.—*Nearctic:* Canada (Nova Scotia, Ontario, Quebec), United States (Alabama, Arkansas, Connecticut, District of Columbia, Florida, Georgia, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Vermont, West Virginia).

Remarks.—This species is easily recognized and is one of the more beautiful species of shore flies. The dense patches of microtomentum that appear velvety are especially attractive. The species is fairly common and widespread in temperate eastern North America, including Plummers Island.

Hydrellia griseola (Fallén)

Notiphila griseola Fallén 1813:250 [Sweden; ST (sex?), ZIL].

Hydrellia griseola: Macquart 1835:523 [generic combination].—Deonier 1971:63–69 [revision, im-

mature stages; host plant]; 1998:139–149 [revision].

Hydrellia hypoleuca Loew 1862:151 [United States. "Middle States"; ST ♀, MCZ (11158)].—Grigarick 1959:4 [synonymy].

Hydrellia obscuriceps Loew 1862:152 [United States. "Middle States"; ST ♂, MCZ (11157)].—Grigarick 1959:4 [synonymy].

Hydrellia scapularis Loew 1862:153 [United States. "United States"; ST ♀, MCZ 11155].—Grigarick 1959:4 [synonymy].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head:* Frons mostly light gray to bluish gray microtomentose, parafrons darker brown; ocellar setae present; 2 fronto-orbitals, anterior seta proclinate, posterior seta reclinate. Antenna usually dark grayish brown; 4–8 (usually 5–6) arisal rays. Face in anterior view variable, light to dark metallic yellowish brown, in lateral view nearly vertical to distinctly convex, very rounded, medial elevation to a distinct carina on dorsal portion, antennal grooves usually distinct; maxillary palpus yellowish, broadly triangular, spatulate. *Thorax:* 3–5 presutural and 2–3 postsutural dorsocentral setae; mesonotum conspicuously darker than pleural areas, not densely microtomentose and appearing velvety; wing length usually less than 0.8 mm; forecoxa dark, gray to blackish brown; tibiae dark gray to brown, generally concolorous with femora and tarsi. *Abdomen:* Male terminalia: Fused surstylus only slightly wider than long, broadly bilobed, somewhat similar to *H. valida* but with deep, medial emargination slightly narrower and deeper.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 17 May–8 Sep 1907, 1918, 1963, K. V. Krombein, W. L. McAtee, R. C. Shannon (3♂, 4♀; USNM).

Distribution.—*Australasian/Oceanian:* Australia (Queensland). *Nearctic:* Bermuda, Canada (Alberta, British Columbia, Manitoba, Nova Scotia, Ontario, Quebec, Saskatchewan), United States (Alaska, Alabama, Arkansas, California, Connecticut, District of Columbia, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Mississippi, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Vermont, Washington, West Virginia, Wisconsin, Wyoming). *Neotropical:* Colombia. *Oriental:* Nepal, Philippines, Taiwan. *Palaearctic:* Afghanistan, Algeria, Austria, Azores, Belgium, Canary Islands, China (Hefei, Xining, NE Tibet), Cyprus, Czech Republic, Denmark, Egypt, Estonia, Faroe Islands, Finland, France, Ger-

many, Great Britain, Greece, Hungary, Iceland, Italy, Japan (Hokkaido, Honshu), Macedonia, Madeira Islands, Malta, Morocco, Netherlands, Norway, Oman, Poland, Romania, Russia (European Territory), Slovakia, Spain, Sweden, Switzerland, Tunisia, Ukraine, Yugoslavia.

Remarks.—In temperate zones around the world, this is one of the most common shore flies and at times it has been the cause of considerable damage in rice (Grigarick 1959). The species is also one of the more common species in the Delmarva States where numerous host plants of the species also occur. Deonier (1971, 1998) noted that there is considerable variation in this species, especially in the color of the face. Structures of the male terminalia are virtually identical in all color morphs.

Hydrellia insulata Deonier

Hydrellia insulata Deonier 1971:71 [United States. Maryland. Montgomery Co.: Plummers Island, Potomac River; HT ♂, USNM (70535)]; 1998:153–155 [revision].—Mathis & Zatwarnicki 1995:78 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head:* Parafrons slightly to distinctly densely microtomentose, appearing velvety black; frontal vitta and fronto-orbits golden brown to moderately brown; ocellar setae present; 2 fronto-orbitals, both setae proclinate. Antenna dark brown; 7–10 (usually 8) arisal rays. Face in anterior dark, yellowish gold to silvery light gray, in lateral view slightly convex with slightly, rounded, medial elevation on dorsal half and with distinct antennal grooves; maxillary palpus yellowish, broadly triangular, spatulate. *Thorax:* 3–5 presutural and 2 postsutural dorsocentral setae; mesonotum dark brown, pleural areas grayish brown, not densely microtomentose and appearing velvety; forecoxa dark, gray to blackish brown. *Abdomen:* Male terminalia: Fused surstylus about as long as wide, lateral margins essentially parallel sided, anterior margin broad, like steps, with lateral, short lobes then medial area flat except for narrowly rectangular, medial notch.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W); wasp nest, Potomac River, 7 Aug 1962, K. V. Krombein (6♂, 5♀; ANSP, USNM).

Distribution.—*Nearctic:* United States (Maryland).

Remarks.—Thus far, this species has been retrieved only from nests of wasps, and the few specimens we examined were collected in conjunction with studies on wasps of Plummers Island and the provisioning of wasp nests.

Hydrellia ischiaca Loew

Hydrellia ischiaca Loew 1862:150 [United States. “Middle States”; LT ♀ (designated by Deonier 1971:72), MCZ (11154)].—Cresson 1944:165 [review].—Deonier 1971:71–76 [revision, immature stages; host plants]; 1998:156–164 [revision].—Wirth 1965:744 [Nearctic catalog].—Mathis & Zatwarnicki 1995:78–79 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head:* Parafrons dark brown, frontal vitta and fronto-orbits light gray to greenish gray; ocellar setae present; 2 fronto-orbitals, anterior seta proclinate, posterior seta reclinate. Antenna blackish brown to black; 7–10 (usually 7–8) arisal rays. Face in anterior view metallic yellowish brown to silvery white, in lateral view somewhat convex at midfacial level, with shallow to distinct antennal grooves; maxillary palpus yellowish, roundedly spatulate. *Thorax:* 4–5 presutural and 2 postsutural dorsocentral setae; scutellar disc, notopleuron (and adjacent supra-alar area), and ventral area of anepisternum and katepisternum not densely microtomentose and appearing velvety; forecoxa yellowish; femora grayish black; tibiae yellowish to blackish brown; tarsi, except for apical 2 blackish brown tarsomeres, yellowish. *Abdomen:* Male terminalia: Fused surstylus longer than wide, parallel sided over most of length, apical one-fourth obtusely tapered to notched apex.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 5 Aug–5 Sep 1913, 1915, W. L. McAtee, R. C. Shannon (4♀; USNM); Plummers Island (near; 38°58.2'N, 77°10.6'W), 22 May 1915, R. C. Shannon (1♀; USNM).

