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MALENKA MURVOSHI, A NEW SPECIES OF STONEFLY FROM THE SPRING MOUNTAINS OF SOUTHERN NEVADA (PLECOPTERA: NEMOURIDAE)

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ABSTRACT

Malenka murvoshi, sp. n. of the stonefly family Nemouridae is named from the Spring Mountains of southern Nevada. The adult male and female are described and illustrated using line drawings and electron micrographs. Additionally, the larva is preliminarily described. The new species is apparently endemic to the Spring Mountains.

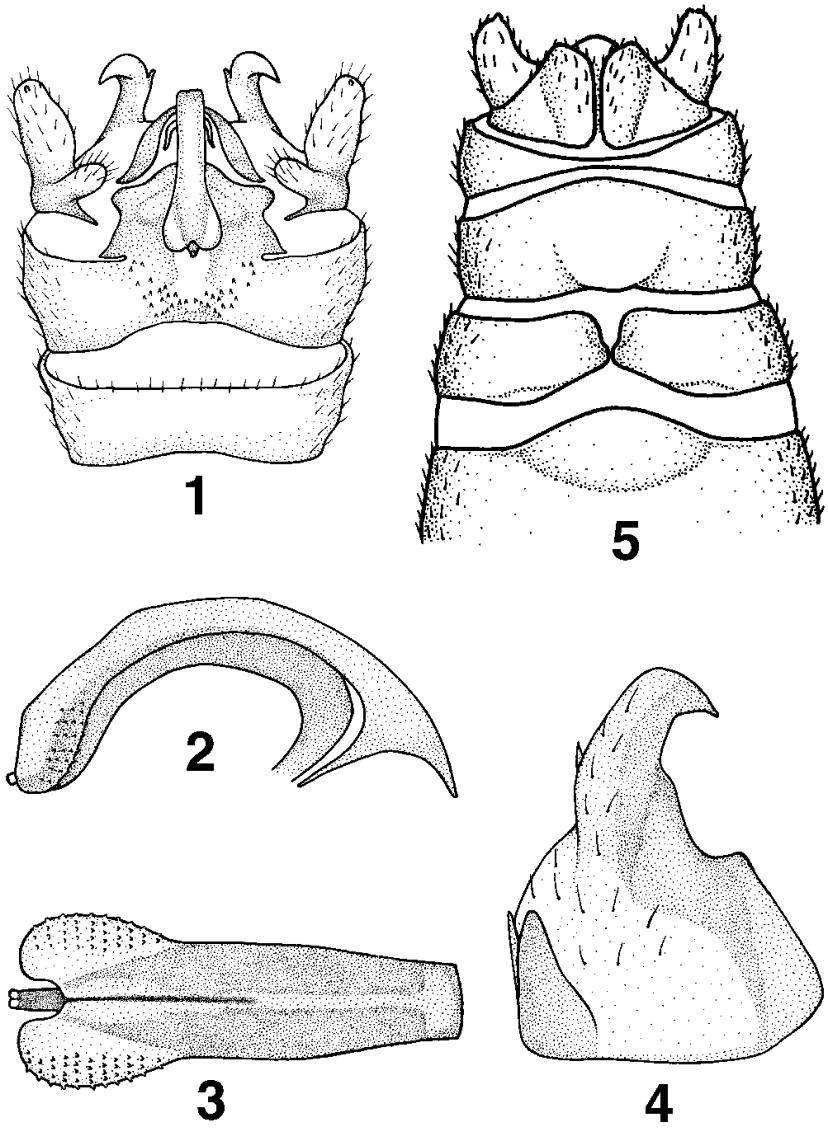
Keywords: Plecoptera, Nemouridae, *Malenka*, stonefly, new species, Nevada

