

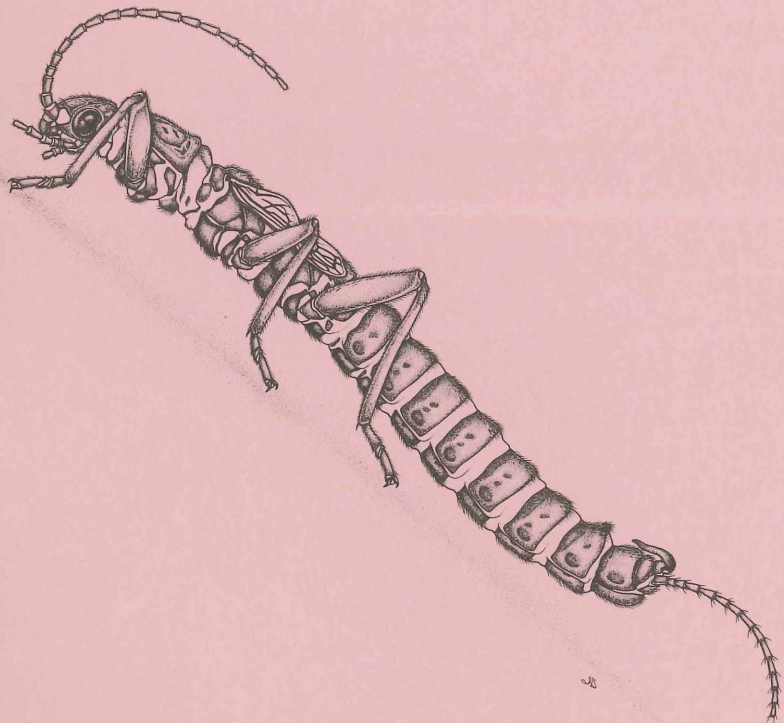
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**P E R L A**

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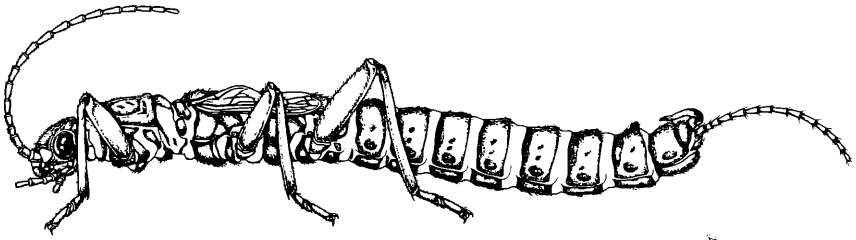
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**PERLA**  
A Newsletter for Plecopterologists

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# REPORT

## 10TH INTERNATIONAL SYMPOSIUM ON PLECOPTERA

### July 27-30, 1989

Granada Spain was the site of the Tenth International Symposium on Plecoptera. Our colleagues that study Ephemeroptera met from July 24 - 26 and then on July 27 a joint session was held entitled "Applied Aspects in the Study of Mayflies and Stoneflies." This was the same day that the Plecoptera symposium began with registration in the morning, followed by presented papers and ending with a romantic concert in the evening.

On Friday, July 28, there was a day-long field trip to historical sites and collecting sites in the Alpujerras Region of the Sierra Nevada. Few stoneflies were collected but the day was warm and pleasant and many friendships were kindled. The food was excellent and everyone enjoyed the bus ride and the Swedish, Spanish and English speaking guide. We arrived home rather late in the evening but the consensus was that it was a day well spent.

Saturday the 29th was the second day of stonefly papers and a special highlight was a short program in honor of Prof. Jacques Aubert and Prof. Noel Hynes. These two "Giants" of plecopterology were among the seven present at the first Plecoptera Symposium in Lausanne, Switzerland in 1956 and they were again present at symposium number ten in Granada, Spain.

On Sunday the 30th, participants were treated to a visit to the historic Alhambra and Generalife in the morning. During the afternoon a field excursion visited collecting sites along the Rio Agnas Blancas. In the evening the symposium ended with a special dinner for stonefly symposium participants.

Actually some of the best interchanges between stonefly researchers took place at the impromptu evening dinners held at the charming outdoor restaurant, "Los Mimbres."

Special thanks are in order for Dr. Javier Alba-Tercedor and Dr. Antonino Sanchez-Ortega and everyone at the University of Granada that made the symposium a success. The location of the lovely meeting site, Carmen de los Mátives, on the grounds of the Alhambra helped to make the symposium memorable.

The proceedings of the combined Mayfly-Stonefly Symposium will be published by Sandhill Crane Publishers of Florida, USA. Details can be obtained by contacting Dr. Javier Alba-Tercedor at the University of Granada, Spain or Dr. W. P. McCafferty at Purdue University, West Lafayette, Indiana, USA.

# ROLLING STONEFLY NEWS

A new newsletter entitled "The Rolling Stonefly News" has been started by Dr. B.P. Stark, Department of Biological Sciences, Mississippi College, Clinton, Mississippi, 39058 USA. It is primarily for stonefly workers in North America, but is available to anyone that is interested in stoneflies anywhere in the world. The newsletter can be obtained free of charge by writing to Bill Stark at the above address.

The Rolling Stonefly News is not meant to replace PERLA but is a short companion news source that comes out more often but at irregular intervals



## 3RD NORTH AMERICAN STONEFLY SYMPOSIUM

Based on the success of meetings one and two at Sacramento, California and Clinton, Mississippi respectively, meeting number three is scheduled for 1991.

The Third North American Stonefly Symposium will be held at Fort Collins, Colorado on May 17-19, 1991. Dr. Boris Kondratieff is the symposium organizer and he will work closely with Dr. Gerald Jacobi, who is the local Arrangements Chairman for the North American Benthological Society meeting. The NABS meeting will be held the following week, May 22-25 in Santa Fe, New Mexico. Thus participants can fly to Denver and attend both meetings by renting a car or hitching a ride with someone that is driving and fly out of Albuquerque. In addition some excellent Plecoptera habitats are available to collectors between Fort Collins and Santa Fe.

For more information write to:

Dr. Boris C. Kondratieff  
Department of Entomology  
Colorado State University  
Fort Collins, CO 80523

**XI<sup>TH</sup> INTERNATIONAL STONEFLY SYMPOSIUM  
AND  
VII<sup>TH</sup> INTERNATIONAL MAYFLY CONFERENCE  
August 1992**

The meetings of the Plecoptera and Ephemeroptera specialists have been coordinated so that it is possible for interested colleagues to attend both meetings and have time between to collect and/or visit colleagues in North America.

**VII<sup>TH</sup> INTERNATIONAL EPHEMEROPTERA CONFERENCE**

August 3-6, 1992  
University of Maine  
Orono, Maine, U.S.A.

For further information, please contact:

Dr. K. Elizabeth Gibbs  
University of Maine  
Orono, Maine 04469  
USA

**XI<sup>TH</sup> INTERNATIONAL STONEFLY SYMPOSIUM**

August 17-20, 1992  
Tree Haven Biological Station  
University of Wisconsin  
Wisconsin, U.S.A.

The scheduling of the symposium at the biological station will make it possible for all participants to be housed in spacious, reasonably priced rooms that are located in an idyllic woodland setting. It will also contribute to better interaction and dialogue since the distractions of "urban" life will be absent.