Distribution.—*Nearctic:* Canada (Nova Scotia, Ontario, Quebec), United States (Alaska, California, Connecticut, Georgia, Indiana, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia). *Palaearctic:* Czech Republic, Germany, Great Britain, Hungary, Italy, Japan (Hokkaido), Poland, Romania, Russia (Far East), Sweden.

Remarks.—Among species of *Hydrellia*, this is one of the more common and widespread in the Delmarva States. There is considerable variation, however, in structures of the male terminalia, and the status of these varying populations has not been clarified.

Hydrellia tibialis Cresson

Hydrellia tibialis Cresson 1917b:341 [United States. Idaho. Latah: Moscow; HT ♂, ANSP (6141)].—Deonier 1971:99–102 [revision, immature stages];

host plant]; 1998:230–237 [revision].—Wirth 1965:744 [Nearctic catalog].—Mathis & Zatwarnicki 1995:91 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Only parafrons densely microtomentose, appearing velvety black, anterior portion of mesofrons like ocellar triangle; ocellar setae present; 2 fronto-orbitals, anterior seta proclinate, posterior seta reclinate. Antenna mostly dark brown except dorso-lateral portion of pedicel densely microtomentose, appearing velvety black, similar to parafrons; 5–6 arisal rays (rarely 7). Face in anterior view unicolorous, silvery white microtomentose, in lateral view nearly vertical but with low, rounded, medial carina and shallow but distinct antennal grooves; maxillary palpus dark brown to black, long blade or cleaver shaped. *Thorax*: 4–5 presutural and 2 postsutural dorso-central setae; mesonotum, pleural areas, and abdomen dark brown to dark greenish gray; legs dark greenish black to black. *Abdomen*: Male terminalia: Fused surstylus trapezoidal, broadly truncate apically, as long as wide.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 28 Apr 1914, R. C. Shannon (1♂; USNM).

Distribution.—*Nearctic*: Canada (Alberta, British Columbia, Manitoba, Ontario, Quebec), United States (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Delaware, District of Columbia, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington, West Virginia, Wyoming). *Neotropical*: Bolivia, Chile, Costa Rica, Mexico, Trinidad and Tobago, West Indies (Dominica). *Palaearctic*: Austria, Finland.

Remarks.—This is one of the most common species in the Nearctic Region; it also has been reported from Europe and extends into the Neotropical Region.

Notiphila (Dichaeta) caudata Fallén

Notiphila caudata Fallén 1813:249 [Sweden. Skåne; HT ♂, ZIL].—Mathis & Zatwarnicki 1995:103 [world catalog].

Dichaeta caudate: Meigen 1830:62 [generic combination]; Cresson 1917a:65–66 [review]; 1946b: 230–231 [review].—Wirth 1965:748 [Nearctic catalog].—Eastin & Foote 1971:271–279 [life history, immature stages].—Krivosheina 1986:810–811 [revision], 1993:229–230 [immature stages].

Dichaeta caudata caudate: Sturtevant & Wheeler 1954:236–237 [subspecific status].

Diagnosis.—This species is distinguished from congeners of the subgenus *Dichaeta* by the following combination of characters: *Thorax*: Crossveins, especially dm-cu, somewhat to conspicuously clouded, infusate. *Abdomen*: Tergites somewhat microtomentose, especially along posterior margins of tergites. Male terminalia as follows: Epandrium and fused presurstylus in lateral view oriented along same plane, nearly straight, not projected or angulate; epandrium in lateral view nearly parallel sided except for wide, anterior projection, oriented anteroventrally, forming a moderately deep U-shaped concavity with presurstylus, epandrium in posterior view about a wide as high, roundedly quadrate, usually with paired, short projections immediately ventrad of cercal cavity; presurstylus in lateral view as a broadly rounded, ventral projection, bearing a short, truncate, subapical, anterior projection, in posterior view height about equal to that of cercal cavity, lateral margins conspicuously sinuous, ventral margin emarginate, like an inverted W, setulose along medioblique margins, medial surface variable, usually moderately produced as a single, broadly produced projection but often nearly flat or with 2 symmetrical, shallow projections; postsurstylus in lateral view narrowly rounded basally, becoming wider apically, apical margin truncate, bearing serulae along ventral margin and with a robust, short setula at apicoventral corner, in ventral view broad basally, irregularly tapered to apex, bearing setulae along apical margin, robust, short setula inserted subapically; subepandrial plate in lateral view rodlike, elongate, very shallowly arched, in ventral view shorter than lateral view, more rodlike, more evenly, shallowly arched; aedeagus in lateral view tubular, although with ventral margin stepwise angulate, in ventral view symmetrically tubular, with basal one-third tapered to slightly more narrow base, apical two-thirds very slightly expanded, almost parallel sided, apex broadly attenuate to broadly rounded; phallapodeme in lateral view with keel elongate, moderately expanded, and greatly slanted ventrally, extension to base of aedeagus elongate, almost parallel sided, with a short, medial projection at attachment end with hypandrium, in ventral view irregularly hour-glass shaped, hypandrial attachment projection flatter and wider than aedeagal attachment, aedeagal end U-shaped, angularly concave, hypandrial and keel end broadly produced, expanded, apex nearly straight, truncate; gonite (probably the pregonite) in ventral view T-shaped, very broad basally and with a digitiform projection that bears 2 apically setulae, in lateral view L-shaped with a broad base and digitiform projection; hypandrial arm in lateral view narrowed and curved on apical half with apex sharply recurved, darkened, well sclerotized, in ventral view transversely bandlike with lat-

eral extensions that are recurved and bear numerous setulae.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 5 May 1915, R. C. Shannon (1♂, 1♀; USNM).

Distribution.—*Nearctic*: Canada (Manitoba, Ontario, Quebec, Saskatchewan). United States (Alaska, Colorado, Connecticut, District of Columbia, Florida, Idaho, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Utah, Vermont, Virginia, Wisconsin, Washington). *Palaearctic*: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Italy, Japan (Hokkaido, Honshu), Kazakhstan, Kyrgyzstan, Netherlands, Poland, Romania, Russia (European Territory, Far East), Slovakia, Spain, Sweden, Switzerland, Tadzhikistan, Turkmenistan, Ukraine, Yugoslavia.

Remarks.—Some intraspecific and age-related variation has been observed in this species. We have also noted some variation in the shape of the posterior or apical margin of the fused surstylar process, especially the medial portion. The medial portion in some specimens can be more slightly extended, very shallowly bi- or trilobed, slightly narrower or even truncate to very shallowly concave. The variation is slight and was not expressed in any detectable pattern. The few specimens demonstrating variation usually occurred microsympatrically with greater numbers of more typical conspecific specimens.

This is the most common and widespread species in the subgenus *Dichaeta* and its distribution is Holarctic. For example, this is the only known congener of the subgenus in the western Palearctic Region as well as North America.

