

of a new micro-endemic in the South Eastern Alps of Austria (*S. ottomoogi*), and despite its morphological resemblance to *S. montana*, show that it is very distantly related. Sequence diversity among the widely distributed *S. torrentium*-complex is very high, and together with clear geographic structure suggests that this lineage may contain more than one species. To our knowledge, this is the first phylogenetic study of European Plecoptera and new insights are expected in terms of hypotheses concerning the origin of alpine taxa and their distributional response to the ice ages.

Robert Zuellig and B. C. Kondratieff

Continuing studies of *Perlesta* in the eastern U.S. has indicated numerous undescribed populations. Special efforts are being made to collect fresh material including gravid females. Additionally, a publication is approaching submission on the stoneflies of Missouri.

ILLIESIA, International Journal of Stonefly Research, is entering its fourth year of publication. Volume 3 (2007) includes 18 articles can be accessed and downloaded without cost from the website: <http://www2.pms-lj.si/illiesia/>
Editors, Ignac Sivec and Bill Stark invite you to consider **Illiesia** as an outlet for your stonefly research.

Article:

Modoc County, California Stoneflies (Plecoptera)

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Abstract

By virtue of its remote location in the extreme northeastern corner of California, Modoc County (Map) remains as one of the most infrequent areas collected for stoneflies in the state. Jewett (1960) listed only *Zapada oregonensis* (Claassen) and *Isoperla fulva* Claassen from a single 1946 collection made by W.F. Barr and H.P. Chandler at Eagleville, Stark & Nelson (1994) included a single record of *Yoraperla nigrisoma* (Banks) from a 1967 collection made 8 miles north of Fandango Pass on Willow Creek by E. Evans, and Stanger & Baumann (1993) gave two records of *Taenionema pallidum* from the Buck Creek Ranger Station and from 6 miles northwest of Cedarville. Only 12 individual stoneflies are included among these records.

Most of the western 2/3 of the county is incorporated into the Modoc National Forest where water management practices have centered on reservoir construction, but in the eastern third of the county a narrow north-south corridor of national forest and wilderness extends along the Warner Mountains from northern Lassen County into Oregon. Eagle Peak (elevation 3,015 m) in the South Warner Wilderness is the highest point in this range and two passes, Fandango Pass (elevation 1859 m) and Cedar Pass (elevation 1935 m) provide access to streams at higher elevations in the Warners. In this report results of a survey made in the northern half of the Warner Range on May 21, 1998 by Stark and three colleagues, C.R. Nelson, S.W. Szczytko and I. Sivec at six sites; a short trip in July 1998 taken by R. W. Baumann and R. D. Call yielded specimens from two sites; and a more extensive survey on 22-24 May 2007 by B.C. Kondratieff and R.W. Baumann includes 16 sites also listed in Table 1.

Table 1. Modoc Co., California sites surveyed for stoneflies. Sites 1-6 were surveyed May 21, 1998, sites 7-24 were surveyed 22-24 May 2007, and sites 25-26 on 30 July 1998.

Stream	Road	Location
1. New Pine Cr.	Hwy 2	1 mile east Hwy 395
2. Willow Cr.	crossroad	0.1 mile south CR 9, below Buck Cr.
3. South Fk. Davis Cr.	CR 30	3.1 mile east Hwy 395
4. trib. S.Fk. Davis Cr.	CR 30	3.2 mile east Hwy 395
5. Cedar Cr.	off Hwy 299	east of Cedar Pass
6. Thomas Cr.	off Hwy 299	1 mile west Cedar Pass
7. Middle Fk. Fitzhugh Cr.	CR 40	north of CR 24
8. Mill Cr.	-----	Mill Cr. Falls Campgnd.
9. Rush Cr.	-----	Upper Rush Cr. Campgnd.
10. Soup Cr.	-----	below Soup Springs Campgnd.
11. Thomas Cr.	Hwy 299	Cedar Pass
12. South Fk. Pine Cr.	FR 5	-----
13. Unnamed stream	off Hwy 299	below Stough Reservoir Campgnd
14. trib. Joseph Cr.	CR 118	Joseph Creek Basin
15. Harvey Cr.	-----	north Coyote Creek Rd
16. South Fk. Pit R.	Hwy 64	east of Likely
17. Lassen Cr.	Rt 30	west of Fandango
18. South Fk. Parker Cr.	FR 31	-----
19. North Fk. Pit R.	Hwy 395	-----
20. Rush Cr. springs	-----	Upper Rush Cr. Campgnd.
21. Rush Cr.	C6	Upper Rush Cr.
22. Soup Spring	-----	Soup Spring Campgnd.
23. Johnson Cr.	off Hwy 299	-----
24. Horse Head Spring	off Hwy 299	-----
25. seep, Stough Campground	off Hwy 299	-----
26. Van Ripper Spring S of Eagleville Rd	42	-----

Results

A minimum of 32 species of stoneflies were collected at the 26 sites listed in Table 1. The following list includes sites where each respective species was collected. Site numbers and locality data are given in Table 1.