For further information, please contact:

Dr. Stanley W. Szczytko  
College of Natural Resources  
University of Wisconsin, Stevens Point  
Stevens Point, Wisconsin 54481

# NORTH AMERICA THE “NYMPH” BOOK

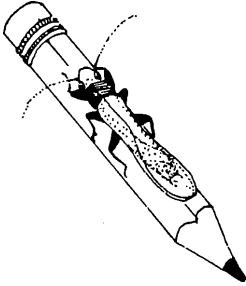
The long awaited book:  
*Nymphs of North American  
Stonefly Genera (Plecoptera)*

by  
Kenneth W. Stewart  
and  
Bill P. Stark

with Illustrations by  
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# Recent Plecoptera Literature

This section includes the Plecoptera papers published since PERLA 8 was mailed as well as some additions of older literature. PERLA is published every two years and a literature section is included in every issue.

Please help us to make this section as complete and correct as possible by sending us copies of your publication and/or notes on errors found.

**ALBA-TERCEDOR, J. and A. SANCHEZ-ORTEGA.** (1988): Plecoptera. pp. 373-381 In: Barrientos (coordinator). Bases para un curso practico de Entomologia. Asoc. Espan. Entomol. Salamanca. (Spanish).

**ALBA-TERCEDOR, J. and A. SANCHEZ-ORTEGA.** (1988): Un método rápido y simple para evaluar la calidad biológica de las aguas corrientes basado en el de Hellawell (1978). *Limnética* 4: 51-56. (Spanish).

**ALLAN, J.D. and A. FLECKER.** (1988): Prey preference in stoneflies: A comparative analysis of prey vulnerability. *Oecologia* 76: 496-503.

**ALOUF, N.J.** (1989): Cycles de vie de quelques Plécoptères (Insecta) d'un ruisseau temporaire du Liban. *Annls. Limnol.* 25(2): 139-143. (French).

**ANDRIKOVICS, S.** (1988): Faunistical investigations on Ephemeroptera and Plecoptera along the Apatkut Stream, Viegad Mountains, Hungary. *Folia Entomol. Hung.* 49: 5-11.

**ARENS, W.** (1989): Comparative functional morphology of the mouthparts of stream animals feeding on epilithic algae. *Arch. Hydrobiol./Suppl.* 83(3): 253-354.

**ARMITAGE, P.D., R.J.M. GUNN, M.T. FURSE, J.F. WRIGHT and D. MOSS.** (1987): The use of prediction to assess macroinvertebrate response to river regulation. *Hydrobiologia* 144(1): 25-32.

**ARSUFFI, T.L. and K. SUBERKROPP.** (1989): Selective feeding by shredders on leaf-colonizing stream fungi: comparison of macroinvertebrate taxa. *Oecologia* 79:30-37.

**AUBERT, J.** (1989): Les Plécoptères des cantons de Vaud et Fribourg. *Bull. Soc. vaud. Sci. nat.* 79(4): 237-283. (French).

**AUBERT, J., C.E. AUBERT and C. RAVIZZA.**(198?): Les Plécoptères du Tessin et du val Mesocco (Grisons). (French).

**BALTANAS, A., J. RODRIGUEZ and A.G. VALDECASAS** (1987): Preliminary key for nymphs of Plecoptera (Insecta) from the Iberian Peninsula. (In Spain) *Graellsia* 43: 111-125. (Spanish).



- BARMUTA, L.A.** (1989): Habitat patchiness and macrobenthic community structure in an upland stream in temperate Victoria, Australia. *Freshwat. Biol.* 21(2): 223-236.
- BARNUM, J.B. and R.W. BACHMANN.** (1988): Benthic macroinvertebrate habitat associations of the channelized middle Missouri River [USA]. *J. Iowa Acad. Sci.* 95: 60-65.
- BERGEY, E.A. and J.V. WARD.** (1989): Upstream-downstream movements of aquatic invertebrates in a Rocky Mountain stream. *Hydrobiologia* 185: 71-82.
- BLUM, R.** (1989): Drift postures of nemourid stonefly larvae (Insecta, Plecoptera). *Aquat. Insects* 11(4): 193-199.
- BOTOSANEANU, L.** (1986): Insecta: Plecoptera, Trichoptera. p. 619 In: Botosaneanu, L. (ed.) *Stygofauna Mundi: A faunistic, distributional, and ecological synthesis of the world fauna inhabiting subterranean waters (including the marine interstitial)*. E.J. Brill, Leiden.
- BOTTORFF, R.L. and A.W. KNIGHT.** (1988): Functional organization of macroinvertebrate communities in two first-order California streams: Comparison of perennial and intermittent flow conditions. *Verh. Internat. Verein. Limnol.* 23: 1147-1152.
- BOTTORFF, R.L., K.W. STEWART and A.W. KNIGHT.** (1989): Description and drumming of *Susulus*, a new genus of stonefly (Plecoptera: Perlodidae) from California. *Ann. Entomol. Soc. Amer.* 82(5): 545-554.
- BOULTON, A.J., G.M. SPANGARO and P.S. LAKE.** (1988): Macroinvertebrate distribution and recolonization on stones subjected to varying degrees of disturbance: An experimental approach. *Arch. Hydrobiol.* 113: 551-576.
- BRETTFELD, R.** (1988): Der Sulzbach im Südthüringer Grabfeld. *Veröff. Naturhist. Mus. Schleusingen* 3: 52-57. (German).
- BROMLEY, H.J.** (1988): A note on the Plecoptera of Israel. *Israel J. Entomol.* 12: 1-12.
- BROWN, A.F. and D. PASCOE.** (1988): Studies on the acute toxicity of pollutants to freshwater macroinvertebrates 5. The acute toxicity of cadmium to twelve species of predatory macroinvertebrates. *Arch. Hydrobiol.* 114: 311-319.

**BUNN, S.E.** (1988): Life histories of some benthic invertebrates from streams of the northern Jarrah Forest, Western Australia. *Aus. J. Mar. Freshwater Res.* 39: 785-804.

**CASADO, C., D. GARCIA DE JALON, C.M. DEL OLMO, E. BARCELO and F. MENES.** (1989): The effect of an irrigation and hydroelectric reservoir on its downstream communities. *Regulat. Rivers* 4(3): 275-284.

**CEKALOVIC, T.** (1976): Catálogo de los Plecópteros de Chile. *Bol. Soc. Biol. Concepcion* 50: 145-156. (Spanish).

**CELLOT, B.** (1989): Rythme nyctéméral et distribution verticale de la dérive des macroinvertébrés benthiques dans une grande rivière européenne. *Arch. Hydrobiol.* 115(2): 265-286. (French).

**CLEMENTS, W.H., D.S. CHERRY and J. CAIRNS.** (1988): Structural alterations in aquatic insect communities exposed to copper in laboratory streams. *Environ. Toxicol. Chem.* 7: 715-722.

**CLEMENTS, W.H., D.S. CHERRY and J. CAIRNS, JR.** (1989): The influence of copper exposure on predator-prey interactions in aquatic insect communities. *Freshwat. Biol.* 21(3): 483-488.

**COLLIER, K.J. and M.J. WINTERBOURN.** (1987): Breakdown of Kamahi leaves in four South Westland Streams. *Mauri Ora* 14: 33-42.

**CORKUM, L.D.** (1989): Patterns of benthic invertebrate assemblages in rivers of northwestern North America. *Freshwater Biol.* 21(2): 191-205.

**COSTELLO, M.J.** (1988): A review of the distribution of stoneflies (Insecta, Plecoptera) in Ireland. *Proc. Roy. Irish Acad.* 88(1): 1-22.

**COSTELLO, M.J.** (1988): Preliminary observations on wing-length polymorphism in stoneflies (Plecoptera: Insecta) in Ireland. *Irish Natur. J.* 22: 474-478.