Notiphila (Notiphila) carinata Loew

Notiphila carinata Loew 1862:137 [United States. "Middle States"; HT ♀, MCZ (11133)].—Wirth 1965:746 [Nearctic catalog].—Deonier et al. 1979:798–814 [biology].—Mathis 1979:37–39 [revision].—Mathis & Zatwarnicki 1995:05 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Facial ratio 0.84 or less; facial setae weakly developed, hairlike, smaller than genal seta; gena short, gena-to-eye ratio less than 0.21 (averaging 0.15). *Thorax*: Mesonotum immaculate; lateral margin of scutellum essentially concolorous with scutellar disc; anepisternum usually with a rather well-defined, darkened area. *Abdomen*: Male terminalia: Surstylar arms projected straight, not tapered

evenly, pocket formed by arms broadly U-shaped; gonite short, narrow, bearing 2–3 apical setulae; basiphallus about as wide as long, short, apex expanded.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W; cell in wasp nest), 7 Aug 1962, K. V. Krombein (7♂, 9♀; USNM).

Distribution.—*Nearctic*: United States (Delaware, District of Columbia, Florida, Indiana, Iowa, Kentucky, Maryland, New Jersey, New York, North Carolina, Ohio, Virginia).

Diclasioipa lacteipennis (Loew)

Discocerina lacteipennis Loew 1862:145 [United States. District of Columbia: "Washington" [D. C.]; LT ♂ (designated by Zatwarnicki 1991:303), MCZ (11146)].

Diclasioipa lacteipennis: Cresson 1929:167 [generic combination].—Wirth 1965:739 [Nearctic catalog].—Mathis & Zatwarnicki 1995:164 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Face and parafacial of male yellow; lateral vertical series of facial setae moderately well developed, longest seta about half length of setae in medial row, inserted between level of medial setae. *Thorax*: Postsutural supra-alar setae, anterior seta small, posterior seta well developed, nearly twice length of presutural supra-alar seta. *Abdomen*: Third abdominal tergite long, comparable to fourth. Male terminalia: Epandrium in posterior view as an inverted U, somewhat angulate at corners, very thin dorsally, becoming wider ventrally, ventral margin curved medially; cerci in posterior view irregularly oval, dorsomedial angle somewhat pointed, ventral margin rounded; aedeagus in lateral view L-shaped, robust, truncate apically, in ventral view asymmetrical, right basal lobe much larger than left lobe; phallopodeme in lateral view with wide, enlarged keel, process toward base of aedeagus elongate, narrow, slender, process toward hypandrium short, digitiform, in ventral view narrow, almost parallel sided; gonite in lateral view with recurved apex, emargination of recurve bearing a setula, otherwise shoelike; hypandrium in lateral view like a parallelogram, moderately deeply incised anteriorly and posteriorly, in ventral view more or less broadly U-shaped, lateral arms slightly flared, rounded and bearing short, stoutly processes medially and anterolaterally.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 9 May–27 Sep 1914, 1949, C. W. Sabrosky, R. C. Shannon (1♂, 2♀; ANSP, USNM).

Distribution.—*Afrotropical*: Kenya, Sudan. *Nearctic*: Canada (Ontario), United States (Alabama, Ari-

zona, Colorado, District of Columbia, Georgia, Illinois, Indiana, Kansas, Iowa, Massachusetts, Maryland, Michigan, Minnesota, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia). *Palaearctic*: Algeria, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Netherlands, Morocco, Poland, Romania, Slovenia, Spain, Sweden, Switzerland, Yugoslavia.

Discocerina obscurella (Fallén)

Notiphila obscurella Fallén 1813:251 [Sweden; ST ♀, ZIL].

Discocerina obscurella: Haliday 1839:224 [generic combination].—Foote & Eastin 1974:401–408 [preimaginal stages].—Zatwarnicki & Mathis 2001:22 [*obscurella* group].

Psilopa (Clasiopa) obscurella: Stenhammar 1844:160 [generic combination].

Clasiopa obscurella: Schiner 1864:57 [generic combination].

Discocerina (Discocerina) obscurella: Wirth 1965:738 [Nearctic catalog].—Mathis & Zatwarnicki 1995:166–168 [world catalog].

Discocerina parva Loew 1862:146 [United States. District of Columbia: “Washington”; HT ♀, MCZ (11149)].—Sturtevant 1923:11 [synonymy].

Discocerina parva variety *nigriventris* Cresson 1916:148 [United States. California. Alameda: Berkeley Hills; HT ♂, ANSP (6100)].—Cresson 1949:260 [synonymy].

Discocerina (Discocerina) obscurella nitidiventris: Cresson 1946a:143 [subspecies status].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Antenna mostly yellowish although dorsal surface of pedicel and basal flagellomere blackish; facial series of setae 3 or more; face lacking vertical stripes, entirely microtomentose, microtomentum gray to silvery gray; parafacial bearing setulae, parafacial microtomentum creamy whitish, slightly contrasted in coloration with facial microtomentum; frons mostly microtomentose, lacking metallic blue or green stripes. *Thorax*: Mesonotum moderately densely microtomentose, grayish brown; pleural areas gray; supra-alar seta present; and anterior notopleural seta inserted in anterior notopleural angle; forecoxa mostly dark colored, brownish to blackish brown; male forefemur bearing about 4 long, peglike setae apically along posteroventral surface; abdomen subshiny gray to grayish black.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W),

14 May–24 Aug 1912, 1913, 1914, J. R. Malloch, R. C. Shannon (8♂, 9♀; ANSP, USNM).

Distribution.—*Afrotropical*: Cape Verde Islands, Kenya, Rodriguez Islands, Zaire. *Nearctic*: Canada (Newfoundland, Ontario, Quebec), United States (Alaska, Alabama, Arkansas, Arizona, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Maryland, Maine, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, Nevada, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia). *Neotropical*: Argentina, Bahamas, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico (Veracruz), Panama, Paraguay, Peru, Venezuela, West Indies (Cuba, Dominica, Jamaica, Puerto Rico, St. Thomas). *Palaearctic*: Austria, Algeria, Azores, Belgium, Bulgaria, Canary Islands, Croatia, Czech Republic, Estonia, Finland, France, Germany, Great Britain, Hungary, Iran, Italy, Macedonia, Morocco, Netherlands, Poland, Romania, Russia (European Territory, Far East), Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Yugoslavia.

Remarks.—This may be the most common and widespread species in the Holarctic Region and its occurrence on Plummers Island was expected.

Hydrochasma leucoproctum (Loew)

Discocerina leucoprocta Loew 1861:355 [United States. “Maryland”; HT ♀, MCZ (11148)].

Hydrochasma leucoproctum: Cresson 1942:113 [generic combination, as *H. leucostoma*].—Wirth 1965:739 [Nearctic catalog].—Mathis & Zatwarnicki 1995:183 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Gena moderately high, height usually slightly higher than length of basal flagellomere. *Thorax*: Wing hyaline. *Abdomen*: Tergites lacking wedgelike marking laterally but tergites 2–4 with wide medial area extensively dark slate gray to black; fifth tergite mostly light gray to silvery gray with posterior margin blackish brown to slate black, similar to coloration of medial area on tergites 1–4; medial coloration on tergites 1–4 wide, occupying most of dorsum, dark grayish to slate black.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 30 May–4 Jul 1907, 1914, W. L. McAtee (2♀; USNM).