INTRODUCTION

In January 1965 Chad M. Murvosh collected a series of nemourid adults from Willow Creek in the Spring Mountains of southern Nevada. He was unable to specificially determine his specimens using the existing literature, forwarding them to the late William E. Ricker for study, Ricker indicated to him that these specimens represented an undescribed species of the subgenus *Malenka* Ricker (1952), later given generic rank by Illies (1966). This material was subsequently sent to the senior author who was studying the family Nemouridae. Between 1965 and 1977 several individuals collected additional material from the same area, including Andrew L. Sheldon, who published records of this undescribed species in his 1979 paper on stonefly records from the Great Basin Ranges of Nevada and Utah. In May of 1981 a large series was collected in Willow Creek at Willow Creek Campground, Clark County, Nevada making it possible in the future to study and describe the species. Recently, a great number of available stonefly records for Nevada and the Great Basin were compiled by the senior author and Andrew Sheldon for a comprehensive publication on the distribution of the stoneflies of this important geographical region of western North America. Therefore the purpose of this paper is to make a name available for the above publication, even though a revision of *Malenka* is still ongoing by the authors.

MATERIAL AND METHODS

Specimens were studied using a Wild M-8 stereomicroscope at Brigham Young University. Electron micrographs were produced at the Brigham Young University Electron Optics Laboratory using a Philips XL2 ESEM FEG. All specimens listed in this study are located at the Brigham Young University collection (BYUC), Provo, Utah or the C. P. Gillette



Figs. 1-5. *Malenka murvoshi*, Willow Creek, Spring Mountains, Nevada. 1. male terminalia, dorsal; 2. male, epiproct, lateral; 3. male, epiproct, dorsal; 4. male, right paraproct, terminal; 5. female, terminalia, ventral.

Museum of Arthropod Diversity (CSUC), Colorado State University, Fort Collins, Colorado.

RESULTS AND DISCUSSION

Malenka murvoshi sp. n.
(Figs. 1-13)

Malenka sp. A Sheldon 1979:289.

Material examined. Holotype ♂, USA: Nevada: Clark County, Willow Creek, Willow Creek Campground, Spring Mountains, 3 April 1981, R.W. Baumann and S.M. Clark. Paratypes: Nevada. Clark Co. Cold Creek, Spring Mountains, northwest of Las Vegas, 15 Jan 1977, C.E. Hornig, 1♂, 1♀ (BYUC); Cold Creek, Spring Range, 3 May 1977, A.L. Sheldon, 2♂ (BYUC); Cold Creek, Spring Mountains, 8 Oct 1978, M.L. Boulton, 6♂, 14♀ (BYUC); 17 Feb 1979, 1♂,

1♀ (BYUC); Willow Creek, Spring Mountains, 10 Oct 1965, C.M. Murvosh, 3♂, 5♀ (BYUC); Willow Creek, Spring Mountains, 23 Mar 1978, E. Schmid, 1♂ (BYUC); Willow Creek, Willow Creek Campground, 3 April 1981, R.W. Baumann & S.M. Clark, 98♂, 42♀ (BYUC, CSUC); Willow Spring, Willow Creek, Spring Mountains, 20 Dec 1995, R.W. Baumann & S.M. Clark, 3♂ (BYUC). Larvae: Nevada, Clark Co. Whisky Spring, 3 miles above Cold Creek, Bonanza Trailhead, Spring Mountains, 20 Dec 1995, R.W. Baumann, S.M. Clark, J.K. Gelhaus & C.R. Nelson, 2 larvae (BYUC); Willow Creek, Willow Creek Campground, Spring Mountains, 3 Apr 1981, R.W. Baumann & S.M. Clark, 17 larvae (BYUC, CSUC). The holotype is deposited at the United States National Museum, Smithsonian Institution, Washington D.C.