**DARSCHNIK, S., J. RENNERICH, H. SCHUMACHER and B. THIESMEIER.** (1989): Rekonstruktion des potentiell natürlichen Gewässerzustandes als Grundlage für die ökologische Bewertung und Renaturierung von Fließgewässern im Ballungsraum. *Verhandl. Ges. Ökol.* 18: 541-547. (German).

**DAUTI, E.D.** (1987): Seasonal and regional dynamics of the population density of *Perla marginata* and *Brachyptera seticornis* along the Nerodimka River [Yugoslavia]. Acta. Biol. Med. Exp. 12: 77-82.

**DeJALON, D.G., C. MONTES, E. BARCELO, C. CASADO and F. MENES.** (1988): Effects of hydroelectric scheme on fluvial ecosystems within the Spanish Pyrenees. Regulat. Rivers: Res. Manage. 2: 479-491.

**DELUCCHI, C.M. and B.A. PECKARSKY.** (1989): Life history patterns of insects in an intermittent and a permanent stream. J. N. Amer. Benthol. Soc. 8(4): 308-321.

**DOEG, T.J., R. MARCHANT, M. DOUGLAS and P.S. LAKE** (1989): Experimental colonization of sand, gravel and stones by macroinvertebrates in the Acheron River, southeastern Australia. Freshwat. Biol. 22(1): 57-64.

**DOLEDEC, S.** (1989): Seasonal dynamics of benthic macroinvertebrate communities in the Lower Ardèche River (France). Hydrobiologia 182:73-89.

**DOSDALL, L.M. and D.M. LEHMKUHL.** (1988): The nymph of *Utacapnia trava* (Nebeker and Gaufin) (Plecoptera: Capniidae). Pan-Pacific Entomol. 64(4): 353-358.

**DOSDALL, L.M. and D.M. LEHMKUHL.** (1988): The impact of methoxychlor treatment of the Saskatchewan River system [Canada] on artificial substrate populations of aquatic insects. Environ. Pollut. 60: 209-222.

**DOSDALL, L.M. and D.M. LEHMKUHL.** (1989): Drift of aquatic insects following methoxychlor treatment of the Saskatchewan River system. Can. Entomol. 121: 1077-1096.

**DUDGEON, D.** (1989): The influence of riparian vegetation on the functional organization of four Hong Kong stream communities. Hydrobiologia 179: 183-194.

**DUMNICKA, E., H. KASZA, A. KOWNACKI, E. KRZYZANEK and T. KUFLIKOWSKI.** (1988): Effects of regulated stream on the hydrochemistry and zoobenthos in differently polluted parts of the upper Vistula River (Southern Poland). Hydrobiologia 169: 183-191.

**ELLIOTT, J.M.** (1988): Egg hatching and resource partitioning in stoneflies (Plecoptera): Ten British species in the family Nemouridae. *J. Anim. Ecol.* 57: 201-216.

**ELLIOTT, J.M.** (1988): The effect of temperature on egg hatching in *Capnia atra* Morton (Plecoptera: Capniidae) from a Scottish loch. *Entomol. Gaz.* 39: 199-206.

**ELLIOTT, J.M.** (1988): Interspecific and intraspecific variations in egg hatching for British populations of the stoneflies *Siphonoperla torrentium* and *Chloroperla tripunctata* (Plecoptera: Chloroperlidae). *Freshwater Biol.* 20: 11-18.

**ELLIOTT, J.M.** (1988): Interspecific and intraspecific variations in egg hatching for British populations of *Taeniopteryx nebulosa* and *Brachyptera risi* (Plecoptera: Taeniopterygidae). *Holarctic Ecol.* 11: 55-59.

**ELLIOTT, J.M.** (1989): The effect of temperature on egg hatching for three populations of *Dinocras cephalotes* (Plecoptera: Perlidae). *Entomol. Gaz.* 40: 153-160.

**EXTENCE, C.A. and A.J.D. FERGUSON.** (1989): Aquatic invertebrate surveys as a water quality management tool in the Anglian water region. *Regulat. Rivers* 4(2): 139-146.

**FELTMATE, B.W. and D.D. WILLIAMS.** (1989): Influence of rainbow trout (*Oncorhynchus mykiss*) on density and feeding behavior of a perlid stonefly. *Can. J. Zool. Aquatic Sci.* 46: 1575-1580.

**FELTMATE, B.W. and D.D. WILLIAMS.** (1989): A test of crypsis and predator avoidance in the stonefly *Paragnetina media* (Plecoptera, Perlidae). *Anim. Behav.* 37(6): 992-999.

**FIALKOWSKI, W.** (1989): Production estimates of *Nemoura cinerea* (Retz.) and *Nemurella pictetii* Klap. (Plecoptera) from two small lowland streams in southern Poland. *Aquat. Insects* 11(2): 101-110.

**FIALKOWSKI, W. and M.M. OLECHOWSKA.** (1987): A preliminary report on the stoneflies (Plecoptera) inhabiting main watercourses in the Gorce Mountains (Southern Poland). *Acta Hydrobiol.* 29: 443-451.

**FJELLHEIM, A., G.G. RADDUM and Ø. A. SCHNELL** (1989): Changes in benthic animal production of a weir basin after eight years of succession. *Regulat. Rivers* 3(1-4): 183-190.

**FOCHETTI, R. and P. NICOLAI.** (1987): Plecotteri di Sicilia e Sardegna. [Plecoptera of Sicily and Sardinia]. *Animalia* 14(1/3): 169-175. (Italian, English summary).

**FOCHETTI, R. and P. NICOLAI.** (1987): I plecoteri dell'alta valle del fiume Tenna (Monti Sibillini, Italia Centrale) (Plecoptera). [The Plecoptera of the high valley of Tenna River (Central Italy) (Plecoptera)]. *Boll. Assoc. Rom. Entomol.* 42: 9-18. (Italian, English summary).

**FOCHETTI, R. and G. CAMPADELLI.** (1988): Plecotteri di Romagna: nuove segnalazioni. [Contribution to the knowledge of Plecoptera in Romagna]. *Boll. Inst. Entomol. Guido Grandi Univ. Bologna* 43:63-67. (Italian, English summary).

**FREILICH, J.E.** (1989): A method for tagging individual benthic macroinvertebrates. *J. N. Amer. Benthol. Soc.* 8(4): 351-354.

**FROELICH, C.G.** (1988): Brazilian Plecoptera 5. Old and new species of *Kempnyia* (Perlidae). *Aquat. Insects* 10(3): 153-170.

**FRUTIGER, A.** (1987): Investigations on the life-history of the stonefly *Dinocras cephalotes* Curt. (Plecoptera): Perlidae). *Aquat. Insects.* 9(1): 51-63.

**FULLER, R.L. and P.A. DESTAFFAN.** (1988): A laboratory study of the vulnerability of prey to predation by three aquatic insects. *Can. J. Zool.* 66: 875-878.

**GARCIA DeJALON, D. and E. BARCELO.** (1987): Estudio sobre la alimentacion de la trucha comun en ri pirenaicos. *Ecologia* 1: 263-269. (Spanish).

**GEHRKEN, U.** (1989): Diapause termination in eggs of the stonefly *Arcynopteryx compacta* (McLachlan) in relation to dehydration and cold hardiness. *J. Insect Physiol.* 35: 377-386.

**GRACA, M.A.S., D.M. FONSECA and S.T. CASTRO.** (1989): The distribution of macroinvertebrate communities in two Portuguese rivers. *Freshwat. Biol.* 22: 297-308.

**GROOM, A.P. and A.G. HILDREW.** (1989): Food quality for detritivores in streams of contrasting pH. *J. Anim. Ecol.* 58: 863-881.

