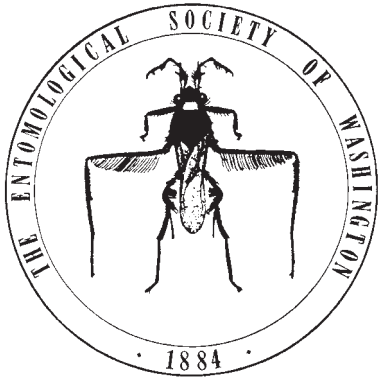


PROCEEDINGS
of the
ENTOMOLOGICAL SOCIETY
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**A NEW *PSEUDODINEURA* KONOW (HYMENOPTERA:
TENTHREDINIDAE) FROM KASATOCHI ISLAND, ALASKA**

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Abstract.—*Pseudodineura kasatochi* Smith, n. sp., is described from Kasatochi Island, Alaska. This is the first record of a species of *Pseudodineura* from Alaska. The specimen was collected prior to a volcanic eruption in August 2008 that nearly destroyed all life on the island. It is separated from other Palearctic and Nearctic species of the genus.

Key Words: Nematinae, leafminer, *Anemone*

DOI: 10.4289/0013-8797.112.3.439

The Alaskan terrestrial arthropod fauna is among the most poorly known of the U.S. states, and most of the over 300 Aleutian Islands have never had their terrestrial arthropod fauna surveyed. In collaboration with the U. S. Fish and Wildlife Service, the third author began a large-scale survey of these islands in 2008. During a survey of Kasatochi Island on 11 June 2008, a single specimen of *Pseudodineura* was collected. Two months later, the island, which is a small stratovolcano, erupted violently, destroying virtually all life on the island and burying the surface of the island under many meters of ash and hot (800°C) pyroclastic flow (DeGange et al., in press). This is the first report of *Pseudodineura* in Alaska as well as part of ongoing studies on the terrestrial

arthropods of pre- and posteruption Kasatochi Island (Sikes and Slowik, in press).

MATERIALS AND METHODS

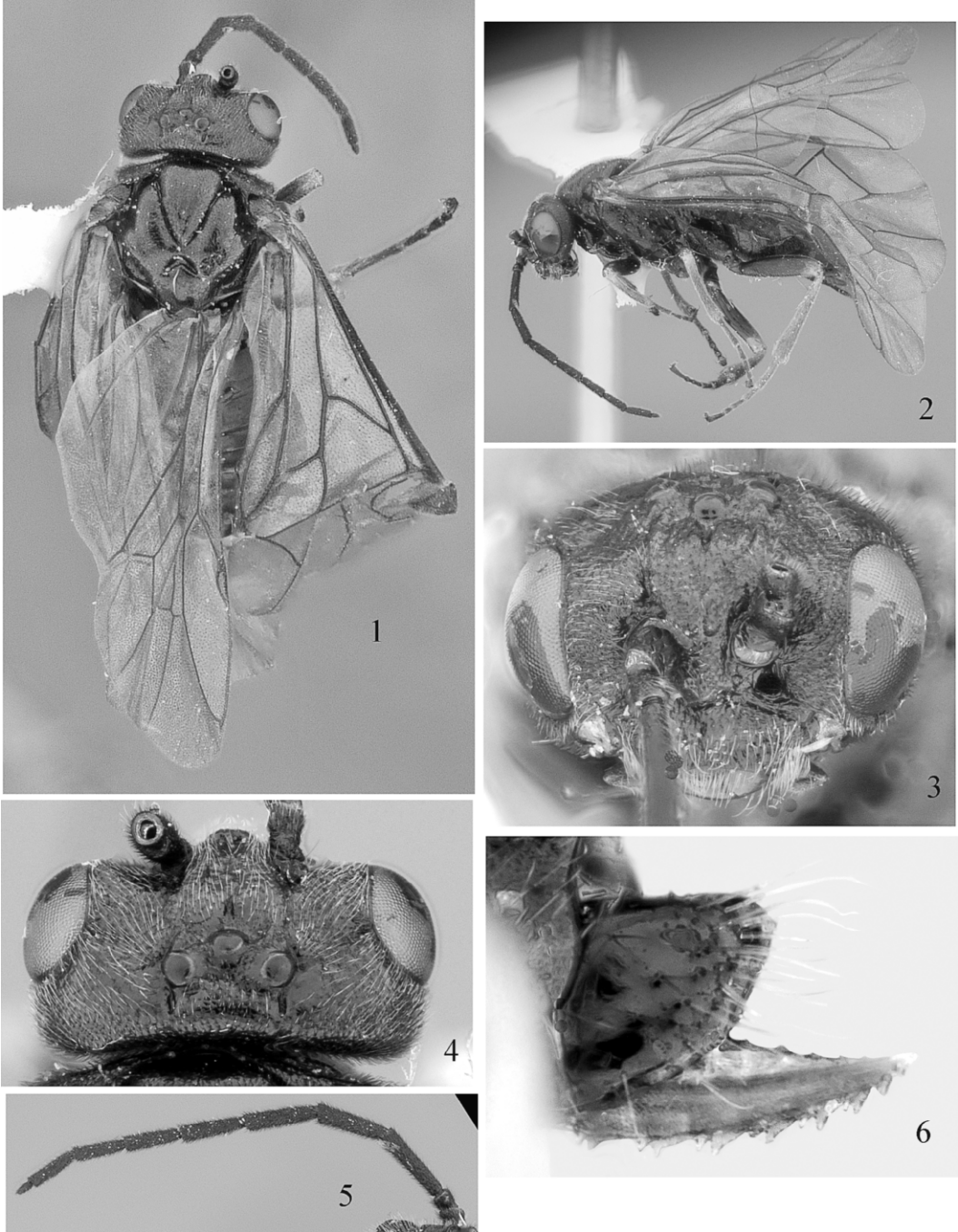
Images were obtained using an EntoVision Imaging Suite that included a firewire JVC KY-75 3CCD digital camera mounted to a Leica M16 zoom lens via a Leica z-step microscope stand. Multiple focal planes were merged using Cartograph 5.6.0 (Microvision Instruments, France) software.