Distribution.—*Nearctic*: United States (Delaware, District of Columbia, Florida, Georgia, Indiana, Kansas, Maryland, Michigan, New Jersey, Pennsylvania, Texas, Virginia, West Virginia). *Neotropical*: Argen-

tina, Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Panama, Venezuela, West Indies (Jamaica).

Remarks.—This is the more common congener in the region and in eastern North America generally from Michigan and Pennsylvania south into northern South America. There are two undescribed congeners in the region that also may occur on Plummers Island.

Athyroglossa (Athyroglossa) glaphyropus Loew

Athyroglossa glaphyropus Loew 1878:197 [United States. "Texas"; LT ♂ (designated by Cresson 1922:340), MCZ (11145)].—Cresson 1946a:134 [review].—Wirth 1965:735 [Nearctic catalog].—Mathis & Zatwarnicki 1995:132 [world catalog].

Ochtheroidea glaphyropus: Thaxter 1917:680–681 [generic combination].—Cresson 1918:61 [review]; 1922:340–341 [revision].

Diagnosis.—This species is distinguished from its congeners by the following combination of characters: *Head*: Arista with 7–8 dorsal branches; face at narrowest point between eyes narrow, width subequal to combined length of pedicel and basal flagellomere; face almost entirely shiny, smooth, lateral margin next to parafacial with pits into which setulae are inserted; face in lateral view evenly and shallowly arched; genal height at ventral margin of eye short, about equal to length of basal flagellomere; basal flagellomere concolorous with black pedicel. *Thorax*: Mesonotum very finely granulate, shiny. Wing hyaline; halter whitish. Foretibia entirely black; mid- and hindtibiae yellowish. *Abdomen*: Abdominal tergites not creased dorsolaterally.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 24 Aug 1913, R. C. Shannon (1♀; USNM).

Distribution.—*Nearctic*: United States (Alabama, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, New York, Pennsylvania, South Carolina, Texas, Virginia). *Neotropical*: Argentina, Belize, Bolivia, Brazil, Costa Rica, Ecuador, Guatemala, Guyana, Mexico (Colima, Nayarit, San Luis Potosí, Tabasco), Panama, Peru, Trinidad and Tobago, West Indies (Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Jamaica, Puerto Rico, St. Croix).

Athyroglossa (Athyroglossa) granulosa (Cresson)

Ochtheroidea granulosa Cresson 1922:341 [United States. Pennsylvania. Delaware: Swarthmore (creek); HT ♂, ANSP (6345)].

Athyroglossa granulosa: Cresson 1944:160 [generic combination].—Grimaldi & Jaenike 1983:86 [host plant].—Bunyard & Foote 1990:118 [host

plant].—Mathis & Zatwarnicki 1995:132 [world catalog].

Athyroglossa (Ochtheroidea) granulosa: Wirth 1965:735 [Nearctic catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Arista with 5–6 dorsal branches; face at narrowest point between eyes narrow, width subequal to combined length of pedicel and basal flagellomere; face medially with vertical, granulate stripe; face in lateral view evenly arched, lacking midheight prominence; genal height at ventral margin of eye short, about equal to length of basal flagellomere; basal flagellomere concolorous with black pedicel. *Thorax*: Mesonotum conspicuously granulate, shiny. Wing hyaline; halter black. Foretibia entirely black; mid- and hindtibiae yellowish. *Abdomen*: Abdominal tergites not creased dorsolaterally.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 8 May–8 Aug 1914, 1922, J. R. Malloch, R. C. Shannon (3♂, 6♀; ANSP, USNM).

Distribution.—*Nearctic*: Canada (Quebec), United States (District of Columbia, Idaho, Indiana, Iowa, Massachusetts, Maryland, Michigan, New York, North Carolina, Ohio, Pennsylvania, Virginia, Vermont, West Virginia). *Neotropical*: West Indies (Grenada).

Allotrichoma (Allotrichoma) simplex (Loew)

Discocerina simplex Loew 1861:354 [United States. "Maryland"; ST ♀, MCZ (11150)].

Allotrichoma simplex: Johnson 1925:271 [generic combination].—Cresson 1942:108 [list, general distribution in North America]; 1949:260 [synonymy].—Deonier 1965:501 [natural history].—Wirth 1965:736 [Nearctic catalog].—Runyan & Deonier 1979:123–137 [discussion, figs. of head and immature stages].—Mathis & Zatwarnicki 1995:153 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following characters: *Abdomen*: Male terminalia: Epandrium in posterior view rounded dorsally, constricted laterally at base of surstyli; epandrium in lateral view somewhat rectangular dorsally with anterior and posterior margins parallel-sided, ventral portion with an anterior bulge and a narrow, sharp incision at about level or base of surstylus; surstyli (ventral extensions of epandrium) in posterior view as relatively wide at base third, thereafter ventrally abruptly narrowed, especially along medial margin, to form an elongate process that is slightly spatulate apically, apical portion bearing several short setulae; surstylus in lateral view moderately narrow, slightly expanding with apex obliquely pointed and

bearing several short setulae; cerci in posterior view approximate dorsally then extended laterally to form a lyrelike structure that curves laterally than ventrally and medially, apex of cercus bearing 4 short setulae; cercus in lateral view shallowly sinuous, nearly parallel sided, apex slightly expanded, bluntly rounded; aedeagus in ventral view elongate, narrowly ovate, very slightly tapered apically, in lateral view elongate, nearly parallel sided, apex bluntly rounded; phallapodeme in lateral view triangular, keel abruptly tapered to narrow, digitiform apex; gonite in ventral view barlike, slightly wider basally, apex with short, lateral process, apex bearing setula, in lateral view wide basally, gently but distinctly arched, tapered to apical point.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 12 Apr 1914, W. L. McAtee (1 ♂, 1 ♀; ANSP).

Distribution.—*Nearctic*: United States (California, Delaware, Iowa, Maryland, Massachusetts, Nevada, New Jersey, Ohio, Vermont, Virginia, Washington). *Palaearctic*: Austria, Bulgaria, China (Tibet), Czech Republic, France, Hungary, Israel, Italy, Morocco, Poland, Spain, Russia (European Territory), Switzerland, Yugoslavia.

Natural history.—Deonier (1965:501) found this species to be "occasional" in mud shore and sand shore habitats but rare in sedge meadow and *Eragrostis* mat habitats.

Remarks.—This species apparently has a Holarctic distribution, and Palearctic specimens have been named at least three times, with *A. simplex* being the senior synonym. In males of *A. simplex* the cercus has four apical setulae, and the mesonotal stripes are more evident in *A. strandi* than in *A. simplex*.

In the Nearctic Region, this species is common and widespread.

Ochthera anatolicos Clausen

Ochthera anatolicos Clausen 1977:468 [United States. Ohio. Franklin County; HT ♂, OHSU].—Mathis & Zatwarnicki 1995:144 [world catalog].

Diagnosis.—This species is distinguished from congeners, especially *O. tuberculosa*, by the following combination of characters: Body length 5.00–6.10 mm. *Head*: Face lacking distinct, shiny black spots, bars, stripes, or combination thereof; clypeus large, apex rounded or somewhat pointed. *Thorax*: Foretarsus black; forefemur bearing 4–5 flexor setae along anteroventral surface. *Abdomen*: Gonites small, slender-shanked; base of aedeagus acute dorsally, curving to posterior points; female sternite 4 small, narrow, subequal in width to sternite 2; sternite 5 rounded anteriorly, tapered to wider, truncate posterior margin.