**HALL, R.J. and F.P. IDE.** (1987): Evidence of acidification effects on stream insect communities in central Ontario between 1937 and 1985. *Can. J. Fish. Aquat. Sci.* 44: 1652-1657.

**HASSAGE, R.L., R.E. DEWALT and K.W. STEWART.** (1988): Aggregation of *Pteronarcella badia* nymphs and effects of interaction with *Claassenia sabulosa* (Plecoptera). *Oikos* 53(1): 37-40.

**HASSAGE, R.L., K.W. STEWART and D.D. ZEIGLER.** (1988): Female response to computer-simulated male drumming call variations in *Pteronarcella badia* (Plecoptera: Pteronarcyidae). *Ann. Entomol. Soc. Amer.* 81:528-531.

**HILSENHOFF, W.L.** (1988): Rapid field assessment of organic pollution with a family-level biotic index. *J. N. Amer. Benthol. Soc.* 7:65-68.

**HOPKINS, P.S., K.W. KRATZ and S.D. COOPER.** (1989): Effects of an experimental acid pulse on invertebrates in a high altitude Sierra Nevada stream. *Hydrobiologia* 171: 45-58.

**HORVAT, B.** (1988): Distribution of *Dinocras megacephala* (Klapálek, 1907). (Plecoptera: Perlidae) in Yugoslavia. *Biol. Vestn.*36: 45-58.

**HUBERT, W.A. and H.A. RHODES.** (1989): Food selection by brook trout in a subalpine stream. *Hydrobiologia* 178: 225-231.

**HUMPESCH, U.H. and P.H. ANDERWALD.** (1988): Beitrag zu Faunistik der österreichischen Donau - das Makrozoobenthos bei Stromkilometer 2005. *Wass. Abwass.* 32: 41-55. (German).

**HURYN, A.D. and J.B. WALLACE.** (1987): The exopterygote insect community of a mountain stream in North Carolina, USA: Life histories, production, and functional structure. *Aquat. Insects* 9: 229-252.

**HYNES, H.B.N.** (1988): Biogeography and origins of the North American stoneflies (Plecoptera). *Mem. Entomol. Soc. Can.* 144: 31-38.

**HYNES, H.B.N.** (1989): Tasmanian Plecoptera. *Austral. Soc. Limnol. Spec. Pub. No. 8 (I-VI):* 1-82.

**IMBERT, J.B. and J. POZO.** (1989): Breakdown of four leaf litter species and associated fauna in a Basque Country forested stream. *Hydrobiologia* 182: 1-14.

**ISOBE, Y.** (1988): Eggs of Plecoptera from Japan. *Biol. Int. Wat.* 4: 27-39.

**IVERSEN, T.M.** (1988): Secondary production and trophic relationships in a spring invertebrate community. *Limnol. Oceanogr.* 33: 582-592.

**JOHANSSON, A. and A.N. NILSSON.** (1989): *Nemoura viki* Lillehammer (Plecoptera) recorded from Sweden. *Entomol. Tidskr.* 110(1-2): 58-59.

**JONES, T.S. and V.H. RESH.** (1988): Movements of adult aquatic insects along a Montana (USA) springbrook. *Aquat. Insects* 10: 99-104.

**JONSSON, E.** (1987): Flight periods of aquatic insects at Lake Esrom, Denmark. *Arch. Hydrobiol.* 110(2): 259-274.

**JOOST, W.** (1989): Revision der Plecopterensammlung ALEXANDER REICHERT, Leipzig. *Veröff. Naturk. Leipzig* 6: 23-26. (German).

**KAPOOR, N.N.** (1988): Distribution and innervation of sensilla on the mouthparts of the carnivorous stonefly nymph, *Paragnetina media* (Walker) (Plecoptera: Perlidae). *Can. J. Zool.* 67: 831-838. (English, French summary).

**KIRCHNER, R.F. and B.C. KONDRATIEFF.** (1988): A new species of *Sweltsa* from West Virginia (Plecoptera: Chloroperlidae). *Entomol. News* 99: 233-236.

**KITTEL, W. and F. WOJTAS.** (1988): Material to the knowledge of Plecoptera from Poland. *Acta Univ. Lodz., Folia Limnol.* 3: 225-238. (Polish, English summary).

**KOCHARINA, S.L., E.A. MAKARCHENKO, M.A. MAKARCHENKO, E.A. NIKOLAYEVA, T.M. TIUNOVA and V.A. TESLENKO** (1989): (Data on the invertebrates in salmon river ecosystems in the south of the Soviet Far East). *Fauna, Systematics and Biology of Freshwater Invertebrates, SSSR Academy of Sciences, Far Eastern Scientific Centre, Vladivostok*, 2: 86-108 (1988). (Russian).

**KOHNO, M.** (1985): This is the nymph of *Kamimuria tibialis* (Pictet). *Konchy Shizen, Tokyo*, 20:27.

**KOHNO, M.** (1986): Miscellaneous memories on Plecoptera. Okera Bull. Ibaraki Entomol. Soc., Mito 54: 18-24.

**KONDRATIEFF, B.C. and R. W. BAUMANN.** (1988): *Taeniopteryx* of western North America (Plecoptera: Taeniopterygidae). Pan-Pacific Entomol. 64(4): 381-390.

**KONDRATIEFF, B.C. and R.F. KIRCHNER.** (1988): A new species of *Acroneuria* from Kentucky (Plecoptera: Perlidae) and new records of stoneflies from eastern North America. J. Kans. Entomol. Soc. 61: 201-207.

**KONDRATIEFF, B.C., R.F. KIRCHNER and K.W. STEWART.** (1988): A review of *Perlinella* Banks (Plecoptera: Perlidae). Ann. Entomol. Soc. Amer. 81: 19-27.

**KUMAR, K.** (1987): Observations on seasonal variations of benthic organisms in two trout streams of Kashmir. Proc. Indian Sci. Acad. Part B, Biol. Sci. 53: 227-234.

**LANG, C., G. l'EPLATTENIER and O. REYMOND.** (1989): Water quality in rivers of western Switzerland: Application of an adaptable index based on benthic invertebrates. Aquat. Sci. 51: 224-234.

**LELAND, H.V., S.V. FEND, T.L. DUDLEY and J.L. CARTER.** (1989): Effects of copper on species composition of benthic insects in a Sierra Nevada, California, stream [USA]. Freshwater Biol. 21: 163-180.

**LEVANIDOVA, I.M., V.A. TESLENKO and T.I. LUKYANCHENKO.** (1988): Research on the ecosystems of salmon rivers of the Far East: longitudinal zonation and distribution of macrozoobenthos. Inst. Biol. Pedol. FEB USSR AS. Vladivostok, 53 pp. (Russian).

**LIEGEL, D.** (1989): Limnologische Untersuchungen der Lennefe und ihrer Nebenbäche (Bergisches Land). Decheniana 142: 124-136. (German).

**LILLEHAMMER, A.** (1985): Temperature influence on egg incubation period and nymphal growth of the stoneflies *Leuctra digitata* and *L. fusca* (Plecoptera: Leuctridae). Entomol. Gen. 11: 059-067.

**LILLEHAMMER, A.** (1985): Zoogeographical studies on Fennoscandian stoneflies (Plecoptera) J. Biogeog. 12: 209-221.



**LILLEHAMMER, A.** (1987): Diapause and quiescence in eggs of *Systellognatha* stonefly species (Plecoptera) occurring in alpine areas of Norway. *Anns. Limnol.* 23: 179-184.

**LILLEHAMMER, A.** (1988): Biological and morphological characteristics of a marginal population of *Capnia atra* in Fuldalslagen, western Norway. *Fauna Norv. Ser. B* 35: 31-34.

