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Kenneth W. Stewart, 1935–2012: obituary and list of publications

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Kenneth Wilson Stewart was born to Bill and Dorothy McAlister Wilson on 5 March 1935 in Walters, Cotton County, Oklahoma, and grew up in the home of his stepfather, Anderson Stewart, and mother, Dorothy McAlister Stewart. He graduated from Hugoton (Kansas) High School in 1953 and married Francene Brewer of Hugoton in 1956. Together they raised 3 children, Dana, Daryl, and Dwight. Ken attended Oklahoma State University (then Oklahoma A&M) and received his B.S. in Forestry/Botany in 1958, his M.S. in Entomology in 1959, and a Ph.D. in Entomology/Zoology in 1963. He worked during the summer months for the U.S. Soil Conservation Service and the U.S. Forest Service in 1954, 1956, and 1958 and took his first academic position as a biology instructor at Coffeyville (Kansas) College for the 1960/61 school year before moving to the University of North Texas (UNT) in Denton, Texas, where he served as a full-time faculty member in the Department of Biological Sciences from 1961 to 2000, as Chairman of the department from 1979 to 1983, and as Director of the Division of Environmental Sciences from 1988 to 1990. In 1994, he was appointed Regents Professor by the Texas Board of Regents and he continued as Regents Professor Emeritus and Adjunct Research Professor in the UNT Biology department until his death on 9 December 2012. In addition to these appointments, Ken served as Visiting Professor at the University of Oklahoma Biological Station during the summers of 1966, 1991, and 1993 and at the University of Montana Biological Station during the summer months of 1981, 1985, 1987, and 1989.

At UNT, Ken taught several graduate and undergraduate courses including Freshman Zoology, Environmental Biology, Conservation Management, Entomology, and Aquatic Entomology. He was a master teacher noted for delivery of organized lectures filled with the intricate and fascinating details peculiar to the systematics, biogeography, trophic dynamics, drift, and behavior of stoneflies and other creatures. During his career he supervised 43 graduate students who completed 25 M.S. and 21 Ph.D. degrees. His personal research evolved over the years, and perhaps an epiphany-like experience occurred in 1968 with the discovery of a population of the stonefly *Perlesta placida* in nearby Denton Creek; this discovery prompted his first stonefly study on reproductive morphology and mating behavior in *Perlesta*, coauthored with Gerald Atmar and Bernie Solon in 1969. Although stoneflies became the focus of his subsequent research, he continued to work with students on a variety of other groups including odonates, spiders, mayflies, caddisflies, hellgrammites, lepidopterans, nematodes, and fish. His publication record includes 191 articles, book chapters, and books authored singly or with 67 different coauthors. Frequent topics of study include life histories, food habits, faunistics, drift, and benthic ecology, but many of Ken’s studies are based on the analysis of drumming signals among stoneflies.
Early work on this topic was done by European workers such as Rainier Rupprecht, but Ken, together with a cadre of students and colleagues (Stan Szczytko, David Zeigler, Rosalyn Snellen, Monchan Maketon, Rodney Hassage, Boris Kondratieff, Fred Kirchner, Richard Bottorff, Steve Moulton, Kevin Alexander, John Abbott, J.M. Tierno de Figueroa, J.M. Lazon-Ortega, and John Sandberg), became the un- questioned leaders of this line of investigation as collectively they moved the process through several phases of technology, addressed many of the basic questions, and helped in development of standards for signal analysis.