Specimens examined.—MARYLAND. Montgom-

ery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 5 Oct 1913, W. L. McAtee (1 ♀; USNM).

Distribution.—*Nearctic*: Canada (Alberta, Manitoba, Northwest Territories, Ontario, Quebec, Saskatchewan), United States (Colorado, Connecticut, Delaware, District of Columbia, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming).

Zeros flavipes (Williston)

?*Ilythea flavipes* Williston 1896:403 [West Indies. St. Vincent; LT ♂ (designated by Mathis & Edmiston 1991:834), BMNH].—Aldrich 1905:625 [Nearctic catalog].—Jones 1906:184 [catalog].

Zeros flavipes: Cresson 1943:14 [generic combination], 1947:45 [list].—Wirth 1965:746 [Nearctic catalog].—Scheiring & Connell 1979:609–612 [egg].—Mathis & Edmiston 1991:834 [review of Williston's St. Vincent species].—Woodley & Hilburn 1994:32 [list, Bermuda].—Mathis & Zatwarnicki 1995:189 [world catalog].—Mathis 1997:60 [review, Belize].—Hollmann-Schirrmacher 1998:26–29 [revision].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Thorax*: Vein R₂₊₃ nearly straight, not distinctly undulating; cells R₂₊₃ and R₄₊₅ with 3 infuscate spots or transverse bars, these generally not connected to form longer, transverse bands; crossvein dm-cu present. *Abdomen*: Tergites shiny black, mostly bare of microtomentum.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 6 Jul 1963, G. C. Steyskal (1 ♀; USNM).

Distribution.—*Afrotropical*: Zaire. *Nearctic*: Bermuda, Canada (Ontario), United States (Florida, Iowa, Maryland, Ohio, Texas, Virginia, West Virginia). *Neotropical*: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Mexico, Panama, Trinidad and Tobago, West Indies (Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Puerto Rico, St. Lucia, St. Vincent).

Nostima picta (Fallén)

Notiphila picta Fallén 1813:254 [Sweden; ST ♂ ♀, NRS].—Sturtevant & Wheeler 1954:241 [revision, key].

Ephydra (Hydrina) picta: Haliday 1839:405 [generic combination].

Philygria picta: Loew 1860:25 [generic combina-

- tion].—Hollmann-Schirrmacher 1998:105–107 [revision].
- Philygriola picta* Hendel 1917:42 [generic combination].
- Nostima (Philygriola) picta*: Cresson 1930:101 [generic combination]; 1944:176 [review].—Sturtevant & Wheeler 1954:241 [review].
- Nostima picta*: Wirth 1965:745 [Nearctic catalog].
- Nostima picta picta*: Mathis & Zatwarnicki 1995:192 [world catalog].
- Nostima scutellaris* Cresson 1933:68 [United States. Indiana. Laporte: Michigan City; HT ♂, USNM (44806)].—Edmiston & Mathis 2005:55 [synonymy].
- Nostima (Philygriola) scutellaris* Cresson 1944:176 [review].
- Nostima scutellaris scutellaris*: Sturtevant & Wheeler 1954:241 [revision].—Wirth 1965:745 [Nearctic catalog].—Mathis & Zatwarnicki 1995:193 [world catalog].
- Nostima scutellaris occidentalis* Sturtevant & Wheeler 1954:242 [United States. California. Riverside: Pasadena; HT ♀, ANSP (6702)].—Mathis & Zatwarnicki 1995:193 [world catalog].—Edmiston & Mathis 2005:55 [synonymy].

Diagnosis.—*Nostima picta* specimens are distinguished from congeners by the following combination of external characters: *Head*: Gena with dense microtomentum ventrally. *Thorax*: Velvety black microtomentum on posterior margin of scutum and over entire scutellar disc; mesonotum striped laterally; wing crossveins paler than veins, white, at least anterior portion. Femora and tibiae mostly black, apices sometimes paler. *Abdomen*: Tergite 5 of male lacking silvery white microtomentum along posterior margin.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W; at light), 19 May–10 Oct 1914, R. C. Shannon (1♂, 1♀; ANSP, USNM).

Distribution.—*Nearctic*: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Ontario, Quebec, Saskatchewan), United States (Alabama, Arizona, Arkansas, California, Colorado, District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, Washington, Wisconsin, West Virginia). *Neotropical*: Guatemala, México (Jalisco, Veracruz). *Palaearctic*: Afghanistan, Austria, Azores, Belgium, Bulgaria, Canary Islands, Czech Republic, Egypt, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Japan (Hokkaido, Honshu), Macedonia, Madeira Islands, Morocco, Netherlands, Poland, Romania, Rus-

sia (European Territory, Far East), Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine.

Remarks.—We have studied 241 specimens from North America and 101 specimens from Europe. Facial and leg coloration is highly variable, even among specimen series collected at the same date and locale. Genitalia from all the Nearctic and European specimens are virtually identical and separation into Nearctic and European species or subspecies with no evidence of reproductive isolation presently seems unwarranted. *Nostima picta* is apparently a morphologically diverse Holarctic species.

Philygria debilis Loew

- Philygria debilis* Loew 1861:357 [United States. “Pennsylvania”; ST ♂, MCZ (11160)].—Deonier 1965:501 [biology].—Wirth 1965:745 [Nearctic catalog].—Scheiring & Foote 1973:160 [habitat in Ohio].—Steinly 1984:753–754 [biology]; 1990:188–193 [biology].—Mathis & Zatwarnicki 1995:195 [world catalog].—Hollmann-Schirrmacher 1998:66–71 [revision].—Edmiston & Mathis 2005:12–15 [review].
- Hydrina debilis*: Slosson 1902:8 [generic combination].—Cresson 1944:177 [review].—Sturtevant & Wheeler 1954:237–238 [review].
- Philygria fuscicornis* Loew 1862:155 [United States. “Middle States”; ST ♀, MCZ (11159)].—Johnson 1925:273 [synonymy].
- Hydrina fuscicornis*: Slosson 1902:8 [generic combination].
- Cressoniella montana* Saether 1970:107 [United States. Colorado. Boulder: North Boulder Creek, northern branch; ST ♀, ZMO].—Mathis & Wirth 1977:520 [synonymy].

Diagnosis.—This species is distinguished from Nearctic congeners by the following combination of external characters: Small shore flies, body length 1.30–1.86 mm; yellowish brown to brown with yellowish-silver and gray microtomentum. *Head*: Parafacial area yellowish brown. *Thorax*: Wing mostly hyaline, infuscate spots over crossveins only; veins lacking spurious veins. *Abdomen*: Basal 1–4 tergites densely microtomentose, grayish brown, fifth tergite of male sparsely microtomentose to bare, subshiny to shiny.

Specimen examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 9 May 1913, W. L. McAtee (1♀; USNM).

Distribution.—*Nearctic*: Canada (Alberta, British Columbia, Manitoba, Ontario, Quebec, Saskatchewan), Mexico (Baja California), United States (Alabama, Arizona, Arkansas, California, Connecticut, Colorado, Delaware, District of Columbia, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi,

Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming).