**LILLEHAMMER, A.** (1988): Stoneflies (Plecoptera) of Fennoscandia and Denmark. *Fauna Entomol. Scand.* 21: 1-165.

**LILLEHAMMER, A. and J.E. BRITAIN.** (1987): Longitudinal zonation of benthic invertebrate fauna in the river Glomma, eastern Norway. *Fauna Norv. Ser. A* 8: 1-10.

**LILLEHAMMER, A., J.E. BRITAIN, S.J. SALTVEIT and P.S. NIELSEN.** (1989): Egg development, nymphal growth and life cycle strategies in Plecoptera. *Holarctic Ecol.* 12: 173-186.

**LUBINI-FERLIN, V.** (1989): Hydrobiologisches Bachinventar der Stadt Zürich. *Vierteljahresschrift Naturforsch. Ges. Zürich* 134(4): 229-250. (German).

**MAES, J.M.** (1988): Catalog of the Ephemeroptera and Plecoptera of Nicaragua. *Rev. Nicarag. Entomol.* 2: 49-50. (Spanish).

**MAKETON, M. and K.W. STEWART.** (1988): Patterns and evolution of drumming behavior in the stonefly families Perlidae and Peltoperlidae. *Aquat. Insects* 10: 77-98.

**MAKETON, M., K.W. STEWART, B.C. KONDRATIEFF and R.F. KIRCHNER.** (1988): New descriptions of drumming and evolution of the behavior in North American Perlodidae (Plecoptera). *J. Kansas. Entomol. Soc.* 61: 161-168.

**MALICKY, H.** (1989): Ein ungewöhnlicher Biotop von *Nemoura cinerea* Retz. (Plecoptera). *Arbgem. Öst. Entomol.* 40(3/4): 119. (German).

**MALMQVIST, B. and P. SJÖSTROM.** (1989): The life cycle and growth of *Isoperla grammatica* and *I. difformis* (Plecoptera) in southernmost Sweden: Intra- and interspecific considerations. *Hydrobiologia* 175: 97-108.

**MARCHANT, R.** (1988): Vertical distribution of benthic invertebrates in the bed of the Thomson River, Victoria. *Aust. J. Mar. Freshwat. Res.* 39: 775-784.

**MARCHANT, R.** (1989): Changes in the benthic invertebrate communities of the Thomson River, southeastern Australia, after dam construction. *Regulat. Rivers* 4(1): 71-89.

**MARKS, J.C. and R.L. LOWE.** (1989): The independent and interactive effects of snail grazing and nutrient enrichment on structuring periphyton communities. *Hydrobiologia* 185: 9-17.

**MARTEN, M. and P. ZWICK.** (1989): The temperature dependence of embryonic and larval development in *Protonemura intricata* (Plecoptera: Nemouridae). *Freshwat. Biol.* 22(1): 1-14.

**MARTIN, J.C. and A.W. KNIGHT.** (1989): The effect of long pools on the drift of macro-invertebrates in a mountain stream. *Hydrobiologia* 185: 63-70.

**McARTHUR, J.V., J.R. BARNES and B.J. HANSEN.** (1988): Seasonal dynamics of leaf litter breakdown in a Utah alpine stream. *J. N. Amer. Benthol. Soc.* 7: 44-50.

**McCAHON, C.P., A.F. BROWN, M.J. POULTON and D. PASCOE.** (1989): Effects of acid, aluminum and lime additives on fish and vertebrates in a chronically acidic Welsh stream [UK]. *Water Air Soil Pollut.* 45: 345-360.

**MEMBIELA, P.** (1984): Primera contribución al conocimiento de los Plecópteros de Galicia: La cuenca del Tambre. [First contribution to the knowledge of the Plecoptera of Galicia: The Tambre basin]. *Limnética* 1:197-202. (Spanish, English Abstract).

**MEMBIELA, P.** (1989): Two new species of *Leuctra* of the Iberian Peninsula (Insecta, Plecoptera). *Aquat. Insects* 11(2): 81-87.

**MEMBIELA IGLESIA, P.** (1988): Descripción de las larvas de último estadio de *Protonemura globosa* Berthélemy y Terra, 1980 (Plecoptera, Nemouridae). [Description of the larvae of *Protonemura globosa* Berthélemy and Terra, 1980 (Plecoptera, Nemouridae)]. *Biol. Asoc. Esp. Entomol. Salamanca* 12: 93-98. (Spanish, English summary).

- MENDL, H.** (1985): Stelzmücken and weitere Insekten aus dem Wildmoosbach-Gebiet bei Kempten-Rothkreuz-einem sehr bemerkenswerten Biotop. (Diptera Nematocera: Limoniidae etc.; Plecoptera). Mitt. Naturwiss. Arbeitskr. Kempten 27: 39-56. (German).
- MENDL, H.** (1988): Zur Plecopteren-Fauna der "Rest-ller" zwischen Memmingen und Ulm. Mitt. Naturwiss. Arbeitskr. Kempten 28: 29-35. (German).
- MEYER, E.** (1989): The relationship between body length parameters and dry mass in running water invertebrates. Arch. Hydrobiol. 117(2): 191-203.
- MICHAELIS, F.B. and C. YULE.** (1988): Plecoptera. pp. 133-137 In: Zoological Catalogue of Australia. Australian Government Printing Service, Canberra. 316 pp.
- MILLER, M.C. and J.R. STOUT.** (1989): Variability of macroinvertebrate community composition in an arctic and subarctic stream. Hydrobiologia 172: 111-127.
- MILNER, A.M.** (1987): Colonization and ecological development of new streams in Glacier Bay National Park, Alaska. Freshwater Biol. 18: 53-70.
- MUNDAHL, N.D. and K.J. KRAFT.** (1988): Abundance and growth of three species of aquatic insects exposed to surface-release hydropower flows. J. N. Amer. Benthol. Soc. 7(2): 100-108.
- NEBOISS, A. and K. WALKER.** (1989): Types of Plecoptera (Insecta) held in the Museum of Victoria. Occas. Pap. Mus. Victoria, Melbourne Australia. 4: 43-56.
- NELSON, C.H.** (1988): Note on the phylogenetic systematics of the family Pteronarcyidae (Plecoptera), with a description of the eggs and nymphs of the Asian species. Ann. Entomol. Soc. Amer. 81: 560-576.
- NELSON, C.R. and R.W. BAUMANN.** (1988): Systematic notes and generic placement of *Utacapnia nedia* (Plecoptera: Capniidae). Entomol. News 99:72-76.

**NELSON, C. R. and R.W. BAUMANN.** (1989): Systematics and distribution of the winter stonefly genus *Capnia* (Plecoptera: Capniidae) in North America. Great Basin Natur. 49(3): 289-363 + 3 unnumbered pages.

**NELSON, C.R. and B.C. KONDRATIEFF.** (1988): A new species of *Capnia* from Rocky Mountains of Colorado (Plecoptera: Capniidae). Entomol. News 99:77-80.

**NELSON, C.R. and B.P. STARK.**(1988): The *Salmoperla* safari: Hit and run stonefly collecting in Nevada and California. Perla 8: 7-11.

**NICOLAI, P., R. FOCHETTI and R. MARINI.** (1988): Dinamica fenologica dei plecoteri di Alcune Sorgenti Abruzzesi. [Phenological dynamics of stoneflies from several springs of the Abruzzi]. Atti XV Congr. naz. ital. Entomol. L'Aquila: 137-143. (Italian, English summary).

**ORMEROD, S.J.** (1988): The micro-distribution of aquatic macroinvertebrates in the Wye River system: The result of abiotic or biotic factors? Freshwater Biol. 20: 241-247.