Capniidae:

Eucapnopsis brevicauda Claassen: Present at 15 sites, this is the second most common stonefly in the survey. 104 males and 151 females were collected.

Capnia gracilaria Claassen: 25 males and 22 females were taken at site 5.

Capnia sp.: 34 unidentified females were collected from sites 2, 3, 6, 7, 8, 12, 13, and 14.

Leuctridae:

Moselia infuscata (Claassen): 25 males, 22 females, and 2 nymphs were taken from sites 9, 10, 12, and 15.

Paraleuctra occidentalis (Banks): 16 males and 21 females were taken from sites 1, 3, 4, 7, 12, 13, and 14.

Paraleuctra vershina Gaufin & Ricker: 162 males and 119 females collected at sites 2, 8, 9, 10, and 24.

Perlomyia collaris Banks: 6 males and 4 females were collected at sites 6, 8, and 17.

Nemouridae:

Malenka depressa (Banks): 44 males and 39 females were taken at sites 1, 10, 15, 20, 21, 24, 25, and 26.

Malenka sp.: 1 male of a possible new species was collected at site 13.

Prostoia besametsa (Ricker): 23 males and 57 females were found with collections made at sites 1, 3, 4, 5, 6, 12, and 18.

Podmosta delicatula (Claassen): 11 males and 18 females were taken at sites 2, 6, 11, 15, 17, and 18.

Soyedina sp.: A single female specimen was taken in a seep at site 1.

Visoka cataractae (Neave): 2 females were taken from site 3.

Zapada cinctipes (Banks): 5 females were taken at sites 8 and 10.

Zapada frigida (Claassen): 1 male and 1 female were taken at site 1.

Zapada oregonensis (Claassen): 83 males and 49 females were collected from sites 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13 and 15.

Zapada sp.: 2 unidentified females were taken at site 18.

Taeniopterygidae:

Doddsia occidentalis (Banks): 1 female at site 3.

Oemopteryx vanduzeeae (Claassen): 2 males were taken at site 23.

Taenionema pallidum (Banks): 33 males and 54 females were taken from sites 1, 2, 6, 11, 17, 18, and 19.

Chloroperlidae:

Paraperla frontalis (Banks): 1 female and an exuviae were taken at sites 8 and 9.

Sweltsa coloradensis (Banks): 32 males and 2 females were collected at sites 9 and 15. Unidentified *Sweltsa* nymphs, possibly of this species, were taken at sites 10 and 17.

Peltoperlidae:

Sierraperla cora (Needham & Smith): 5 males, 10 female, and 7 nymphs were collected from sites 3, 5, 7, 9, 14, and 21.

Yoraperla nigrisoma (Banks): 72 males, 22 females, and 22 nymphs were taken at sites 4, 6, 7, 9, 10, 13, 14, 15, 20, and 22.

Perlidae:

Calineuria californica (Banks): 8 nymphs were taken at sites 7, 8, 9, 10, and 11.

Doroneuria baumanni Stark & Gaufin: 11 nymphs were taken at sites 3 and 6.

Hesperoperla pacifica (Banks): 1 female was taken at site 9.

Perlodidae:

Diura knowltoni (Frison): 1 female was taken at site 6.

Isoperla marmorata Needham & Claassen: 34 males and 64 females were taken at sites 9, 15, 16, 19, and 21.

Isoperla quinquepunctata (Banks): 6 males and 1 female were taken at site 19.

Skwala curvata (Hanson): 7 males and 6 females were taken at sites 8, 12, and 18.

Pteronarcyidae:

Pteronarcys princeps Banks: 1 male, 2 females and 1 nymph were taken at sites 9 and 21.

Discussion

Records are given for 32 species of stoneflies (4 of these identified only to genus level) from 26 localities in Modoc County, California. All but three of these (*Taenionema pallidum*, *Yoraperla nigrisoma*, *Zapada oregonensis*) represent new county records, however, none of the species were unexpected for this region.

Literature Cited

Jewett, S.G. 1960. The stoneflies (Plecoptera) of California. Bull. Calif. Ins. Surv. 6:125-177.

Stanger, J. & R.W. Baumann. 1993. A revision of the stonefly genus *Taenionema* (Plecoptera: Taeniopterygidae). Trans. Am. Entomol. Soc. 119:171-229.

Stark, B.P. & C.R. Nelson. 1994. Systematics, phylogeny and zoogeography of genus *Yoraperla* (Plecoptera: Peltoperlidae). Entomol. Scand. 25:241-273.



Map of Warner Mountains in Modoc County, California, USA.