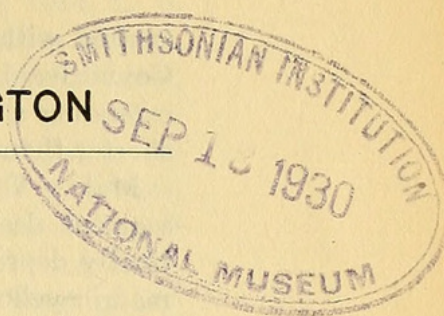


PROCEEDINGS
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FIVE NEW SPECIES AND A NEW VARIETY OF WATER-
STRIDERS FROM NORTH AMERICA (HEMIPTERA-
GERRIDAE).

BY CARL J. DRAKE AND F. C. HOTTES.

Since the publication of "Four Undescribed Species of Water-striders (Hemip.-Gerridae)" in the OHIO JOURNAL OF SCIENCE, Volume 25, 1925, pages 46-50, the writers have received numerous specimens of Gerridae for determination from the United States and Canada. Among this material are five undescribed species and a new variety which are described herein.

Gerris (Aquarius) uhleri, n. sp.

Allied to *G. conformis* Uhler, but easily distinguished from it by (male) narrower, shorter and differently formed genital segments, much longer terminal spines of the connexiva, shorter antennae; (female) by shorter genital segments and longer and more slender spines of the connexiva. In *G. nebularis* the last segment of the male is distinctly sulcate. Length, 14.5 mm.; width, 2.26 mm.

Moderately robust, elongate, brownish black. Head, pronotum and nervures of hemelytra rather densely clothed with very short, somewhat flattened, recurved, grayish pubescence. Head on each side with silvery gray pubescence, the basal stripe varying in color from yellowish brown to russet brown. Antennae brownish black; first segment slightly curved, longest, subequal to second and fourth conjoined; second segment very slightly shorter than the fourth and distinctly longer than the third. Body beneath densely clothed with moderately long, silvery pubescence, the prosternum golden yellow. Rostrum brownish black, clothed with silvery hairs, reaching to the middle of anterior coxae. The apical segment smooth, shining and black. Hemelytra covering or only extending to the last genital segment. Pronotum with median carina distinct, the lateral margins beneath (humerus to anterior lobe) golden yellow, posterior margin rounded and distinctly depressed in the middle; anterior lobe, except front, broadly depressed in the middle and with a yellowish brown, median stripe, the pubescence on the sides of the anterior lobe inter-

spersed with grayish hairs. Apterous or brachypterous forms unknown. Connexiva bordered with yellowish brown, the spines dark brown and extending a little beyond the tip of last genital segment. Legs a little shorter than in *conformis* or *nebularis*.

Male.—Venter broad and somewhat raised along the median line; last segment deeply, broadly and somewhat roundly excavated behind, distinctly depressed on each side in front of the posterior margin; posterior margin yellowish brown, beset with numerous silvery hairs, and truncate in the middle; first genital segment with keel much shorter and triangular in shape, also nearer the base and much more raised than in *nebularis*; sides of keel and depressed area on each side clothed with silvery pubescence; posterior margin of first and last segments clothed with numerous silvery hairs.

Female: Genital segments smaller and more plump than in *nebularis*, only faintly depressed on each side. Terminal spines of connexiva long, slightly curved and extending distinctly beyond the apex of last genital segment.

Holotype, male, and *allotype*, female, from Arizona in the Uhler collection, United States National Museum, Washington, D. C. Two male *paratypes*, also from Arizona, in the authors' collections. This insect is named in honor of the late P. Z. Uhler. It is very distinct from *conformis* Uhl. and *nebularis* D. & H.

***Gerris nebularis*, n. sp.**

Akin to *G. conformis* Uhler and *G. uhleri*, n. sp., but readily separated from them by its larger size, longer legs, and the deeply sulcated last segment (male) of the venter. General color, markings, and proportional lengths of the antennal segments very similar to *G. conformis*. In the long winged form the first pair of wings reach almost to or a little beyond the base of the first genital segment. In the short winged form the hemelytra extend from the middle of the second to the middle of the third segments. Length, 15.4–16 mm.; width, 2.35 mm.

Male: Terminal spines of connexiva reaching a little beyond the first genital segment. Venter, except terminal segment, with a narrow median ridge; last segment deeply, broadly and roundly excavated on the posterior margin, the median furrow broad and deep. Genital segments distinctly broader than in *conformis*; median ridge long and prominent, with a large, strongly depressed area on each side.