Remarks.—*Philygria debilis* is one of the most common and widespread Nearctic species, probably because of its occurrence on lawns associated with human habitations and recreation, such as golf courses (Cresson 1944, Zack 1998). Also, the overall body and wing length often exceeds 2 mm, allowing this species to be easily collected with larger mesh nets.

Although common and widespread, the immature stages of this species are unknown, and information on its natural history is limited to habitat descriptions. Presumably the larvae feed on blue-green algae.

This species is sexually dimorphic, and not recognizing this dimorphism is probably the reason why Loew described this species twice.

Philygria punctatonervosa (Fallén)

Notiphila punctatonervosa Fallén 1813:254 [Sweden; LT ♂ (designated by Mathis & Zatwarnicki 1990: 902), NRS].

Ephydra (Hydrina) punctatonervosa: Haliday 1839: 405 [generic combination].

Philygria punctatonervosa: Loew 1860:25 [generic combination].—Mathis & Zatwarnicki 1995:198–199 [world catalog].—Hollmann-Schirrmacher 1998:110–112 [revision].

Hydrina punctatonervosa: Becker 1926:57 [generic combination].

Philygria opposita Loew 1861:356 [United States. “Pennsylvania”]; LT ♂ (designated by Mathis & Zatwarnicki 1990: 902), MCZ (11161)].—Wirth 1965:745 [Nearctic catalog]; Mathis & Zatwarnicki 1990:901 [synonymy].

Hydrina opposita: Cresson 1944:177 [generic combination].

Diagnosis.—This species is distinguished from Nearctic congeners by the following combination of external characters: Small shore flies, body length 1.30–1.86 mm; yellowish brown to brown with yellowish-silver and gray microtomentum. *Head*: Parafacial area yellowish to silvery. *Thorax*: Wing conspicuously spotted (over crossveins r-m, dm-cu, and spurious veins); veins R₂₊₃, R₄₊₅, and M bearing numerous spurious veins. *Abdomen*: Basal 1–3 tergites sparsely microtomentose, faintly grayish brown, mostly subshiny, becoming progressively shinier posteriorly; 4th and 5th tergites mostly to entirely bare, shiny.

Specimens examined.—MARYLAND. Montgom-

ery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 5 Aug 1913, R. C. Shannon (1♂; USNM).

Distribution.—*Nearctic*: Canada (Ontario, Quebec), United States (California, Connecticut, District of Columbia, Illinois, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Virginia, Washington). *Palaearctic*: Austria, Belgium, France, Germany, Great Britain, Netherlands, Poland, Russia (European Territory), Sweden.

Remarks.—Although widespread over much of temperate North America, this species is not collected commonly and is presumably uncommon in nature. We know nothing about its biology.

Brachydeutera argentata (Walker)

Notiphila argentata Walker 1853:407 [United States; LT (sex?; designated by Mathis 1983:178), BMNH].

Brachydeutera argentata: Osten Sacken 1878:203 [generic combination].—Crawford 1914:37 [parasitoid: *Cyrtogaster glasgowi* Crawford (= *C. trypherus* (Walker), Pteromalidae)].—Sturtevant & Wheeler 1954:204–205 [review, distribution].—Wirth 1964:5–6 [revision]; 1965:753 [Nearctic catalog].—Scheiring & Foote 1973:163 [natural history].—Mathis 1983:179 [figs. of male terminalia].—Mathis & Zatwarnicki 1995:230 [world catalog].—Mathis & Winkler 2003:410–411 [review].

Brachydeutera dimidiata Loew 1862:163 [United States. District of Columbia: “Washington”]; LT ♀ (designated by Mathis 1983:178), MCZ].—Osten Sacken 1878:203 [synonymy].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Facial carina high, sharply defined, especially ventrally. *Thorax*: Brown color of anepisternum continued ventrally to about dorsal one-sixth to one-third, thereafter sharply delimited from pale gray coloration on ventral pleural region. *Abdomen*: Apparent merger of fused surstyli with epandrium in lateral view broadly rounded; gonite digitiform apically, narrowly rounded.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 28 Jun–17 Aug 1907, 1961, A. K. Fisher, P. J. Spangler (6♀; USNM).

Distribution.—*Nearctic*: Bermuda, Canada (Quebec), United States (District of Columbia, Florida, Iowa, Michigan, Maine, Maryland, Massachusetts, New Jersey, North Carolina, Ohio, Texas, Virginia).

Parydra (Parydra) aquila (Fallén)

Ephydra aquila Fallén 1813:247 [Sweden; LT ♀ (designated by Clausen & Cook 1971:38), NRS].

Parydra aquila: Haliday in Walker 1856:345 [generic combination].—Clausen & Cook 1971:35–41 [revision].—Krivosheina 1987:540–543 [biology, immature stages].—Meyers & Deonier 1993:7–30 [parasitoids: *Kleidotoma parydrae* Beardsley (Eucolidae), *Anaphes* species (Mymaridae)].—Mathis & Zatwarnicki 1995:222–223 [world catalog].

Napaea aquila: Becker 1926:99 [generic combination].

Parydra bituberculata Loew 1862:165 [United States. “Middle States”; LT ♂ (designated by Cresson 1949:246), MCZ (11168)].—Clausen & Cook 1971:35 [synonymy].

Napaea (Parydra) bituberculata bituberculata: Sturtevant & Wheeler 1954:227 [generic combination].

Parydra nitida Cresson 1915:70 [United States. Idaho. Latah: Potlatch; HT ♂, ANSP (6071)].—Clausen & Cook 1971:36 [synonymy].

Napaea (Parydra) bituberculata nitida: Sturtevant & Wheeler 1954:227 [generic combination, revised status].

Parydra tibialis Cresson 1916:150 [United States. Arizona. Coconino: Oak Creek Canyon; HT ♂, KU (694)].—Clausen & Cook 1971:40 [synonymy].

Napaea (Parydra) tibialis: Sturtevant & Wheeler 1954:229 [generic combination].

Parydra papulata Cresson 1949:247 [United States. Washington. San Juan: Friday Harbor; HT ♂, ANSP (6631)].—Clausen & Cook 1971:39 [synonymy].

Napaea (Parydra) bituberculata papulata: Sturtevant & Wheeler 1954:228 [generic combination, revised status].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Moderately large to very large species, body length 3.70–5.50 mm; generally brown to blackish brown species. *Head*: Fronto-orbital setae short, length one-third or less the shortest diameter of eye; face in lateral view conspicuously convex; facial microtomentum varying (best seen in anterior view) from nearly uniformly densely microtomentose to dorsal half more thinly microtomentose, becoming densely microtomentose ventrally, microtomentum white to silvery white. *Thorax*: Apical scutellar process lacking; lateral setae present, short, inserted close to apical setae; apical scutellar setae and tubercles present, setae short, distance between apical scutellar tubercles greater than their length; katepisternal spinelike seta present. Wing with moderately pronounced pattern, infuscation especially evident over crossveins. Femora and tibiae generally black with some moderately sparse grayish to tannish microtomentum; tarsi generally black but basal tarsomeres with some reddish or orange coloration, especially ventrally. *Abdomen*: Male terminalia: Ae-

deagus boat-shaped, not fused to phallapodeme; gonites triangular with rounded apices; subepandrial plate usually complete dorsally, narrow, with triangular, medial fragment.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 3–18 Aug 1912, 1913, J. R. Malloch, R. C. Shannon (4♂, 2♀; ANSP, USNM).

