

Leonard C. Ferrington, Jr. (1948-2021): Chironomid cognoscente and modern-day Renaissance man

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“Let’s look at some chironomids!” Many of Dr. Leonard “Len” C. Ferrington Jr.’s students heard this phrase as he walked into the lab with an excited smile on his face. Len’s enthusiasm for chironomid research - whether it be time at the microscope or out in the field - was infectious. Whenever a student came to his office describing a new or unique observation or an unknown midge, he would always drop what he was doing to check it out and provide his input. Once he saw these discoveries, he would give you an enthusiastic, but knowing smile and then often describe the localities where he had also made a similar observation or found the same midge. Usually, any interaction with Len would branch out into an extended discussion of some ecological or taxonomic topic and ideas for future research. He always had new ideas to contribute, and certainly had no plans to retire (“Why would I want to do that?!” was a common response when asked). Sadly, Len passed away unexpectedly, on September 11, 2021, while bicycling on the Root River Trail, near Lanesboro, Minnesota.



Figure 1. Len Ferrington in Iceland in 2018 (this photo was used to announce his election in 2021 as a Society for Freshwater Science Fellow: <https://freshwater-science.org/awards-programs/sfs-fellows>). Photographer unknown.

Len made many contributions to science, particularly to the taxonomy and ecology of Chironomidae. During his 41-year academic career as a Professor and Scientist, Len was a prolific researcher who collaborated with colleagues in 52 countries on six continents. Len’s research program consisted of several areas of emphasis including: taxonomy and systematics, biodiversity, responses of aquatic insects to pollution, their roles in stream ecology, and aquatic resource sustainability, with most of his research questions centered around stories told by the Chironomidae. Although Len clearly displayed a strong focus on chironomid

Born in 1948 in Murrysville, PA, Len joined the U.S. Marine Corps in 1966 after graduating from Franklin Regional High School. He served in Vietnam as a Corporal in the 3rd Marine Division and was honorably discharged from service in 1972. During his time in Vietnam, he earned several medals, including a Purple Heart Medal, National Defense Service Medal, Vietnam Service Medal, and Vietnam Campaign Medal. He went on to study at the University of Pittsburgh where he earned a Bachelor of Science degree in Biology and Doctorate degree specializing in Entomology under William Coffman. He held tenured academic positions at both the University of Kansas, Lawrence, Kansas, USA (1980 to 2000) and the University of Minnesota, Saint Paul, Minnesota, USA (2000 to 2021).



Figure 2. Len Ferrington in Vietnam in 1967. Photographer unknown.



Figure 3. Len in Bill Coffman's lab in 1977. Photographer unknown.



Figure 4. Len with Deborah Ferrington and Ole Sæther at Kjosfossen Falls (Norway) in 1985. Photographer unknown.



Figure 5. Jim Sublette and Len chatting in Jim's lab in Arizona (USA) in 2006. Photo by Will Bouchard.

taxonomy and ecology, his research interests were diverse, and he brought his expertise and enthusiasm to other realms of freshwater biology as well, including biological monitoring, aquatic insect gut fungi, fish diets, Mecoptera diversity, and winter hardiness.

Len authored or co-authored over one hundred peer-reviewed articles, nearly thirty externally reviewed technical reports, several online resources, and multiple book chapters, all relating to the field of freshwater science; a bibliography of Len's publications follows. These include many important taxonomic contributions including the description of 4 chironomid genera, 49 chironomid species, and the re-description of 107 chironomid species. Len also described 4 genera and 12 species of trichomycetes (*sensu lato*) which include fungi and protists dwelling in the guts of arthropods. In addition to describing many species, a midge genus (*Ferringtonia* Sæther and Andersen) and two species of midge (*Odontomesa ferringtoni* Sæther and *Orthocladus ferringtoni* Saponis) were named in his honor. Notably, Len made a profound impact through his authorship in four editions of a key freshwater science resource, *An Introduction to the Aquatic Insects of North America* by Merritt, Cummins, and Berg, which many use daily to identify aquatic insects. Tracey Anderson, a graduate student of Len's, described an early edition of Merritt and Cummins as one of the few books she wore out and that it now holds a special place on her shelf.

Like many aquatic biologists, Len loved field work. Whether he was collecting in an urban stream in Kansas, a spring-fed trout stream in the middle of a Minnesota winter, or a lake on the steppes of Mongolia, he was always enthusiastic. Few researchers relish leaving the warmth of the indoors during the middle of winter in lieu of conducting field work in sub-zero temperatures. Len, however, thrived in these conditions. He found a passion for studying cold-hardy chironomids and could be described as 'cold hardy' himself, spending hours on snow banks flanking spring-fed streams, vials in hand, in search of winter-emerging insects to scoop up for studies on longevity, behavior, and diversity. Although Len did his part to contribute to the knowledge of winter-active midges in Kansas, once he relocated further north in Minnesota, his work on winter hardiness accelerated. Colleagues that visited Len and most of his students in Minnesota were treated to these winter forays to find midges. Many of his students at the University of Minnesota would find that their projects included extensive winter fieldwork, and Len's love and

fascination with working in these environments was always transferred to his students. Winter did not just mean work though, as Len would also hold full-moon, skiing parties on his lake in the winter for students and colleagues complete with chili, Bob Marley music, Malbec, and sometimes a little aquavit.