Female: Venter with a narrow, median ridge. Apical spines of connexiva almost reaching to the tip of last genital segment. In both male and female the median ridge of venter varies from yellowish to russet brown in color.

Holotype, macropterous male, and *allotype*, macropterous female, Gainesville, Florida, July 14, 1918, collected by C. J. Drake, in Drake collection. *Morphotypes*, short winged male, Florida (Uhler collection) in U. S. National Museum, and short winged female, taken with *holotype*, in Drake collection.

Paratypes, taken with *holotype* and *morphotypes*, and also from Sugar

Grove, Ohio, C. J. Drake; Cuyahoga County, Ohio, July 6, 1914, C. J. Drake; Madison, New Jersey, 1898, H. G. Barber; Waltham, Illinois, July 20, 1913; in the collections of Iowa State College, University of Illinois, U. S. National Museum, H. G. Barber and writers.

In the long winged form the hemelytra show considerable variation in length. This species has been confused in collections with *G. conformis*. The specimens from Gainesville, Florida, were taken on a small stream about two miles west of the university. A damaged specimen from A. & M. College, Mississippi, seems to belong to this species. The wings of the *holotype* and *allotype* are broken off.

***Gerris (Gerris) insperatus*, n. sp.**

Color markings, form and size very similar to *G. marginatus* Say. Hemelytra reaching almost to or a little beyond the base of the first genital segment. Antennae slightly variable in color, proportional length of segments about the same as in *G. marginatus*. Wingless and short winged forms unknown.

Male: The median carina of venter more prominent on the last two segments than in *G. marginatus*. Omphalium not prominent. Posterior margin of last segment of venter deeply and roundly notched. First genital segment very plump, without a distinct median keel, roundly projecting in the middle. Connexiva, except outer margins, also the median portion and the posterior margin of the last segment of the venter, golden yellow. The median stripe of venter varies from golden yellow to brown.

Female: Spines of the connexiva a little shorter, broader and thicker than in *marginatus*. Coloration of connexiva as in male. Genital segments beneath and outer margin of first genital segments above golden yellow. Length, 7.4–8.6 mm.; width, 2.3–2.5 mm.

Holotype, male, and *allotype*, female, Mexico (2308) collected by F. C. Baker, in the U. S. National Museum. *Paratypes* collected with *holotype* and also from the following localities: Delaware, Ohio, July 12, 1916, C. J. Drake; Cranberry Lake, New York, July 22, 1919, A. E. Fivaz; Ottawa, Ontario, June 11, 1912, Miss G. Beaulieu; Hog's Back, Ontario, June 9, 1923, R. Ozburn and June 25, 1922, C. H. Curran; Abitibi region North Quebec, June, 1915, Doctor Cook; Sudbury, Ontario, Canada, May 5, 1889; Cheticamp, C. B. I., August 7, 1917, F. Johansen; Homer, Illinois, April 27, 1907; Cold Spring Harbor, L. I., August 10, 1900, H. G. Barber; Bear Swamp, Ramapo Mts., New Jersey, July 25, 1911, H. G. Barber; Vienna, Va., July 7, 1913, H. G. Barber; in collections of Iowa State College, U. S. National Museum, National Museum of Canada, University of Illinois, H. G. Barber, and authors.

The notch of the last segment of the venter and the plump genital segments without a keel readily distinguish the males of this species from the males of *marginatus*. The females of the two species are rather hard to separate. *G. insperatus*, n. sp., ranges from Ottawa (Canada), and New York to Ohio and Illinois, and then south into Mexico.

***Gerris incurvatus*, n. sp.**

Form, size and color similar to *G. marginatus* Say, but differing from it in having the terminal spines of the connexiva (female) very strongly curved inwardly. The notch on the posterior margin of the last ventral segment of the male is deeper, narrower at the base, and more rounded than in *marginatus*. The apex of the connexivum is also shorter and slightly more inwardly curved. Markings on the head and thorax, and proportional lengths of the antennal segments as in *marginatus*. Hemelytra reaching almost to or a little beyond the base of the first genital segment. Omphalium not strongly developed. Venter with the median line and posterior margin of last segment yellowish brown. Length, 7.6–8.7 mm.; width, 2.3–2.5 mm.