Distribution.—*Nearctic*: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec, Saskatchewan), United States (Arizona, California, Colorado, Connecticut, District of Columbia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming). *Palaearctic*: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Italy, Japan (Hokkaido, Honshu), Kazakhstan, Morocco, Netherlands, Norway, Poland, Romania, Russia (European Territory, Far East, Siberia), Slovakia, Sweden, Switzerland, Ukraine, Yugoslavia.

Remarks.—This is a common and very widespread species with a Holarctic distribution.

Parydra (Parydra) breviceps Loew

Parydra breviceps Loew 1862:167 [United States. “Middle States”; LT ♀ (designated by Cresson 1949:244), MCZ (11174)].—Wirth 1965:750 [Nearctic catalog].—Clausen & Cook 1971:43–46 [revision].—Mathis & Zatwarnicki 1995:223 [world catalog].

Napaea breviceps: Johnson 1925:274 [generic combination].

Parydra limpidipennis Loew 1878:201 [United States. “District of Columbia”; LT ♂ (designated by Cresson 1949:244), MCZ (11170)].—Cresson 1949:243 [synonymy].

Parydra vicina Cresson 1940:9 [United States. California. Alameda: Berkeley Hills; HT ♂, ANSP (6546)].—Sturtevant & Wheeler 1954:223 [synonymy].

Napaea (Napaea) breviceps vicina: Sturtevant & Wheeler 1954:223 [generic combination, revised status].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Moderately small to large species, body length 2.5–3.6 mm; brown to blackish-brown species. *Head*: Fronto-orbital setae long, length subequal to one-half shortest diameter of eye; face in lateral view shallowly convex; facial microtomentum golden or bright

coppery. *Thorax*: Scutellum lacking an apical process; lateral scutellar tubercles lacking; apical setae present, extended from moderately well-developed tubercles. Wing lacking pronounced pattern, generally hyaline, infuscation generally limited to crossveins. Femora black; tibiae and tarsi brownish red to orangish red. *Abdomen*: Male terminalia with aedeagus long, boat shaped, not fused to phallopodeme; gonites long, rounded apically; subepandrial plate connected dorsally, as a large, triangular plate.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 14 May–31 Aug 1914, 1963, K. V. Krombein, R. C. Shannon (2♀; USNM).

Distribution.—*Nearctic*: Canada (Ontario, Quebec). United States (Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin). *Neotropical*: Mexico (Baja California).

Parydra (Parydra) quadrituberculata Loew

Parydra quadrituberculata Loew 1862:165 [United States. "Middle States"; LT ♀ (designated by Cresson 1949:250), MCZ (11172)].—Wirth 1965:749 [Nearctic catalog].—Clausen & Cook 1971:57–59 [revision].—Deonier & Regensburg 1978:341–353 [biology].—Mathis & Zatwarnicki 1995:227 [world catalog].

Napaea (Parydra) quadrituberculata: Sturtevant & Wheeler 1954:228 [generic combination].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: Moderately large to large species, body length 3.6–4.6 mm; generally brown to blackish brown species. *Head*: Fronto-orbital setae short, length one-third or less the shortest diameter of eye; face in lateral view convex; facial microtomentum varying (best seen in anterior view) from nearly uniformly densely microtomentose to dorsal half more thinly microtomentose, becoming densely microtomentose ventrally, microtomentum white to silvery white. *Thorax*: Apical scutellar process lacking; lateral and apical scutellar setae and tubercles present, setae short; distance between apical scutellar tubercles less than their length; katepisternal spinelike seta present. Wing lacking pronounced pattern, generally hyaline, infuscation generally limited to crossveins. Legs generally black with some grayish microtomentum and tibiae with silvery gray microtomentum basally and apically. *Abdomen*: Male terminalia with

aedeagus boat shaped, not fused to phallopodeme; gonites short, but somewhat angular apices; subepandrial plate incomplete dorsally, comprising 2, lateral, triangular fragments.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 21 Jul–18 Aug 1907, 1912, J. R. Malloch, W. L. McAtee (20♂, 15♀; ANSP, USNM).

Distribution.—*Nearctic*: Canada (Alberta, Manitoba, Ontario, Quebec, Saskatchewan), United States (Alabama, Colorado, Delaware, District of Columbia, Florida, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Virginia, Wisconsin). *Neotropical*: Mexico (Chiapas, Hidalgo, Mexico, Morelos, Tabasco, Veracruz).

Remarks.—This is the most common species of *Parydra* on Plummers Island and often can be abundant. Elsewhere in the Nearctic Region, this species is widespread, although it does not occur in the West beyond the Rocky Mountains. The well-developed scutellar tubercles are especially characteristic of this species and distinguish this large species from congeners.

Limnellia stenhammari (Zetterstedt)

Ephydra stenhammari Zetterstedt 1846:1842 [Sweden. Skåne, Mellby, Esperöd; LT ♀ (designated by Andersson 1971:55), ZIL].

Scatella stenhammari: Loew 1860:40 [generic combination].

Stictoscatella stenhammari: Collin 1930:139 [generic combination].

Eustigoptera stenhammari: Cresson 1930:128 [generic combination].

Lamproscatella stenhammari: Hendel 1930:153 [generic combination].

Limnellia stenhammari: Cresson 1935:364 [generic combination].—Wirth 1965:758 [Nearctic catalog].—Andersson 1971:55–56 [review].—Mathis 1978:280–285 [revision].—Mathis & Zatwarnicki 1995:260–261 [world catalog].

Ephydra oscitans Walker 1849:1106 [Canada. Ontario: Hudson Bay, Albany River, St. Martin's Falls; HT (sex?; abdomen missing), BMNH].—Mathis 1978:280 [synonymy].

Scatella oscitans: Osten Sacken 1878:204 [generic combination].

Ilythea oscitans: Coquillett 1900:260 [generic combination].

Limnellia oscitans: Wirth 1965:758 [generic combination].

Diagnosis.—This species is distinguished from

congeners by the following combination of characters: *Head*: Face with setulose portion mostly unicolorous, brown to grayish brown, occasionally with faintly colored cinereous band along ventral margin; antennal grooves shallowly impressed, but more so than in *L. anna*. *Thorax*: Wing maculation pattern as follows: cell r_1 with checker board pattern of 5–6 dark and 5–6 whites; cell r_{4+5} with 3 dark spots along anterior margin; basitarsus of legs concolorous with tibiae, black; halter brownish yellow to black. *Abdomen*: Structures of male terminalia as follows: epandrium in posterior view longer than wide, rounded dorsally, truncate ventrally; surstylus large, generally subrectangular, ventrolateral margin rounded, setulose, not fused indistinguishably with ventral margin of epandrium; aedeagus long than wide, with a V-shaped notch dorsally in lateral view.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 28 Oct 1913, R. C. Shannon (1♂; USNM).