Much of his field work included the collection of chironomid pupal exuviae. He was a strong proponent of using or incorporating chironomid pupal exuviae into research and much of the research throughout his career relied to some degree on this technique. Many of his students and colleagues took the opportunity to learn from a master and became connoisseurs of surface floating pupal exuviae themselves. Barbara Hayford had this memory of sampling with Len in Tasmania: “One day as we hiked toward our collecting site, a waterfall, we observed a large pile of foam downstream on the river, deep in a ravine. Len got that look in his eye. He stopped and peered over the edge, obviously thinking of the best way down when I stopped him and pointed out that I would not be able to haul him out if he fell down the steep slope and broke his bones. Still, he hesitated, then changed his mind and continued down the path to collect at the waterfall. I think he would have collected that foam had I not been there. Although I was relieved he did not collect in the ravine, I did learn from him a lifelong passion for chironomid pupal exuviae. His excitement and enthusiasm never waned in all the years I knew him. Ultimately, that was the greatest gift he bequeathed me as a researcher.”



Figure 6. Len collecting *Diamesa* along the Kinnickinnic River (USA: Wisconsin) in 2005 for a cold-hardiness study. Photo by Will Bouchard.



Figure 7. Len with his pan and sieve, preparing to collect surface-floating pupal exuviae from a stream in Duluth (USA: Minnesota), September 2009. Photo by Alyssa M. Anderson.

Those that knew Len well also knew that when he wasn't wearing his waders (or his characteristic cowboy boots that would let all know he was coming down the hall!), he was most likely in his dance shoes. Research conversations with Len would often deviate from the subject at hand and often turn to dancing, as this was another significant passion. He could also find appropriate ways to intertwine the two topics. For example, when describing how best to walk in a stream with waders on while collecting (especially in winter, when falling in the water is not at all appealing!), Len would liken the experience to dancing, where agility, balance, and grace is of utmost importance. Len certainly excelled in this area, based on both the numerous ballroom dancing awards he received over the years and his prowess while waders were donned in the field.

Len's contributions to the scientific community extended well beyond field work and his research lab. He was a long-standing member of the Society of Freshwater Science (SFS) (formerly known as the North American Benthological Society, NABS) and served as President (1989-1990). During his tenure as NABS president, Len advocated for scientists to provide their expertise and become more involved with assisting conservation groups to develop policy. Len continued to contribute to NABS/SFS in many ways including serving and chairing the Executive Board of Directors for NABS Endowment, serving on numerous society committees and boards, and organizing several symposia at meetings. In 2021, he was elected as an SFS Fellow for his sustained excellence in contributions to freshwater science research. Len's service to SFS/NABS also included hosting and organizing the 1986 NABS meeting held in Lawrence, Kansas. Always someone that en-

joyed a joke, even an inside joke, he called the traditional 5K run at the 1986 NABS meeting the *Oreadomyia* 5K. He called it this because the route traversed Mount Oread, a 58 m high ridge upon which the University of Kansas is situated, and of course because of the genus *Oreadomyia* Kevan & Cutten-Ali-Khan. Len also hosted the XV International Symposium on Chironomidae in 2003, bringing chironomid researchers from around the world to Minnesota. Len always made it a priority to attend and bring students to professional meetings, particularly the International Symposia on Chironomidae and annual meetings of SFS/NABS. Impressively, with the exception of the 2020 meeting that was canceled due to a global pandemic, he never missed a single SFS/NABS meeting in 46 years (do note, though, that Len did participate in the modified virtual SFS event held later in the summer of 2020)! Len's service also included serving on numerous university committees at the University of Kansas and University of Minnesota. Most notable was Len's appointment as Co-Coordinator of the Environmental Science, Policy and Management undergraduate major from 2008-2011 at the University of Minnesota. Len also served as president of the Kansas Entomological Society (1984-1985) and was an editor or assistant editor for several journals including the Journal of the North American Benthological Society, Journal of the Kansas Entomological Society, and the *CHIRONOMUS* Newsletter.

In addition to his research, he was an active and well-liked professor and mentor to hundreds of undergraduate and graduate level students at the University of Kansas and the University of Minnesota. Len acted as major advisor for at least 27 graduate students (8 Ph.D. and 19 M.S.) and served as a committee member for numerous oth-

ers. His students now hold titles, such as aquatic ecologists, research scientists, aquatic invertebrate taxonomists, professors of biology, environmental educators, among many others. As an advisor, Len encouraged his students to not only focus intensely on their thesis topic, but to also become broadly trained freshwater scientists that are ready to address issues spanning from local to global importance. Len was always available to his students to answer questions, develop projects, and to simply steer them through graduate school, but he also gave students the latitude to pursue their interests. For example, one of his former students, Petra Kranzfelder, gained a passion for tropical biology after doing some research on sea turtles in Costa Rica, so he supported her interests and helped her develop both M.S. and Ph.D. projects in tropical chironomid ecology and taxonomy (even though the project had nothing to do with winter-active midges). Len's broad expertise in taxonomy, ecology, water quality, and biological monitoring and the support of his students' strengths and interests is reflected in the diversity of thesis and dissertation projects of his students - many of which don't even mention Chironomidae in the title. He was also a strong proponent of international collaborations and hosted numerous researchers (both students and faculty) in his lab from countries including Brazil, China, Iceland, and Norway, and he encouraged his undergraduate and graduate students to seek out international research and learning opportunities. For example, he led an environmental science study abroad program in Iceland in 2014, 2016 and 2018, where he brought undergraduate students from the University of Minnesota to Iceland. This experience resulted in one of his graduate students, Corrie Nyquist, who joined the 2018 trip, framing her doctoral research around the impacts of climate change on subarctic midges in Ice-