In 1978, inspired by the publication of 2 classic works on larval aquatic insects (Edmunds, Jensen, and Berner's 1976 book on mayflies and Wiggins' 1977 book on caddis larvae), Ken initiated a similar study on stonefly larvae, together with Bill Stark, which led to publication of, perhaps, his most noteworthy work, *Nymphs of North American Stonefly Genera* (*Plecoptera*) published in 1988, reprinted in 1993, and released in a second edition in 2002. A major part of this study involved collecting specimens of several rare genera unknown in the larval stage, and this led Ken and his colleagues on numerous forays in search of these stoneflies. Although all these trips were iconic in their own way, one which stands out for the authors became known (to us) as the “Great Stonefly Expedition of 1979.” A major target for this trip was the nemourid genus *Lednia*, known at the time from a few adults collected in 2 glacial streams in Montana’s Glacier National Park. There, in a small stream at Logan Pass on 20 and 22 July 1979, the 3 of us (Stewart, Bau- mann, and Stark) collected 42 mature, pre-emergent *Lednia* nymphs, the first documentation of the immature stage of this interesting genus. A photograph made of Ken on 20 July in Logan Creek was published by Stark, Szczytko, and Nelson on page 8 in their 1998 book *American Stoneflies: A Photographic Guide to the Plecoptera*. Ken’s exuberance and passion for the scientific study of drumming and nymphal associations of stoneflies were celebrated in “Yep, Another Nymphmaniac” an article written by Robert Boyle and published in *Sports Illustrated* in 1980. Ken is also mentioned prominently in Leiser and Boyle’s book *Stoneflies for the Angler* published in 1982. The nymph project became a major part of his life’s work and he often reminded himself and colleagues that “the logical continuation” of the nymph work was the association and study of additional species in order to test the validity of descriptions and keys. Several of us are still actively involved in exercising this “logical continuation” as we attempt to complete studies initiated with Ken in recent months. Colleagues who have collaborated recently with Ken in these studies include Norm Anderson, Richard Baumann, Eugene Drake, Jane Earle, Fred Kirchner, Boris Kondratieff, John Sandberg, Larry Serpa, Bill Stark, and Stan Szczytko. Ken also collected in Alaska for many years and collaborated with Mark Oswood in a study of stoneflies of Alaska and western Canada published by The Cad- dis Press in 2006, and he coauthored the stonefly chapter with Peter Harper in Merritt and Cummins’ 2nd and 3rd editions of *An Introduction to the Aquatic Insects of North America* and with Bill Stark in the 4th edition (Merritt, Cummins, and Berg).

Although not the major thrust of his work, Ken coauthored several taxonomic papers with students and colleagues (Kevin Alexander, Richard Bottorff, Ed DeWalt, Mark Ernst, Jack Feminella, Fred Kirchner, Boris Kon- dratieff, Steve Moulton, Larry Serpa, Bill Poulton, Jean Stanger, Bill Stark, and Stan Szczytko) in which species (or genera) of stone- flies or caddisflies were proposed. The list includes 28 stonefly species, 6 caddisfly species, and 6 stonefly genera (*Alaskaperla* stalk & DeWalt, 1991; *Baumannella* stalk & Stew- art, 1985; *Cascadoperla* Szczytko & Stew- art, 1979; *Oconoperla* Stark & Stew- art, 1982; *Susa* Bottorff & Stew- art, 1989; *Tallaperla* Stark & Stew- art, 1981). In addition, Ken has been honored with 3 patronyms: *Beloneuria stewarti* Stark & Szczytko, 1976; *Neoperla stewarti* Stark & Baumann, 1978, and *Zealeuc- tra stewarti* Kondratieff & Zuellig, 2004.

Ken was a leader in several scientific socie- ties including the North American Benthologi- cal Society (now Society for Freshwater Science) and the International Society for Ple- copterologists. He served the former group as president in 1978–1979 and was later honored by that group in 1997 with the Award of Excel- lence in Benthic Science. He served the latter group for many years as a member of the organ- izing committee and as managing editor of *Perla*, the organization’s newsletter, and was
honored in 2001 with the Lifetime Achievement Award in recognition of his outstanding contributions to plecopterology. Ken was an active member of the American Entomological Society for more than 30 years and the Entomological Society of America for more than 40 years. In 1973, he and Richard Baumann were instrumental in organizing a formal Aquatic Insects Subsection of the ESA. More recently, Ken was honored by the sports magazine *Outdoor Life* as a 2010 member of the “Outdoor Life 25,” a group of 25 individuals selected as leaders whose work has been of great significance in conservation. Ken also served on the Advisory Board for *Illiesia, Journal of Stonefly Research*, until his death and was a true ambassador for stoneflies and healthy streams throughout his career. Perhaps in an effort to increase appreciation for stoneflies among the general public, he invited representatives of the local Dallas media into his lab for a "stonefly fry," an event surely immortalized at least among his students and members of the stonefly community.

The publications listed below include those authored or coauthored by Ken and extracted from his resume. We thank his wife, Francene, for providing the resume and we also thank Stan Szczytko, Boris Kondratieff, Ed DeWalt, and Steve Moulton for their assistance in preparation of this manuscript.

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**List of Publications**


1972. Solon, B.M., and K.W. Stewart. Dispersal of algae and protozoa via the alimentary tracts of...


1977. STEWART, K.W., AND B.P. STARK. Reproductive system and mating of Hydroperla crosbyi (Needham and Claassen); a newly discovered method of sperm transfer in Insecta. Oikos 29:84–89.


1997. Abbott, J.C., and K.W. Stewart. Drumming of three Mesocapnia species (Capniidae) and Soli-


tera; evolutionary implications. Pages 73–81 in E. Gaine, editor, Research update on Ephemeroptera & Plecoptera. Università di Perugia, Perugia, Italy.