**ORMEROD, S.J. and R.W. EDWARDS.** (1987): The ordination and classification of macroinvertebrate assemblages in the catchment of the River Wye (Wales, UK) in relation to environmental factors. Freshwater Biol. 17: 533-546.

**OSWOOD, M.W.** (1989): Community structure of benthic invertebrates in interior Alaskan (USA) streams and rivers. Hydrobiologia 172: 97-110.

**PARDO, I.** (1989): New data on the genus *Amphinemura* Ris (Plecoptera: Nemouridae) from the Iberian Peninsula, with a description of a new species. Aquat. Insects 11(4): 209-216.

**PECKARSKY, B.L. and M.A. PENTON.** (1989): Early warning lowers risk of stonefly predation for a vulnerable mayfly. Oikos 54: 301-309.

**PECKARSKY, B.L. and M.A. PENTON.** (1989): Mechanisms of prey selection by stream-dwelling stoneflies. Ecology 70(5): 1203-1218.

**PECKARSKY, B.L. and R.S. WILCOX.** (1989): Stonefly nymphs use hydrodynamic cues to discriminate between prey. Oecologia 79: 265-270.

- PEETERS, E.T.H. and H. TACHET.** (1989): Comparison of macrobenthos in braided and channelized sectors of the Drôme River, France. *Regulat. Rivers* 4(3): 317-325.
- PETERSEN, Jr., R.C., W.C. KENNETH and G.M. WARD.** (1989): Microbial and animal processing of detritus in a woodland stream. *Ecol. Monogr.* 59(1): 21-39.
- POIRIER, D.G. and G.A. SURGEONER.** (1988): Evaluation of a field bioassay technique to predict the impact of aerial applications of forestry insecticides on stream invertebrates. *Can. Entomol.* 120: 627-637.
- PONS, L.** (1988): The genus *Tyrrhenoleuctra* (Insecta, Plecoptera) in Minorca [Spain]. *Misc. Zool.* 10: 380-382.
- PONTASCH, K.W.** (1988): Predation by *Paragnetina fumosa* (Banks) (Plecoptera: Perlidae) on mayflies: The influence of substrate complexity. *Amer. Midland Natur.* 119: 441-443.
- PONTASCH, K.W. and M.A. BRUSVEN.** (1988): Macroinvertebrate response to a gasoline spill in Wolfe Lodge Creek, Idaho, USA. *Arch. Hydrobiol.* 113: 41-60.
- POULTON, B.C. and K.W. STEWART.** (1988): Aspects of flight behavior in *Calineuria californica* (Plecoptera: Perlidae) from a Rocky Mt. lake outlet stream. *Entomol. News* 99: 125-133.
- POULTON, B.C., T.L. BEITINGER and K.W. STEWART.** (1989): The effect of hexavalent chromium on the critical thermal maximum and body burden of *Clio perla clio* (Plecoptera, Perlodidae). *Arch. Environ. Contamination Toxicol.* 18(4): 594-600.
- RADER, R.B. and J.V. WARD.** (1988): Influence of regulation on environmental conditions and the macroinvertebrate community in the upper Colorado River. *Regulat. Rivers* 2: 597-618.
- RAUER, J.** (1980): Rád Posvatky - Plecoptera, pp. 86-132 In: Rozkosny, R. (ed.) *Klic vodnich larev hmyzu. - Cesk. Akad. Ved., Prague, 1980, 521 pp.* (Czechoslovakian).
- RAVIZZA, C.** (1988): *Leuctra apenninicola*, a new species of stonefly (Plecoptera: Leuctridae) from the Apennines (Italy). *Aquat. Insects* 10: 69-72.

**RAVIZZA, C. and G. VINÇON.** (1989): *Leuctra marinettae* n. sp., Plécoptère nouveau des Alpes Françaises (Plecoptera Leuctridae). Boll. Soc. Entomol. Ital., Genova. 121(1): 19-23. (French, English and Italian summaries).

**RAVIZZA DEMATTEIS, E. and C. RAVIZZA.** (1988): Les Plécoptères de la vallée supérieure du Pó (Alpes Cottiennes). Notes faunistiques et écologiques. (Running-water Stoneflies of the High Po Valley (Cottian Alps). Faunistic and ecological notes). Anns Limnol. 24(3): 243-260. (French, English summary).

**REHNFELDT, G.** (1987): Effects of impoundments and water pollution on invertebrate communities in rivers and plains of the Harz Mountains. Arch. Hydrobiol. 111: 255-282.

**RÜHM, W. and W. PIEPER.** (1989): Simuliidenlarven und -puppen als Beute räuberisch lebender Tierarten in Alster, Bille und Seve (Diptera, Simuliidae). Entomol. Mitt. zool. Mus. Hamburg 9(136/137): 283-293.

**RUTT, G.P., N.S. WEATHERLEY and S.J. ORMEROD.** (1989): Microhabitat availability in Welsh moorland and forest streams as a determinant of macroinvertebrate distribution. Freshwater Biol. 22: 247-261.

**SALEEM, P.M. and F. AKBAR.** (1987): Some stonefly nymphs of Swat (Pakistan). Biologia (Pakistan) 33(2): 409-420.

**SANCHEZ-ORTEGA, A. and J. ALBA-TERCEDOR.** (1984): Description of the mature nymph of *Leuctra andalusiaca* Aubert, 1962 (Plecoptera). Anns Limnol. 20(1-2): 95-98.

**SANCHEZ-ORTEGA, A. and J. ALBA-TERCEDOR.** (1985): Consideraciones taxonomicas sobre *Leuctra fusca carpentieri* (Plecoptera: Leuctridae). Actas II Congr. Iber. Entomol. 3: 349-352. (Spanish, English summary).

**SANCHEZ-ORTEGA, A. and J. ALBA-TERCEDOR.** (1988): Description and life cycle of *Leuctra iliberis* sp. n. from Southern Spain (Plecoptera, Leuctridae). Aquat. Insects. 10(2): 117-123.

**SANCHEZ-ORTEGA, A. and J. ALBA-TERCEDOR.** (1988): Sobre las ninfas de *Isoperla nevada* Aubert, 1952 y *Nemoura fulviceps* Klapalek, 1902 en Sierra Nevada (Insecta: Plecoptera). Bol. Asoc. Espan. Entomol. 12: 233-238. (Spanish).

**SANTAMARINA, J. and J. GUITIAN.** (1988): Some data on the feeding of the Pyrenean desman (*Galemys pyrenaicus*) in northwest Spain. *Mammalia* 50: 301-308.

**SCHOFIELD, K., C.R. TOWNSEND and A.G. HILDREW.** (1988): Predation and the prey community of a headwater stream. *Freshwat. Biol.* 20: 85-95.

**SCHÖLL, F. and M. SCHLEUTER.** (1989): Zum Vorkommen von *Leuctra geniculata* (Stephens 1835) (Plecoptera) in Rhein und Main. *Lauterbornia* 2: 33-34. (German).

**SCHOLL, P.** (1989): Zur näheren Kenntnis des Makrozoobenthos der Fließgewässer im Nationalpark Bayerischer Wald. *Entomol. Z.* 99(18): 257-272. (German).

**SCHUMANN, H. and H. WENDT.** (1989): Zur Kenntnis der tierischen Inkluden des Sächsischen Bernsteins. *Dtsch. Entomol. Z., N.F.* 36(1-3): 33-44. (German).

**SCRIMGEOUR, G.J. and M.J. WINTERBOURN.** (1989): Effects of floods on epilithon and benthic macroinvertebrate populations in an unstable New Zealand river. *Hydrobiologia* 171: 33-44.