RESULTS

***Pseudodineura kasatochi* Smith,
new species**
(Figs. 1–6)

Female.—Length, 4.0 mm. Black; apex of mandible red brown; extreme apices of femora and tibiae light brown

* Accepted by Michael W. Gates



Figs. 1–6. *Pseudodineura kasatochi*, holotype. 1, Dorsal view. 2, Lateral view. 3, Head, front view. 4, Head, dorsal view. 5, Antenna. 6, Sheath and lancet, lateral view.

to white. Wings lightly, uniformly infuscated; forewing stigma with anterior half black, posterior half brown; veins black. Head somewhat dull and finely punctured; thorax and abdomen shiny, without sculpture.

Antenna (Fig. 5) with 8 flagellomeres, long and slender, length $2.2\times$ head width; scape and pedicel each about as long as broad; first flagellomere $1.1\times$ length of second flagellomere, second and third flagellomeres subequal in length, flagellomeres 3–7 gradually decreasing in length, apical flagellomere small, about $0.3\times$ length of penultimate flagellomere; flagellomeres 1–7 each about $3.0\times$ longer than broad. Clypeus truncate. Supra-antennal field without groove. Malar space less than diameter of front ocellus. Postocellar area $2.6\times$ broader than long (Fig. 4); distances between eye and hind ocellus, between hind ocelli, and between hind ocellus and posterior margin of head as 1.0:0.7:0.6. Eyes subparallel, far apart, lower interocular distance $1.5\times$ eye height (Fig. 3). Distance between eye and antennal socket about $1.5\times$ distance between antennal sockets. Forewing without basal anal cell; vein 2r present; 2r meets Rs basal to 3r-m in apical third of third cubital cell; 2m-cu meets M in third cubital cell. Hind wing without anal cell. Tarsal claws simple. Hind basitarsomere slightly shorter than following 3 tarsomeres combined and $0.7\times$ length of remaining tarsomeres combined. Sheath in dorsal view slender, broader at base and tapering to acute apex; in lateral view (Fig. 6) straight above, rounded below. Serrulae of lancet long, slender (Fig. 6).

Male.—Unknown.

Holotype.—Female, labeled “USA: Alaska: Kasatochi, el. 44 m, 52.17137°N, 175.52704°W, ± 33 m, grass, forbs, sweep, 11 Jun 2008, D. S. Sikes” and barcode label “UAM100026708.” Deposited in the

University of Alaska Museum Insect Collection, Fairbanks.

Etymology.—Named for Kasatochi Island, a noun in apposition.