Figure 8. Len with Petra Kranzfelder, Corrie Nyquist, and some environmental science students near a hot spring (left) and on a glacier (right) in Iceland in 2018. Photographers unknown.

land. Len's international collaborations are clearly apparent in the research in which he was involved in (e.g., Norway, France, Germany, Iceland, Italy, Tasmania, Argentina, New Zealand, South Africa, and Mongolia), the meetings and committees he participated in, and the colleagues with whom he published. Due largely to Len's encouragement, support, and vast network of connections, three of Len's most recent Ph.D. students, Corrie Nyquist (Iceland, 2020-2021), Petra Kranzfelder (Norway, 2014-2015), and Alyssa Anderson (Norway, 2010-2011) received Fulbright Fellowships that allowed them to complete portions of their dissertation research abroad and build their own collaborative networks. Alyssa Anderson states that had it not been for Len's encouragement and strong support for international experiences, she would not have considered the Fulbright program, let alone working an international experience into her graduate program. Now, she views this as the most impactful component of her graduate education, building not only her professional skill set and network, but also enhancing her worldview and collection of friends. Impressively, Len himself was most recently recognized with a prestigious Fulbright Fellow award and was greatly looking forward to performing winter research in Finland for six



Figure 9. Len collecting in Iceland in 2001. Photo by Dean Hansen.



Figure 10. Len sampling midges along a lake shore in western Mongolia in 2005. Photo by Mark Edlund.

months spanning a portion of the 2021-2022 academic year.

One of Len's students and colleagues, Barbara Hayford, had the following to say of working with Len, "When I arrived at the Kansas Biological Survey in 1993, Len was working with Ole Sæther on the early stages of the *Pseudosmittia* revision. Despite this and other research, teaching, service and a full and active family life, he took the time to welcome me to his lab. He provided many opportunities to work on different types of research. During my studies with Len, I worked on an EPA Superfund Cleanup site, a double-blind pesticide study, systematics, and trichomycete/chironomid interactions. He encouraged and facilitated international research, thus I studied chironomids in Mongolia, Tasmania, Panama, Germany, and England. He was unable to participate in the fieldwork in Mongolia in 1995 and encouraged his graduate students to go in his stead. I jumped on the chance, initiating over twenty years of work on Mongolian Chironomidae. I never did do field work with Len in Mongolia although we were both there in 2004 and 2005. In 2018, Will Bouchard and I began analyzing the data resulting from Len's collections of western Mongolia lakes, culminating in our collaboration with Len this past summer of 2021. This collaboration completed a circle of work with Len that began in graduate school, continued throughout my early career, and brought us back together



Figure 11. Len with some of his students and collaborators at lunch during the 2019 Society for Freshwater Science (SFS) Meeting in Salt Lake City (USA: Utah). From left to right: Will Bouchard, Petra Kranzfelder, Corrie Nyquist, Alyssa Anderson, Len Ferrington, Jessica Miller, Lily Fulton, Tracey Anderson, and Barbara Hayford.

studying Mongolia chironomids. I am forever grateful for all he has done for me, for his mentoring, and for the privilege of knowing and working with him.”

When considering his wide range of collaborators and the careers of his students, his impact and contribution to freshwater science has been far reaching not only geographically, but also through time. Many of Len’s past students continued to collaborate with him on research and teaching endeavors long after graduation. One important part of Len’s significant legacy is that he trained and taught many aquatic resource professionals, including researchers and teachers. Many students came to the field of aquatic science because of him. Students might have had a class with him as an undergraduate or came to study with him based on a recommendation from one of Len’s many colleagues. Even if students weren’t aquatic entomologists or biologists when they started working with him, Len’s interest and passion for the field was often kindled in them. Len’s influence and enthusiasm in the classroom, laboratory, and field is also vividly apparent in his students who went on to teach. In the classroom, Len could always be counted on to start a class with a favorite song (usually Bob Marley), YouTube video (typically involving dancing), or a good joke or two (especially on exam days!). These practices are now carried forth by some of his students that are now in the classroom. His legacy includes training teachers and professors at different educational levels

and biologists specializing in public outreach who are educating the public and training students to be the next aquatic biologists. As a result, Len’s training and influence has impacted thousands of students. Len also trained many researchers who are responsible for the protection, conservation, and stewardship of natural resources. It is imperative for the conservation of aquatic resources that there is an experienced and capable community of aquatic science educators and researchers and it is difficult to overestimate Len’s important contribution to the field.

Len is known to many in the world of aquatic ecology and chironomid taxonomy as a scientist, teacher, friend, and colleague. Someone who was a true gentleman with a constant and infectious positive attitude. All who had the honor to know Len recognized how he pursued excellence in life with passion and vigor.

Len was just as encouraging, positive and adventurous with his family as he was with his students. He was known to take his family on elaborate and intricately-planned family trips all around the world, often involving two of his favorite pastimes - bicycling and traveling together. His children note that he was always a present father-figure at sporting events and important milestones growing up, somehow managing the work-life balance. In their adulthood, he was a trusted advisor for their lives’ paths and guided them on their academic, business, and personal endeavors. His encouraging phrase of “just go for it” was one to remember.



Figure 12. Deborah and Len on their wedding day in 1978. Photo by Daniel Carroll.



Figure 13. Len with his children, Len III and Ashley, along a spring in western Kansas in 1984. Photo by Deborah Ferrington.



Figure 14. Len with his growing family in 2019, Ashley, Beau, Len III, Leah, Lindsay, Len, and Deborah. Photographer unknown.