**SIVEC, I., B.P. STARK, and S. UCHIDA.** (1988): Synopsis of the world genera of Perlinae (Plecoptera: Perlidae). *Scopelia* 16: 1-66. (English, Yugoslavian summary).

**SIVEC, I. and P. ZWICK.** (1987): Some Neoperla from Taiwan (Plecoptera: Perlidae). *Beitr. Entomol. Berlin* 37: 391-406.

**SIVEC, I. and P. ZWICK.** (1989): Addition to the knowledge of genus *Chinoperla* (Plecoptera: Perlidae). *Aquat. Insects* 11(1): 11-16.

**SMOCK, L.A. and C.M. MacGREGOR.** (1988): Impact of the American chestnut blight on aquatic shredding macroinvertebrates. *J. N. Amer. Benthol. Soc.* 7: 212-221.

**SOLUK, D.A. and N.C. COLLINS.** (1988): A mechanism for interference between stream predators: Responses of the stonefly *Agneta capitata* to the presence of sculpins. *Oecologia* 76: 630-632.

**SOLUK, D.A. and N.C. COLLINS.** (1988): Balancing risks: Responses and non-responses of mayfly larvae to fish and stonefly predators. *Oecologia* 77: 370-374.

**SOLUK, D.A. and N.C. COLLINS.** (1988): Synergistic interactions between fish and stoneflies: Facilitation and interference among stream predators. *Oikos* 52: 94-100.

**SOWA, R. and W. FIALKOWSKI.** (1988): Diversity, abundance and zonation of stoneflies (Plecoptera) from the water system: Olszowy Potok stream - River Raba (Southern Poland). *Acta Hydrobiol.* 30(3/4): 381-391.

**STANFORD, J.A. and J.V. WARD.** (1988): The hyporheic habitat of river ecosystems. *Nature* 335(6185): 64-66.

**STANFORD, J.A. and J.V. WARD.** (1989): Serial discontinuities in a Rocky Mountain river. I. Distribution and abundance of Plecoptera. *Regulat. Rivers* 3(1-4): 169-175.

**STARK, B.P.** (1989): Oriental Peltoperlinae (Plecoptera): A generic review and descriptions of a new genus and seven new species. *Entomol. Scand.* 19: 503-525.

**STARK, B.P.** (1989): *Perlesta placida* (Hagen), an eastern nearctic species complex (Plecoptera: Perlidae). *Entomol. Scand.* 20(3): 263-286.

**STARK, B.P.** (1989): The genus *Enderleina* (Plecoptera: Perlidae). *Aquat. Insects* 11(3): 153-160.

**STARK, B.P. and D.L. LENTZ.** (1988): New species of nearctic *Neoperla* (Plecoptera Perlidae). *Ann Entomol. Soc. Amer.* 81: 371-376.

**STARK, B.P. and S.W. SZCZYTKO.** (1988): Egg morphology and phylogeny in *Arcynopterygini* (Plecoptera: Perlodidae). *J. Kans. Entomol. Soc.* 61: 143-160.

**STARK, B.P. and S.W. SZCZYTKO.** (1988): A new *Malirekus* species from eastern North America (Plecoptera: Perlodidae). *J. Kans. Entomol. Soc.* 61: 195-199.

**STARK, B.P. , S.W. SZCZYTKO and B.C. KONDRATIEFF.** (1988): The *Cultus decisus* complex of eastern North America (Plecoptera: Perlodidae). *Proc. Entomol. Soc. Wash.* 90: 91-96.



**STARK, B.P. and P. ZWICK.** (1989): New species of *Macrogynoplax* from Venezuela and Surinam (Plecoptera: Perlidae). *Aquat. Insects* 11(4): 247-255.

**STEINER, K.** (1987): Ernährungsbiologische Untersuchung an Plekopterenlarven unter besonderer Berücksichtigung von *Leuctra albida* (Leuctridae) und *Protonemura nitida* (Nemouridae). *Jber. Biol. Stn. Lunz* 10: 101-110. (German).

**STEINER, K.** (1988): Rasterelektronenmikroskopische Untersuchungen der Mundwerkzeuge von *Protonemura* und *Leuctra* (Plecoptera). *Jber. Biol. Stn. Lunz* 11: 91-105. (German).

**STEWART, K.W. and B.P. STARK.** (1988): Nymphs of North American stonefly genera (Plecoptera). *Thomas Say Foundation Entomol. Soc. Amer.* 12: 1-436.

**STEWART, K.W., S.W. SZCZYTKO and M. MAKETON.** (1988): Drumming as a behavioral line of evidence for delineating species in the genera *Isoperla*, *Pteronarcys*, and *Taeniopteryx* (Plecoptera). *Ann. Entomol. Soc. Amer.* 81(4): 689-699.

**SUTTON, M.Q.** (1985): The California salmon fly as a food source in northeastern California. *J. Calif. Great Basin Anthropol.* 7(2): 176-185.

**THEISCHINGER, G.** (1988): New and little known species of stoneflies from Australia (Insecta: Plecoptera). *Stapfia* 17: 147-157.

**TKAC, M.A., JR.** (1988): The Plecoptera of northeastern Ohio. *Ohio J. Sci.* 88(2): 8.

**TOWNSEND, C.R.** (1989): The patch dynamics concept of stream community ecology. *J. N. Amer. Benthol. Soc.* 8(1): 36-50.

**TUSA, I.** (1988): Nástin trofických pomeru v pstruhovém toku (Hucivá Desná, Hruby Jeseník). [The outline of the trophic relations in a trout stream (Czechoslovakia)]. *Cas. Slez. Muz. Opava (A)* 37: 1-16. (Czechoslovakian, English summary).

**TUSA, I.** (1988): K poznání hyporheosu a zoobentosu pstruhového toku (Hucivá Desná, Hruby Jeseník). [Distribution of the zoobenthos and hyporheos within the substratum of a trout stream (Czechoslovakia)]. *Cas. Slez. Muz. Opava (A)* 37: 193-206. (Czechoslovakian, English summary).

**UCHIDA, S.** (1986): Lotic insects from the Boso Hills, central Japan. *Bul. Biol. Soc. Chiba* 36: 1-15.

**UCHIDA, S.** (1987): Analytic studies on the distribution of some insect-groups in the Tamagawa River system and its upper reaches. pp. 23-77 In: Isahikawa, R., T. Yamasaki, J. Kojima and S. Uchida (eds.). *Plecopteran distribution in the Tamagawa River System*. Tokyo Foundation for Better Environment, Tokyo.

**UCHIDA, S. and Y. ISOBE.** (1988): *Cryptoperla* and *Yoraperla* from Japan and Taiwan (Plecoptera: Peltoperlidae). *Aquat. Insects* 10: 17-31.

**UCHIDA, S. and Y. ISOBE.** (1989): Styloperlidae, stat. nov. and Microperlinae, subfam. nov. with a revised system of the family group Systellognatha. *Spixiana* 12(2): 145-182.

**VOELZ, N.J. and J.V. WARD.** (1989): Biotic and abiotic gradients in a regulated high elevation Rocky Mountain river. *Regulat. Rivers* 3(1-4): 143-152.

**WADE, K.R., S.J. ORMEROD and A.S. GEE.** (1989): Classification and ordination of macroinvertebrate assemblages to predict stream acidity in upland Wales. *Hydrobiologia* 171: 59-78.

**WAIS, I.R., A.R. VILA and L.I. DeCABO.** (1987): Las ninfas de Plecópteros de los Parques Nacionales Nahuel Huapi y Lanín, Argentina (Insecta, Plecoptera). *Rev. Mus. Argentino Cien. Nat. Bernardino Rivadavia* 6: 15-21. (Spanish, English Abstract).