Holotype, male, Bozeman, Montana, Aug. 26, 1913, and *allotype*, female, Bozeman, Montana, June 8, 1914, in Drake collection. Twenty-four *paratypes*: Gallatin Canon, Montana, elevation 6000 ft., June 11, 1902, elevation 4800 ft., and June 4, 1902, R. A. Cooley; Gallatin County, Montana, May 14, 1922; Bozeman, Montana, June 4 and 9, 1906, Aug. 26, 1913, and May 17 and 19, 1924; Stanford, Oct., 1897, Johanson; Paha, Washington, June 7, 1920, M. C. Lane; Saanich District, Sept. 5, 1924, W. Downes; Kaslo, 1903, B. C., Currie; Ewan, Washington, June 13, 1920, M. C. Lane; Spanish District, B. C., Sept. 15, 1924, W. Downes; Yellow Bay, Montana, July 22, 1912; in collections of Iowa State College, U. S. National Museum, National Museum of Canada, W. Downes; University of Illinois, Montana Agricultural College, and authors. Although very closely related to *marginatus*, the genitalia and spines of the connexiva readily separate the two forms. The wingless and short winged forms are unknown.

***Gerris comatus* var. *mickeli*, n. var.**

This variety is represented by five specimens, short winged females. It may be distinguished from typical *G. comatus* D. & H. by the russet-brown marginal stripe on each side of the anterior lobe of the pronotum. Other characteristics are almost identical with females of *comatus*. However, male specimens may prove this variety to be a distinct species. The hairs on spines of the connexiva are very long as in the short winged forms of *comatus*. In two of the *paratypes*, the marginal stripes of the pronotum are not very distinct.

Holotype, female, Rochester, Minn., June 15, 1922, collected by C. E. Mickel (from Montana collection) in Drake collection. *Paratypes*: North Branch, Minnesota, June 17, 1922, C. E. Mickel; Alexandria, Minnesota (on pond east of town), W. E. Hoffmann; St. Peter, Minnesota, German Lake, July 28, 1922, W. E. Hoffmann; in collections of Montana Agricultural College, University of Minnesota and authors.

In addition to the type localities the writers have examined specimens of *G. comatus* D. & H. from Canada, Montana, New York (Cranberry Lake and Syracuse), New Jersey, Illinois, Montreal, Wyoming (Big Horn Mountains) and Minnesota.

Gerris incognitus, n. sp.

Size and form somewhat similar to *G. pingreensis* D. & H., but with the color pattern and antennae more like *G. gillettei*. Pronotum with a distinct longitudinal carina, the anterior lobe with a short, median and the marginal stripes yellowish or russet-brown. Antennae reddish brown, the basal segment, except the tips, brownish black; first segment slightly curved, a little longer than the fourth and shorter than the second and third conjoined; second and third segments almost equal in length. Wings varying considerably in length, reaching to the middle of the last abdominal segment or a little beyond the first genital segment. Wingless female with a large, tumid area near the base of the abdomen. In *G. pingreensis* the first abdominal segment of the female has only a moderately large tubercle. Short winged forms unknown.

Male: Venter strongly depressed posteriorly, especially the last segment; last three segments with a median, yellowish brown or russet line and with a faint median carina. Posterior margin of the last segment yellowish brown, deeply, widely and roundly notched; connexiva margined with yellowish brown, and terminating in short spines. First genital segment long, becoming smaller posteriorly, beneath strongly depressed on each side, with a raised median ridge, basal half (on each side) margined with long hairs.

Female: In the wingless form the connexiva terminates in moderately stout, obliquely and upward projecting spines, the tips of which are blunt. The first genital segment becoming narrower posteriorly, truncate at the apex. Genital segments yellowish brown to brownish. In the winged form the terminal spines of the connexiva do not project quite so strongly upward. Length, 8.6–9.5 mm.; width, 2.6–2.82 mm.

Holotype, winged female, Kaslo, B. C., June 29, 1903, R. P. Currie, collector, and *allotype*, female, Kaslo, B. C., 1903, R. P. Currie collector, in the Uhler collection, U. S. National Museum. *Morphotypes*, *paramorphotypes* and *paratypes* collected with *holotype* and *allotype*. These were collected from the following localities: Arcata, California, July, 1923, R. B. Falkenstein; Kaslo Creek, B. C., June 18, A. N. Caudell; Langgan, B. C., R. P. Currie, Goldstream, B. C., May 17, 1922, Audren; Kalispell, Montana, June 13, 1920, Wickham; in the collections of Iowa State College, U. S. National Museum, National Museum of Canada, University of Minnesota and authors.

Gerris notabilis D. & H.

The specific name of this insect (typographical error) was wrongly printed in the original description. (Ohio Jnl. Sci., Vol. XXV, 1925, p. 46) and should be written "notabilis." This species ranges from British Columbia to California and west to Iowa.



Drake, Carl J. and Hottes, F. C. 1925. "Five new species and a new variety of water-striders from North America (Hemiptera: Gerridae)." *Proceedings of the Biological Society of Washington* 38, 69–73.

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