Figure 15. Len playing the mandolin. Photo by Deborah Ferrington.

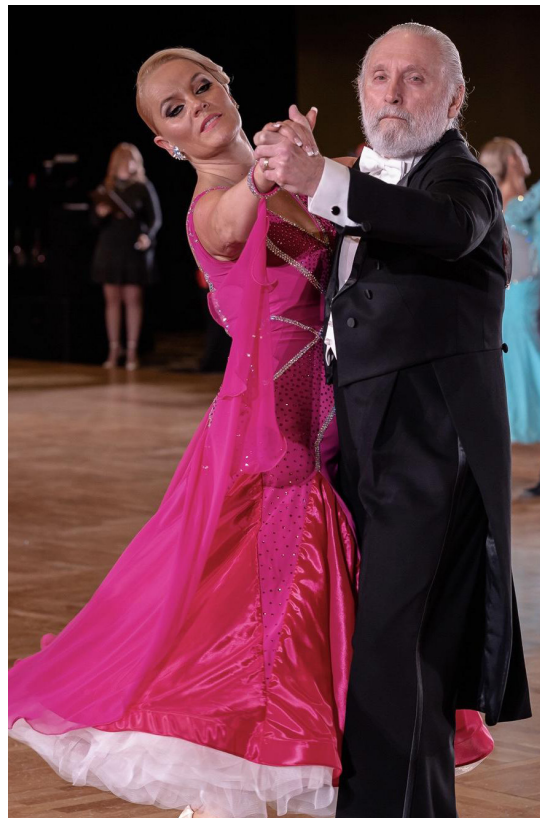


Figure 16. Len with Michelle Hudson during a ballroom dancing competition. Photographer unknown.



Figure 17. Len Ferrington in Iceland, May 2001. Photo by Dean Hansen.

Len was a loving husband of 43 years to Deborah, father to Len III and Ashley, grandfather to Leah. He was fearless in trying and perfecting new activities, including a recent passion for playing the mandolin, and becoming a nationally ranked, award-winning competitive ballroom dancer. Len embodied the persona of a modern Renaissance man, being as comfortable wading in the stream wearing chest waders as he was dancing in a tuxedo. Len was loved greatly by his family, friends, and colleagues and will be dearly missed by them all. His legacy will continue through his family, the contributions he made as a scientist and educator, and the countless lives he touched with his genuine, engaging, humorous, yet gentle personality, and kind heart.

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List of Leonard C. Ferrington Jr. publications

- Anderson, A.M., Bouchard Jr., R.W., and Ferrington Jr., L.C. 2011. Hibernation emergence of Chironomidae in relation to stream size in Kansas, USA. In Wang, X and Liu, W. (Eds.). Contemporary Chironomid Studies - Proceedings of the 17th International Symposium on Chironomidae, Nankai University Press, Tianjin, China, pp. 247-255.
- Anderson, A.M. and Ferrington, L.C. 2012. Resistance and resilience of winter-emerging Chironomidae (Diptera) to a flood event: Implications for Minnesota trout streams. - *Hydrobiologia* 707: 59-71. DOI: <https://doi.org/10.1007/s10750-012-1406-4>
- Anderson, A.M. and Ferrington, L.C. 2012. Time-efficiency of sorting Chironomidae surface-floating pupal exuviae samples from urban trout streams in Northeast Minnesota, USA. - *Fauna Norvegica* 31: 19-23. DOI: <https://doi.org/10.5324/fn.v31i0.1380>
- Anderson, A., Kranzfelder, P., Bouchard Jr, R.W. and Ferrington Jr, L.C. 2013. Survivorship and longevity of *Diamesa mendotae* Muttkowski (Diptera: Chironomidae) under snow. - *Journal of Entomological and Acarological Re-*