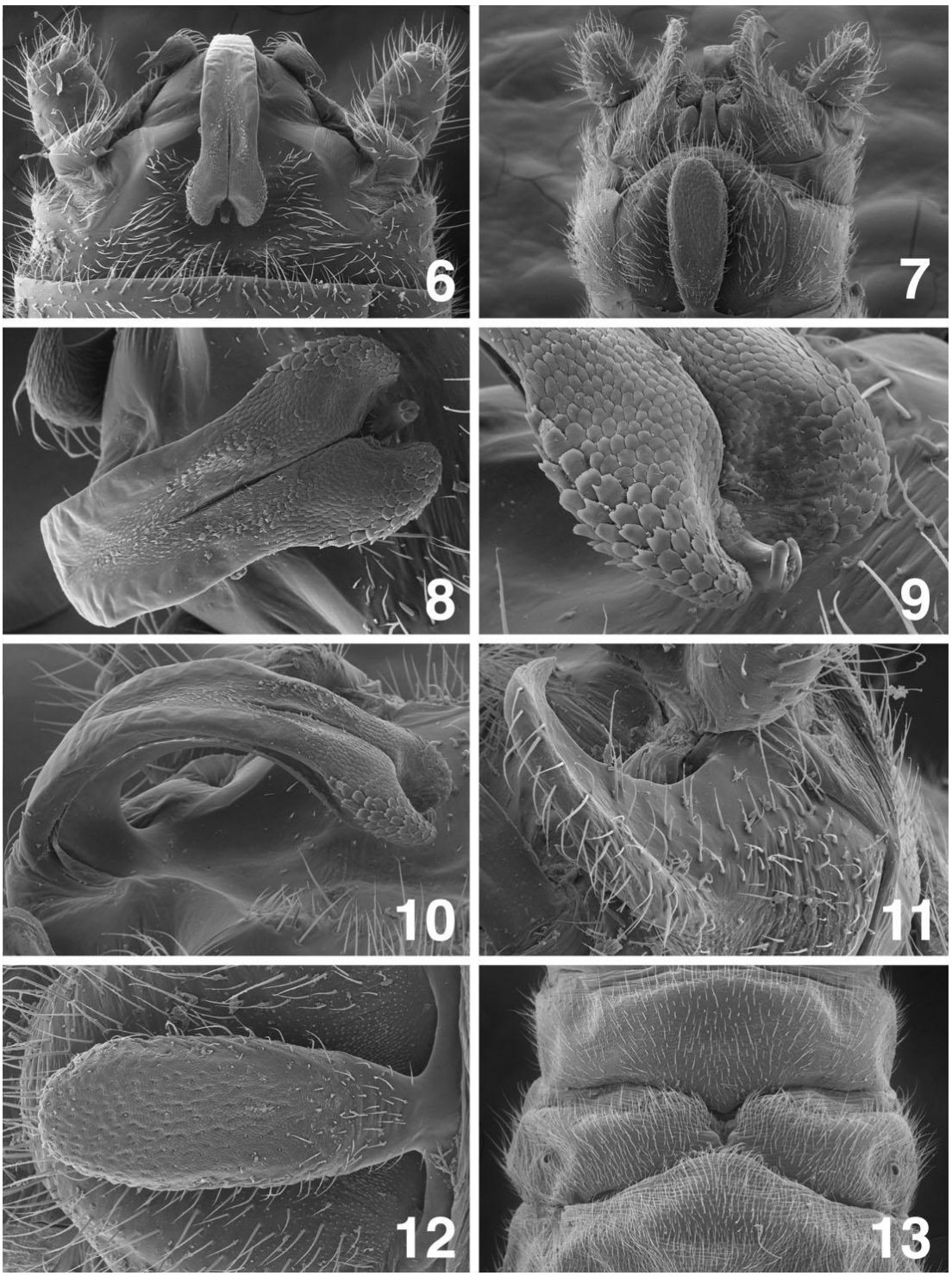
Male. Macropterous. Body length 5.0-6.0 mm; forewing length 6.0-7.0 mm. General color brown, head, pronotum and anterior margin of mesonotum more darkly colored; pronotum covered with small rugosities that are darkly pigmented; antennae uniformly brown; legs light brown. Epiproct recurved over abdomen (Figs. 1, 6); dorsal aspect flattened, divided in anterior half by narrow median incision into paired lobes, which are tightly appressed, except at apex, which is deeply incised, forming large U-shaped notch terminally, which surrounds two, narrow upward directed apical hooks, terminal lateral margins expanded into large rounded lobes, which bear thin flattened scales (Figs. 3, 8, 9); lateral aspect curved upward between base and apex, ventral sclerite bare of spines, large apical flared lobes covered with plate-scales on dorsolateral margins (Figs. 2, 10). Paraprocts composed of three lobes, outer lobes short and blunt, extending to base of cerci, inner lobes short and slightly rounded at apex, with roughed surface. Median lobe large, curving upward around base of epiproct, base broad, apical aspect thin and scythe-shaped, with curved portion forming large sharply pointed apex, which curves outward toward the cerci, convex middle area bearing small, stout V-shaped outward directed spine, originating near the base of the curve (Figs. 4, 7, 11). Hypoproct broad at base underneath the vesicle, apical aspect greatly narrowed into thin pointed apex, fitting between the inner lobes of the paraprocts (Fig. 7). Vesicle narrow and elongate, broadest medially and near apex, with thin base, vesicle surface covered with many rounded pit-like indentations, basal and lateral margins bearing thin hairs (Figs. 7, 12). Cerci with mesobasal lobe, nipple-like and unsclerotized, with rounded tip directed inwardly towards the cerci, lobes and cerci covered with many stout hairs (Figs. 1, 6).