Distribution.—*Nearctic*: Canada (British Columbia, Manitoba, Newfoundland, Northwest Territories, Ontario, Quebec, Saskatchewan), Greenland, United States (Alaska, Idaho, Indiana, Iowa, Massachusetts, Maryland, Maine, Minnesota, Montana, New Hampshire, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Virginia, Washington). *Palaearctic*: Algeria, Austria, Czech Republic, Estonia, Finland, France, Germany, ? Great Britain, Hungary, Japan (Hokkaido), Netherlands, Norway, Poland, Russia (European Territory, Far East), Spain, Sweden.

Scatella (Scatella) obsoleta Loew

Scatella obsoleta Loew 1861:358 [United States. District of Columbia: “Washington”; ST ♀, MCZ (11175)].—Sturtevant & Wheeler 1954:180 [review].—Wirth 1965:757 [Nearctic catalog].—Olafsson 1991:28–29 [revision].—Mathis & Zatzwarnicki 1995:274–275 [world catalog].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Mesofrons bare to sparsely microtomentose, subshiny to shiny, broadly reaching ptilinal suture; gena moderately high, about one-fourth eye height. *Thorax*: Dorsocentral setae 2 (0+2); usually with a well-developed, presutural pair of acrostichal setae; wing mostly hyaline, spots very obscure to nonexistent; costal section I of male greatly swollen; coloration brown dorsally but gray to whitish gray on pleuron.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 29 Jul 1963, G. C. Steyskal (1♂; USNM).

Scatella (Scatella) picea (Walker)

Ephydra picea Walker 1849:1105 [Canada. Ontario: Hudson Bay, Albany River, St. Martin's Falls; ST ♀, BMNH].

Scatella picea: Cole & Lovett 1921:335 [generic combination].—Wirth 1965:757 [Nearctic catalog].—Mathis & Zatzwarnicki 1995:276 [world catalog].

Scatella lugens Loew 1862:171 [United States. “Middle States”; ST ♂ ♀, MCZ (11178)].—Cresson 1935:365 [synonymy].

Diagnosis.—This species is distinguished from congeners by the following combination of characters: *Head*: Face mostly densely tan to brownish microtomentose; gena short, less than one-third eye height; genal seta well developed, conspicuous. *Thorax*: Bearing a well-developed pair of presutural acrostichal setae; well-developed dorsocentral setae all postsutural; basal scutellar setae much shorter than apical setae. Wing with conspicuous spots; coloration mostly faintly brownish; wing cell r_{2+3} with a hyaline area toward apex; costal section I of male normally developed, not extensively and conspicuously thickened. *Abdomen*: Tergites moderately to thinly microtomentose, partially subshiny.

Specimens examined.—MARYLAND. Montgomery Co.: Plummers Island (38°58.2'N, 77°10.6'W), 8 Apr 1914, R. C. Shannon (1♀; ANSP).

Distribution.—*Nearctic*: Canada (Ontario, Quebec), United States (Alabama, Connecticut, Delaware, District of Columbia, Florida, Iowa, Massachusetts, Maine, New Hampshire, New Jersey, New York, Ohio, Oregon, Rhode Island, Virginia).

Discussion

While the shore-fly fauna of Plummers Island is relatively diverse, with 29 species in 17 genera, we expect several additional species and probably genera to be found on the Island. This faunal survey, for example, was based on only 174 specimens, and these were collected primarily in the first half of the 20th century. With the exception of two specimens that Amnon Freidberg collected in the 1980s, there are no specimens in the collections that we examined that were collected in the 1970s, 1980s, 1990s, or thus far in this current decade. Moreover, no specialist on the family has collected on the Island. Thus, the number of species is reflective of a lack of systematic collecting by specialists. Certainly the potential for discovery of more shore-fly species exists. In the Delmarva states, for example, we recorded over 140 species, and we anticipate that a significant number of these eventually will be found on the Island. Across the river on the Virginia side of the Potomac River (Turkey Run and Great Falls), we have recently

identified 62 shore-fly species in 30 genera from a single season's collecting (2006), and many if not most of these species will undoubtedly occur on Plummerville Island. The need for specialized collecting on the Island is evident.

As noted in the introduction, there are no shore flies listed by the state of Maryland as rare or endangered. While we are not advocating that any of the shore flies from Plummerville Island be listed by Maryland as rare or endangered, there are three shore flies from the Island that are represented by few specimens, and for two of these, *Hydrellia decens* and *H. insulata*, the type locality is Plummerville Island. The first species, *H. decens*, is known from a few females only with the possible exception of a single male from central Virginia. Wasps, as part of provisioning their nests, collected the second species, *H. insulata*, and all specimens we examined were recovered from wasp nests. The third species highlighted here is *Philygria punctatonervosa*. This is a Holarctic species that is found only rarely in North America, although it is apparently widespread in the Nearctic Region (Mathis & Zatwarnicki 1995). One of the few sites in eastern North America where this species has been collected is Plummerville Island.

In summary, although diverse, we anticipate that more shore-fly species will be discovered on the Island. Even among the 29 species that have been identified, there are species that are seldom collected and are known primarily or only from this Island.

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Checklist of Shore Flies from Plummers Island (5 subfamilies, 13 tribes, 17 genera, 29 species)

- Subfamily Discomyzinae Acloque
Tribe Discomyzini Acloque
Leptopsilopa atrimana (Loew)
- Subfamily Hydrelliinae Robineau-Desvoidy
Tribe Dryxini Zatwarnicki
Paralimna punctipennis (Wiedemann)
- Tribe Hydrelliini Robineau-Desvoidy
Hydrellia decens Cresson
H. fascitibia (von Roser)
H. formosa Loew
H. griseola (Fallén)
H. insulata Deonier
H. ischiaca Loew
H. tibialis Cresson
- Tribe Notiphilini Bigot
Notiphila caudata Fallén
N. carinata Cresson
- Subfamily Gymnomyzinae Latreille
Tribe Discocerini Cresson
Diclasiopa lacteipennis (Loew)
Discocerina obscurella (Fallén)
Hydrochasma leucoproctum (Loew)
- Tribe Gymnomyzini Latreille
Athyroglossa glaphyropus Loew
A. granulosa (Cresson)

- Tribe Hecamedini Mathis
Allotrichoma simplex (Loew)
- Tribe Ochtherini Dahl
Ochthera anatolikos Clausen
- Subfamily Ilytheinae Cresson
- Tribe Ilytheini Cresson
Zeros flavipes (Williston)
- Tribe Philygriini Lizarralde de Grosso
Nostima picta (Fallén)
Philygria debilis Loew
P. punctatonervosa (Fallén)
- Subfamily Ephydrinae Zetterstedt
- Tribe Dagini Mathis
Brachydeutera argentata (Walker)
- Tribe Parydrini Wirth and Stone
Parydra aquila (Fallén)
P. breviceps Loew
P. quadrituberculata Loew
- Tribe Scatellini Wirth and Stone
Linnellia stenhammari (Zetterstedt)
Scatella obsoleta Loew
S. picea (Walker)