- search 45: e6-e6. DOI: <https://doi.org/10.4081/jeur.2013.e6>
- Anderson, A.M., Kranzfelder, P., Egan, A.T. and Ferrington, L.C. 2014. Survey of Neotropical Chironomidae (Diptera) on San Salvador Island, Bahamas. - *Florida Entomologist* 97: 304-308. DOI: <https://doi.org/10.1653/024.097.0147>
- Anderson, A.M., Mittag, E., Middleton, B., Vondracek, B. and Ferrington, L.C. 2016. Winter diets of brown trout populations in southeastern Minnesota and the significance of winter-emerging invertebrates. - *Transactions of the American Fisheries Society* 145: 206-220. DOI: <https://doi.org/10.1080/00028487.2015.1111258>
- Baranov, V. and Ferrington Jr, L.C. 2013. Hibernation emergence of Chironomidae in Ukraine. - *CHIRONOMUS Journal of Chironomidae Research* 26: 33-40 DOI: <https://doi.org/10.5324/cjcr.v0i26.1616>
- Berg, M.B., Ferrington Jr., L.C. and Hayford, B.L. (Eds.) 1995. A Festschrift honoring Mary and Jim Sublette. Part 1: Taxonomy and systematics of Chironomidae. *Journal of the Kansas Entomological Society* 71: 195-382.
- Berg, M.B., Ferrington Jr., L.C. and Hayford, B.L. (Eds.) 1995. A Festschrift honoring Mary and Jim Sublette. Part 2: Biology, ecology and natural history of Chironomidae. *Journal of the Kansas Entomological Society* 71: 383-504.
- Blackwood, M.A., Hall, S.M. and Ferrington Jr., L.C. 1995. Emergence of Chironomidae from springs in the Central High-Plains Region of the United-States. - *Journal of the Kansas Entomological Society* 68: 132-151.
- Bouchard Jr., R.W., 2004. Guide to aquatic invertebrates of the Upper Midwest (Edited by Ferrington Jr., L.C. and Karius, M.L.). University of Minnesota, St. Paul, MN
- Bouchard Jr, R.W., Carrillo, M.A. and Ferrington Jr., L.C. 2006. Lower lethal temperature for adult male *Diamesa mendotae* Muttkowski (Diptera: Chironomidae), a winter-emerging aquatic insect. - *Aquatic Insects* 28: 57-66. DOI: <https://doi.org/10.1080/01650420500293239>
- Bouchard, R.W., Carrillo, M.A., Kells, S.A. and Ferrington, L.C. 2006. Freeze tolerance in larvae of the winter-active *Diamesa mendotae* Muttkowski (Diptera : Chironomidae): a contrast to adult strategy for survival at low temperatures. - *Hydrobiologia* 568: 403-416. DOI: <http://dx.doi.org/10.1007/s10750-006-0200-6>
- Bouchard Jr., R.W. and Ferrington Jr., L.C. 2008. Determination of Chironomidae thermal preferences and thermal partitioning among closely related taxa in a Minnesota stream using surface floating pupal exuviae. - *Boletim do Museu Municipal do Funchal (História Natural) Supplement* 13: 191-198.
- Bouchard Jr., R.W. and Ferrington Jr., L.C. 2008. Identification guide and key to chironomid pupal exuviae in Mongolian Lakes. Chironomid Research Group, University of Minnesota, St. Paul, Minnesota, USA, pp. 72. <https://midge.cfans.umn.edu/sites/midge.cfans.umn.edu/files/files/keytomongolianlakespev1.pdf>
- Bouchard Jr., R.W. and Ferrington Jr., L.C. 2009. Winter growth, development, and emergence of *Diamesa mendotae* (Diptera: Chironomidae) in Minnesota streams. - *Environmental Entomology* 38: 250-259. DOI: <https://doi.org/10.1603/022.038.0131>
- Bouchard Jr., R.W. and Ferrington Jr., L.C. 2011. The effects of subsampling and sampling frequency on the use of surface-floating pupal exuviae to measure Chironomidae (Diptera) communities in wadeable temperate streams. - *Environmental Monitoring and Assessment* 181: 205-223. DOI: <https://doi.org/10.1007/s10661-010-1824-6>
- Bouchard Jr., R.W., Schuetz, B.E., Ferrington Jr., L.C. and Kells, S.A. 2009. Cold hardiness in the adults of two winter stonefly species: *Allocapnia granulata* (Claassen, 1924) and *A. pygmaea* (Burmeister, 1839) (Plecoptera: Capniidae). - *Aquatic Insects* 31: 145-155. DOI: <https://doi.org/10.1080/01650420902776690>
- Carlson, A.K., French, W.E., Vondracek, B., Ferrington Jr., L.C., Mazack, J.E. and Cochran-Biederman, J.L. 2016. Brown trout growth in Minnesota streams as related to landscape and local factors. - *Journal of Freshwater Ecology* 31: 421-429. DOI: <https://doi.org/10.1080/02705060.2016.1160449>
- Carrillo, M., Cannon, C. and Ferrington Jr., L.C. 2004. Effect of sex and age on the supercooling point of the winter-active *Diamesa mendotae* Muttkowski (Diptera: Chironomidae). - *Aquatic Insects* 26: 243-251. DOI: <https://doi.org/10.1080/0165-0420400000320>
- Chen, S., Zhang, R. and Ferrington Jr., L.C. 2017. A New Species of *Harnischia* Kieffer, 1918 (Diptera: Chironomidae) from Mongolia. - *Journal of the Kansas Entomological Society* 90: 334-340. DOI: <https://doi.org/10.2317/1717.1>