Female. Macropterous. Body length 7.0-8.0 mm, forewing length 7.0-8.0 mm. Color and general morphology similar to male. Seventh sternum produced medially into small stout nipple-like structure, medial portion of sternum swollen. Eighth sternum with median V-shaped notch, notch deep and extending to base of segment, lateral margins of segment bordering notch swollen (Figs. 5, 13). Swollen portions of sterna 7 and 8 are more visible in lateral aspect.

Larva. General morphology typical for the genus (Baumann 1975, Stewart and Stark 2002): male body length 5.5-6.5 mm, female body length 7.0-8.0 mm. General color brown. Cervical gills present, two pairs located on each side of midline, gills found both inside and outside of lateral cervical sclerite, each set composed of 6-8 gills, usually with the actual number being 7 in undamaged specimens.

Etymology. We are pleased to name this species after our friend and colleague, the late Chad M. Murvosh, who collected the first specimens that are part of this study. Chad was a well known aquatic entomologist, with expertise in the water penny beetles or Psephenidae. He collected many interesting aquatic insects throughout western North America during his career at the University of Nevada at Las Vegas.

Diagnosis. *Malenka murvoshi* males can be separated most easily from its closest congeners, *M. biloba* (Claassen) and *M. coloradensis* (Banks) by the shape of the paraprocts. In *M. biloba,* the median lobe of the paraproct has a bilobed apex, the larger outer lobe is longer and cultriform, while the inner lobe is stout with a triangular apex. The median lobe in *M. coloradensis* has a nearly truncate apex, terminating in two short stout tips. Whereas, in *M. murvoshi* the apex of the median lobe is scythe-shaped with a large sharply pointed apex, but bears a short stout spine on its outer margin (Figs. 4, 11). All three of these species share the character of simple mesobasal cercal lobes which are nipple-like and not apically acute or darkly sclerotized (Figs.1, 6). Females cannot be



Figs. 6-13. *Malenka murvoshi*, Willow Creek, Spring Mountains, Nevada. 6. male, terminalia, dorsal; 7. male, terminalia, ventral; 8. male, epiproct, dorsal; 9. male, epiproct, tip; 10. male, epiproct, dorsolateral; 11. male, right paraparoct, terminal; 12. male, vesicle, ventral; 13. female, terminalia, ventral.

separated without associated males by external characters. Nymphs may potentially be separable by the number of gill branches on each side of the cervical sclerite from sympatric species, but this character requires further study.

Remarks. The Spring Mountains of southern Nevada range northwest-southeast between Las Vegas and the California border and are isolated from the many north-south oriented ranges in the Great Basin portion of Nevada. The highest point is Mount Charleston, at 3,633m. Extensive collecting of the region indicates that *M. murvoshi* is apparently endemic to these mountains. *Malenka coloradensis*, however, was collected in Deer Creek only a short distance south of the known localities for *M. murvoshi*. It is interesting to note that the three *Malenka* species that were discussed in the diagnosis have the most southern distribution of the genus in their respective states in the United States and Mexico: *M. biloba* California and Baja California; *M. coloradensis*: Arizona, Colorado, Nevada, New Mexico, South Dakota, Utah and Wyoming (Stark et al. 2009); *M. murvoshi* only in southern Nevada.

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