Host.—The host plant is unknown. Larvae of other species of *Pseudodineura* are leafminers of various Ranunculaceae, including *Hepatica*, *Ranunculus*, *Trollius*, *Clematis*, *Pulsatilla*, and *Anemone* (Hering 1929, Ross 1951, Zhelochovtsev and Zinovjev 1988, Altenhofer and Pschorn-Walcher 2006). *Anemone* is a possible host plant because *Anemone narcissiflora* L. var. *villosissima* DC. was prevalent on the island during pre-eruption surveys (S. Talbot, pers. comm.).

Discussion.—Twelve species of the nematine genus *Pseudodineura* are known, four in the Nearctic Region and nine in the Palearctic Region (Taeger and Blank 2008). Smith (1976) revised the Nearctic species, Hering (1929) gave a key to five and Zhelochovtsev and Zinovjev (1988) to six Palearctic species, and Boevé et al. (2009) provided a phylogeny. The three species *P. mocsaryi* Zombori, 1976, *P. scaligera* Zombori, 1979, and *P. clematidis* (Hering, 1932) are not included in the 1988 key. All Palearctic species are European except *P. fuscula* (Klug 1814) which is also recorded from the Far East and eastern United States (Smith 1976, Zhelochovtsev and Zinovjev 1995).

The new species does not agree with any of the Nearctic species. One, *P. lehosa* Smith, 1976, occurs in British Columbia, Oregon, and Idaho, but that species has shorter antenna, about $1.5\times$ the head width, an almost nonexistent malar space, and the legs are almost entirely pale orange. The other three Nearctic species occur only in eastern United States, and two, *P. parva* (Norton 1867) and *P. rileda* (Smith 1976), have the legs entirely orange. The other, *P. fuscula*, may be separated by the short, broad sheath, from above,

broader than long and not gradually tapering toward its apex. The only host plant known for Nearctic species is *Hepatica* sp. for *P. parva* (Ross 1951).

Pseudodineura kasatochi has been compared with all Palearctic species except for *P. clematidis*, *P. mocsaryi*, and *P. scaligera*, for which the original descriptions have been referred to. In the keys to Palearctic species by Hering (1929) and Zhelochovtsev and Zinovjev (1988), *P. kasatochi* keys to *P. heringi* Enslin 1921, being similar by the tapering sheath seen from above, black femora, and supra-antennal field without a groove or pit. *Pseudodineura heringi* has antennae with 7 flagellomeres and shorter antennae which are slightly less than $2\times$ the head width; is smaller, about 3 mm in length; has the distance between the eye and lateral ocellus subequal to the distance between the inner margins of the hind ocelli; and in the forewing 2r meets Rs at the center of the third cubital cell and 3r-m meets M in the second cubital cell. *Pseudodineura heringi* is the only species recorded from *Anemone*, a potential host for *P. kasatochi*.

Diagnostic characters for *P. kasatochi* are the slender antennae with 8 flagellomeres and which is $2.2\times$ the head width; the mostly black femora; larger size, about 4 mm in length; distance between the eye and lateral ocellus greater than the distance between the inner margins of the hind ocelli; and forewing venation with both 2r and 3m-cu ending in the third cubital cell and 2r meeting Rs at the apical third of the third cubital cell. The eight flagellomeres could be an anomaly, which is occasionally encountered in sawflies, and one antenna is missing on the holotype. Additional specimens are necessary to evaluate this character.

Although the Kasatochi Island population is certainly destroyed, there are numerous islands to the southwest and

southeast, 19–35 km distant (e.g., Atka and Great Sitkin) on which we expect the species persists. Ongoing arthropod sampling throughout the Aleutians may help establish the full distribution of *P. kasatochi*.

ACKNOWLEDGMENTS

Stephen S. Talbot, U. S. Fish and Wildlife Service, Anchorage, AK, provided information on the presence of *Anemone* on the island. Michele Touchet, Systematic Entomology Laboratory, Washington, DC, helped with the photographs. We also thank Vernon Byrd and Jeff Williams of the U. S. Fish and Wildlife Service, for their help in obtaining funding and transportation aboard the USFWS' vessel the M/V Tiglax. Kelly May, Mary Wyatt, specimen preparators, and volunteers in the University of Alaska Museum, are thanked for their efforts. Additional support is acknowledged from Alaska EPSCoR NSF award #EPS-0701898, National Science Foundation BRC award #DBI-0847904, and the State of Alaska. We appreciate reviews by the following: S. M. Blank, Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany, and D. A. Nickle and T. J. Henry, Systematic Entomology Laboratory, USDA, Beltsville, MD, and Washington, DC, respectively.

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