- Chen, S., Zhang, R., & Ferrington Jr., L.C. 2017. Two new species and one new record of the genus *Metriocnemus* van der Wulp (Diptera: Chironomidae: Orthocladiinae) from Mongolia. - *Zootaxa* 4312: 557-564. DOI: <https://doi.org/10.11646/zootaxa.4312.3.9>
- Chou, R.Y.M., Ferrington Jr., L.C., Hayford, B.L. and Smith, H.M. 1999. Composition and phenology of Chironomidae (Diptera) from an intermittent stream in Kansas. - *Archiv Fur Hydrobiologie* 147: 35-64. DOI: <https://doi.org/10.1127/archiv-hydrobiol/147/1999/35>
- Coffman, W.P. and Ferrington Jr., L.C., 1996. Chironomidae. In Merritt, R.W. and Cummins, K.W. (Ed.) An Introduction to the aquatic insects of North America, 3rd ed. Kendall/Hunt Publishing Company, Dubuque, Iowa, pp. 635-748.
- Coffman, W.P., Ferrington Jr. L.C. and Berg, M.B. 2008. Chironomidae. In: Merritt, R.W. and Cummins, K.W. (Eds.). An Introduction to the aquatic insects of North America, 4th ed. Kendall/Hunt Publishing Company, Dubuque, Iowa, pp. 847-989,
- Coffman, W.P., Ferrington Jr., L.C. and Seward, R.M. 1988. *Paraboreochlus stahli* sp. n., a new species of Podonominae (Diptera: Chironomidae) from the Nearctic. - *Aquatic insects* 10: 189-200. DOI: <https://doi.org/10.1080/01650428809361328>
- da Silva, F.L. and Ferrington, Jr., L.C. 2018. Systematics of the new world genus *Pentaneura* Phillip (Diptera: Chironomidae: Tanypodinae): Historical review, new species and phylogeny. - *Zoologischer Anzeiger* 274: 60-89. DOI: <https://doi.org/10.1016/j.jcz.2017.11.010>
- Dolph, C.L., Eggert, S.L., Magner, J., Ferrington Jr., L.C. and Vondracek, B. 2015. Reach-scale stream restoration in agricultural streams of southern Minnesota alters structural and functional responses of macroinvertebrates. - *Freshwater Science* 34: 535-546. DOI: <https://doi.org/10.1086/680984>
- Donley, S.R., Ferrington Jr., L.C. and Huggins, D.G. 1999. Development of biological criteria for macroinvertebrates for streams of the Western Cornbelt Plains Ecoregion. Technical Report Number 90 of the Kansas Biological Survey. pp. 50 + appendix.
- Donley, S., Ferrington Jr., L.C. and Strayer, D. 1998. The habitat of *Paraboreochlus* larvae (Diptera: Chironomidae). - *Journal of the Kansas Entomological Society* 71: 501-504.
- Egan, A.T. and Ferrington, Jr., L.C. 2019. Chironomidae of the Upper Saint Croix River, Wisconsin. - *Transactions of the American Entomological Society* 145: 353-384. DOI: <https://doi.org/10.3157/061.145.0307>
- Egan, A.T. and Ferrington Jr., L.C. 2015. Chironomidae (Diptera) in freshwater coastal rock pools at Isle Royale, Michigan. - *Transactions of the American Entomological Society* 141: 1-25. DOI: <https://doi.org/10.3157/061.141.0102>
- Egan, A.T. and Ferrington Jr., L.C. 2015. Zonal stratification and geographic clustering of a species-rich chironomid community in freshwater coastal rock pools. - *Hydrobiologia* 751: 147-158. DOI: <https://doi.org/10.1007/s10750-015-2183-7>
- Egan, A.T., Ferrington Jr., L.C., Lafrançois, T. and Edlund, M.B. 2015. Seasonal variation in chironomid emergence from coastal pools. - *European Journal of Environmental Sciences* 5: 15-23. DOI: <http://doi.org/10.14712/23361964.2015.71>
- Egan, A.T., Ferrington Jr., L.C., Lafrançois, T., Edlund, M.B. and McCullough, J. 2015. Spatial arrangement and metrics of freshwater coastal rock pools applied to amphibian conservation. - *Limnologia* 51: 101-109. DOI: <https://doi.org/10.1016/j.limno.2014.12.007>
- Epler, J.H. and Ferrington Jr., L.C. 1994. The Immature Stages of *Paratendipes basidens* Townes (Diptera: Chironomidae: Chironominae). - *Journal of the Kansas Entomological Society* 67: 311-317.
- Egan, A.T., Lafrançois, T., Edlund, M.B., Ferrington Jr., L.C. and Glase, J. 2014. Biological studies and mapping of shoreline rock pools in three Lake Superior national parks. Natural Resource Technical Report NPS/MWRO/NRTR—2014/907. National Park Service, Fort Collins, Colorado.
- Ferrington Jr., L.C. 1980. Drift dynamics of Chironomidae larvae occurring in streams draining three diverse biotopes (Unpublished doctoral dissertation). University of Pittsburgh, Pittsburgh, Pennsylvania, USA.
- Ferrington Jr., L.C. 1981. Kansas Chironomidae, Part I. In Brooks, R. (ed.) New records of the fauna and flora of Kansas for 1980. Biological Survey of Kansas, Technical Publication Number 10: pp.45-51.
- Ferrington Jr., L.C. 1981. Diptera (true flies). In Huggins, D. G., Liechti, P. M., and Ferrington