**WALLACE, J.B., G.J. LUGTHART, T.F. CUFFNEY and G.A. SCHURR.** (1989): The impact of repeated insecticidal treatments on drift and benthos of a headwater stream. *Hydrobiologia* 179: 135-147.

**WEATHERLEY, N.S. and S.J. ORMEROD.** (1989): Modelling ecological impacts of the acidification of Welsh streams: Temporal changes in the occurrence of macroflora and macroinvertebrates. *Hydrobiologia* 185: 163-174.

**WEATHERLY, N.S., S.J. ORMEROD, S.P. THOMAS and R.W. EDWARDS.** (1988): The response of macroinvertebrates to experimental episodes of low pH with different forms of aluminium, during a natural spate. *Hydrobiologia* 169: 225-232.

**WEATHERLEY, N.S., G.P. RUTT and S.J. ORMEROD.** (1989): Densities of benthic macroinvertebrates in upland Welsh streams of different acidity and land use. Arch. Hydrobiol. 115: 417-432.

**WEBBER, E.C., D.R. BAYNE and W.C. SEESOCK.** (1989): Macroinvertebrate communities in Wheeler Reservoir (Alabama) [USA] tributaries after prolonged exposure to DDT contamination. Hydrobiologia 183: 141-156.

**WHITE, M.M.** (1989): Age class and population genetic differences in *Pteronarcys proteus* (Plecoptera: Pteronarcyidae). Amer. Midland Natur. 122: 242-248.

**WIDERA, J., J. RENNERICH, B. THIESMEIER and S. DARSCHNIK.** (1989): Wiederbesiedlung eines rückgebauten Stadtbaches unter dem Einfluß von Regenauslässen. Verhandl. Ges. Ökol. 18: 569-572. (German).

**WILLIAMS, D.D. and I.D. HOGG.** (1988): Ecology and production of invertebrates in a Canadian cold water spring-springbrook system. Holarctic Ecol. 11: 41-54.

**WOLF, B. and P. ZWICK.** (1989): Plurimodal emergence and plurivoltinism of central European populations of *Nemurella pictetii* (Plecoptera: Nemouridae). Oecologia 79: 431-438.

**YAMAMOTO, E., A. GOTO, K. NAKAYA and K. AMAOKA.** (1988): Aquatic insect fauna and feeding habits of two *Cottus* species in the Daitobetsu River of southern Hokkaido [Japan]. Bull. Fac. Fish. Hokkaido Univ. 39: 237-256.

**YOUNG, D.C., B.C. KONDRATIEFF and R.F. KIRCHNER.** (1989): Description of male *Ostrocerca* Ricker (Plecoptera: Nemouridae) using the scanning electron microscope. Proc. Entomol. Soc. Wash. 91(2): 257-268.

**ZEIGLER, D.D.** (1989): Drumming behaviors of three Pennsylvania Stonefly (Plecoptera) species. Proc. Entomol. Soc. Wash. 91(4): 583-587.

**ZHILTZOVA, L.A.** (1965): "Stoneflies (Plecoptera) of Karelia." pp. 200-205 In: Fauna of the Lakes of Karelia. Invertebrates. Acad. Sci. USSR, Karrelian Br., Inst. Biol. Moscow: Nauka Publishers. (Russian).

**ZHILTZOVA, L.A.** (1980): "New Species of Capniidae (Plecoptera) from the Kurile Islands." In: Levanidov, V. La., I.M. Levanidova, I.A. Chereshev, and E.A. Makarechenko (eds.). Fresh-water Fauna of the Far East. Acad. Sci. USSR, Far East Sci. Center, Biol.-Soil Sci. Center. Vladivostok. (Russian).

**ZHILTZOVA, L.A.** (1981): "New species of stoneflies (Plecoptera) from the Far East." Vol. 92:3-7 In: Skarlato, O.A. (ed.). Morphology and Systematics of Insects of the Far East. Proc. Zool.Inst., Acad. Sci. USSR 92:3-7. (Russian).

**ZHILTZOVA, L.A.** (1981): "Zoogeographical Characteristics of stoneflies of the family Capniidae of Fauna of the USSR." Questions of General Entomology. Works of the VEO (All-union Entomological Society?) 63: 40-42. Leningrad: Nauka Publishers. (Russian).

**ZHILTZOVA, L.A.** (1988): "A new species of the genus *Capniella* Klapálek (Plecoptera, Capniidae) from the coastal region". Systematics of insects and mites. Nauka, Tr. VEO, 70: 9-12 (Russian).

**ZHILTZOVA, L.A.** (1988): New and little known species of *Protonemura* (Plecoptera, Nemouridae) from the Caucasus. Aquat. Insects. 10(4): 215-219.

**ZHILTZOVA, L.A.** (1989): "New species of stoneflies (Plecoptera) of the family Perlodidae from the Far East". Fauna, Syst. Biol. Freshwater Invertebrates, Acad. Sci., Far Eastern Sci. Centre, pp 7-11. Vladivostok (1988). (Russian).

**ZHILTZOVA, L.A. and K.V. VARSHANOVA.** (1988): "Characteristics of the stonefly fauna of Mongolia". pp. 302-309 in: Gubanov, I.A., N.I. Dorofeiuk and V.M. Neronov (Eds.). Natural conditions, Plant cover, and Animal Fauna of Mongolia. Sci. Center Biol. Res. Acad.Sci. USSR. Pushchino, 350 pp. (Russian).

**ZHILTZOVA, L. A. and V.A. TESLENKO.** (1989): "Description of the nymph of the stonefly *Paragnetina flavotincta* McLachlan (Plecoptera, Perlidae) from South Coastal Area. Fauna, Syst. Biol. Freshwater Invertebrates. Acad. Sci. USSR, Far East Division, Biol. Soil Sci. Inst. Vladivostok. pp. 12-17 (1988). (Russian).

**ZWICK, P.** (1980): Plecoptera (Steinfliegen) Handb. Zool., Berlin, 4(2) 2/7: 1-115. (German).

- ZWICK, P.** (1982): *Dictyogenus alpinum* (Plecoptera) im Schreierbach, einem spezialisierten Biotop im Sinne Thienemanns. Schlitzer Produktionsbiologische Studien (52). Arch. Hydrobiol Stuttgart 95(1/4): 533-548. (German).
- ZWICK, P.** (1986): Size variation of *Leuctra prima* (Plecoptera) along a 2 km stretch of stream. pp. 167-170 in: Proc. 3rd Europ. Congr. Entomol. Amsterdam.
- ZWICK, P.** (1988): Notes on Plecoptera (15) *Kempnyia melagona* Klapálek. Aquat. Insects 10: 140.
- ZWICK, P.** (1988): Notes on Plecoptera (16). *Tylopge* Klapálek, a synonym of *Paragnetina* Klapálek. Aquat. Insects 10(4): 201-203.
- ZWICK, P.** (1989): Notes on Plecoptera (17). *Isoperla pusilla* (Klapálek, 1923), comb. n., the valid name of *Isoperla minima* Illies, 1963. Aquat. Insects 11(1): 46.
- ZWICK, P.** (1989): Notes on Plecoptera (18). *Skwala americana* (Klapálek, 1912), comb. n., the valid name for *Skwala parallela* (Frison, 1936). Aquat. Insects 11(3): 181-182.
- ZWICK, P. and H. MENDEL.** (1989): Notes on Plecoptera (19). *Isoperla lugens* (Klapálek, 1923) replaces *I. alpicola* Brinck, 1949. Aquat. Insects 11(2): 72.

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