- Jr., L.C. (Eds.) Guide to the freshwater invertebrates of the Midwest. Biological Survey of Kansas, Technical Publication Number 11. pp. 82-105.
- Ferrington Jr., L.C. 1981. Detection and Documentation of Impacts. In Huggins, D.G., Liechti, P.M., and Ferrington Jr., L.C. (Eds.) Guide to the freshwater invertebrates of the Midwest. Biological Survey of Kansas, Technical Publication Number 11. pp. 202-213.
- Ferrington Jr., L.C. 1982. Kansas Chironomidae, Part II: The Tanypodinae, In Brooks, R. (Ed.) New records of the fauna and flora of Kansas for 1981. Biological Survey of Kansas, Technical Publication Number 12: 49-60.
- Ferrington Jr., L.C. 1983. Interdigitating broad-scale distributional patterns of some Kansas Chironomidae. - *Memoirs of the American Entomological Society* 34: 101-113
- Ferrington Jr., L.C. 1983. Kansas Chironomidae, Part III: The *Harnischia* complex, In Brooks, R. (Ed.) New records of the fauna and flora of Kansas for 1982. Biological Survey of Kansas, Technical Publication Number 13: 48-62.
- Ferrington Jr., L.C. 1984. Evidence for the hyporheic zone as a microhabitat of *Krenosmittia* spp. larvae (Diptera: Chironomidae). - *Journal of Freshwater Ecology* 2: 353-358. DOI: <https://doi.org/10.1080/02705060.1984.9664613>
- Ferrington Jr., L.C. 1984. Drift Dynamics of Chironomidae Larvae .1. Preliminary-Results and Discussion of Importance of Mesh Size and Level of Taxonomic Identification in Resolving Chironomidae Diel Drift Patterns. - *Hydrobiologia* 114: 215-227. DOI: <https://doi.org/10.1007/BF00031873>
- Ferrington Jr., L.C. 1987. Chironomidae in the capillary-fringe of the Cimarron River bed. - *Journal of the Kansas Entomological Society* 60: 153-156. <https://www.jstor.org/stable/25084881>
- Ferrington Jr., L.C. 1987. Microhabitat preferences of larvae of three Orthocladiinae species (Diptera: Chironomidae) in Big Springs, a sand-bottom spring in the High Plains of western Kansas. - *Entomologica Scandinavica supplement* 29: 361-368.
- Ferrington Jr., L.C. 1987. Freshwater sponges of Kansas and their associated entomofauna. Technical Report of the Kansas Biological Survey, 36 pp.
- Ferrington Jr., L.C. 1987. Collection and Identification of Floating Pupal Exuviae of Chironomidae for Use in Studies of Surface Water Quality. Standard Operating Procedure prepared for U. S. EPA, Region VII, Kansas City, KS and published as SOP No. FW130A. pp. 39 + appendix.
- Ferrington Jr., L.C. 1989. Assessment of the effects of B.t.i. applications for the control of midgefly larvae, *Chironomus riparius*, in Little Mill Creek, Johnson Co., KS. Kansas Biological Survey Report 41. pp. 16 + appendix.
- Ferrington Jr., L.C. 1992. Habitat and sediment preferences of *Axarus festivus* larvae. - *Netherlands Journal of Aquatic Ecology* 26: 347-354. DOI: <https://doi.org/10.1007/BF02255261>
- Ferrington Jr., L.C. 1993. Endangered rivers: a case history of the Arkansas River in the Central Plains. - *Aquatic Conservation: Marine and Freshwater Ecosystems* 3: 305-316.
- Ferrington Jr., L.C. 1993. Water chemistry, sediment chemistry, fish and macroinvertebrate communities of the Galena Superfund subsite of the Tri-State Mining District. Technical Report of the Kansas Biological Survey Number 56. pp. 85 + appendices.
- Ferrington Jr., L.C. 1995. Biodiversity of aquatic insects and other invertebrates in springs: introduction. - *Journal of the Kansas Entomological Society* 68: 1-3. <https://www.jstor.org/stable/25085629>
- Ferrington Jr., L.C. 1995. Utilization of anterior headcapsule structures in locomotion by larvae of *Constempellina* sp. (Diptera: Chironomidae). - In Cranston, P.S. (Ed.) Chironomids: From genes to ecosystems. CSIRO Publications, East Melbourne, pp. 305-316.
- Ferrington Jr., L.C. 1998. Generic composition of the chironomid fauna in springs of North America. - In L. Botosononeau (Ed.) Studies in crenobiology: the biology of springs and springbrooks. Backhuys Publishers, Leiden, The Netherlands, pp. 141-155.
- Ferrington Jr., L.C. 1998. Mary and Jim Sublette: Fifty years of collaborative studies with Chironomidae. - *Journal of the Kansas Entomological Society* 71: 195-198.
- Ferrington Jr., L.C. 1998. Monitoring and assessment of invertebrates in selected streams with elevated concentrations of heavy metals in U.S. EPA Region VII. Report I: Cannon Creek, Holt County, Missouri. Technical Publication

- Number 89 of the Kansas Biological Survey. pp. 37 + appendices.
- Ferrington Jr., L.C. 2000. Hibernial emergence patterns of Chironomidae in lotic habitats of Kansas versus ambient air and water temperatures. In Hoffrichter, O. (Ed.) Late 20th Century Research on Chironomidae. Shaker Verlag, pp. 375-382.
- Ferrington Jr., L.C. 2001. Summary of water chemistry and macroinvertebrate communities for selected sites at the Galena sub-site of the Cherokee County Superfund Site, Cherokee County, Kansas, within the Tri-State Mining District, Year Three of Phase III. Technical Report Number 102 of the Kansas Biological Survey. pp. 32 + appendices.
- Ferrington Jr., L.C. 2007. Hibernial emergence patterns of Chironomidae in lotic habitats of Kansas versus substrate composition. In Andersen, T. (Ed.) Contributions to the systematics and ecology of aquatic Diptera - A tribute to Ole A. Sæther. pp 99-105
- Ferrington Jr., L.C. 2008. Global diversity of non-biting midges (Chironomidae; Insecta-Diptera) in freshwater. In Balian, E.V., Lévêque, C., Segers, H. and Martens, K. (Eds.) Freshwater animal diversity assessment. Springer Netherlands, pp. 447-455. DOI: <https://doi.org/10.1007/s10750-007-9130-1>
- Ferrington Jr., L.C. (Editor) 2010. Proceedings of the XV International Symposium on Chironomidae. Chironomid Research Group, University of Minnesota, Saint Paul, Minnesota. pp. 385 + viii
- Ferrington Jr., L.C. and Berg, M.B. 2019. Chironomidae. In Merritt, R.W., Cummins, K.W. and Berg, M.B. (Eds.) An introduction to the aquatic insects of North America, 5th ed. Kendall Hunt Publishing Company, Dubuque, Iowa, pp. 1119-1074.
- Ferrington Jr., L.C., Berg, M.B. and Coffman, W.P. 2008. Chironomidae. In Merritt, R.W., Cummins, K.W. and Berg, M.B. (Eds.) An introduction to the aquatic insects of North America. Kendall/Hunt Publishing Company, Dubuque, Iowa, pp. 847-989.
- Ferrington Jr., L.C., Blackwood, M.A., Wright, C.A., Crisp, N.H., Kavanaugh, J.L. and Schmidt, F.J. 1991. A protocol for using surface-floating pupal exuviae of Chironomidae for rapid bioassessment of changing water-quality. - *Sediment and Stream Water Quality in a Changing Environment: Trends and Explanation* 203: 181-190.
- Ferrington Jr., L.C., Buzby, W.H. and Blackwood M.A. 1991. Status report on *Optioservus phaeus* White (Scott Riffle Beetle). Technical Report of the Kansas Biological Survey Number 49. Pp. 21.
- Ferrington Jr., L.C., Buzby, K.M. and Masteller, E.C. 1993. Composition and temporal abundance of Chironomidae emergence from a tropical rainforest stream at El Verde, Puerto Rico. - *Journal of the Kansas Entomological Society* 66: 167-180.
- Ferrington Jr., L.C. and Christiansen, C. 1985. Statistical and biological significance of *Stenochironomus* larvae on multiplate artificial substrate samplers with Masonite® discs. - *Journal of the Kansas Entomological Society* 58: 724-726. <https://www.jstor.org/stable/25084716>
- Ferrington Jr., L.C. and Coffman, W.P. 2014. Differential efficiencies of dip-net sampling versus sampling surface-floating pupal exuviae in a biodiversity survey of Chironomidae. - *CHIRONOMUS Journal of Chironomidae Research* 27: 31-40. DOI: <https://doi.org/10.5324/cjcr.v0i27.1675>
- Ferrington Jr., L.C. and Crisp, N. 1989. Water chemistry characteristics of receiving streams and the occurrence of *Chironomus riparius* and other Chironomidae in Kansas. - *Acta Biologica Debrecina Oecologica Hungarica* 3: 115-126.
- Ferrington Jr. L.C., Galle, O.K., Blackwood, M.A., Wright, C.A., Schmidt, F.J. and Jobe, J.M. 1989. Occurrence and biological effects of cadmium, lead, manganese and zinc in the Short Creek/Empire Lake aquatic system in Cherokee County, Kansas. Kansas Water Resources Institute No. 277, University of Kansas, Lawrence, Kansas, USA. pp. 106 + appendix.
- Ferrington Jr., L.C., Hayford, B., Chou, R., Reynolds, S., Wright, C. and Goldhammer, D. 1997. Final report: Summary of water chemistry, sediment chemistry, fish populations and macroinvertebrate communities for selected sites at the Galena sub-site of the Cherokee County Superfund Site, Cherokee County, Kansas, within the Tri-State Mining District, Phase II. Technical Report Number 83 of the Kansas Biological Survey. pp. 88 + appendices.
- Ferrington Jr., L.C., Karns, B.N. and Bouchard Jr., R.W. 2010. Longevities of *Diamesa mendo-*

- tae* Muttkowski, a hibernal emerging species of Chironomidae. Proceedings of the XV International Symposium on Chironomidae, pp. 22-29.
- Ferrington Jr., L.C., Kavanaugh, R.G., Schmidt, F.J. and Kavanaugh, J.L. 1995. Habitat separation among Chironomidae (Diptera) in Big-Springs. - *Journal of the Kansas Entomological Society* 68: 152-165. <https://www.jstor.org/stable/25085639>
- Ferrington Jr., L.C., Lichtwardt, R.W., and Hayford, B. 2000. *Smittium gravimetalum* (Trichomycetes: Harpellales), a new species of gut fungus from *Dicrotendipes fumidus* (Johannsen) (Diptera: Chironomidae) in a metal-polluted stream. In: Hoffrichter, O. (Ed.), Late 20th. Century Research on Chironomidae: An Anthology from the 13th International Symposium on Chironomidae. Shaker Verlag, Aachen, pp. 253–257.
- Ferrington Jr., L.C., Lichtwardt, R.W., Hayford, B. and Williams, M.C. 2005. Symbiotic Harpellales (Trichomycetes) in Tasmanian aquatic insects. - *Mycologia* 97: 254-262. DOI: <https://doi.org/10.1080/15572536.2006.11832859>
- Ferrington Jr., L.C. and Masteller, E. 2015. Emergence dynamics of *Diamesa cheimatoiphila* Hansen (Diptera: Chironomidae: Diamesinae). - *European Journal of Environmental Sciences* 5: 24-30. DOI: <https://doi.org/10.14712/23361964.2015.72>
- Ferrington Jr., L.C., Masteller, E.C. and Santiago-Blay, J.A. 2008. Comparison and significance of Chironomidae emergence from Lake Erie and Presque Isle Bay, Erie, Pennsylvania, U.S.A. - *Boletim do Museu Municipal do Funchal (História Natural) Supplement* 13: 21-28.
- Ferrington Jr., L.C. and Ruse, L. 1986. Collection of *Antillocladius pluspilalus* and *A. arcuatus* (Diptera: Chironomidae) in eastern Kansas. - *Entomological News* 97: 66-68.
- Ferrington Jr., L.C. and Pehofer, H.E. 1996. Instar distribution and biomass of Chironomidae larvae in Lago El Junco, Isla San Cristobal, the Galápagos. - *Hydrobiologia* 318: 123-133. DOI: <https://doi.org/10.1007/BF00014138>
- Ferrington Jr., L.C. and Sæther, O.A. 1987. Male, female, pupa and biology of *Oliveridia hugginsi*, n. sp. (Chironomidae: Diptera) from Kansas. - *Journal of the Kansas Entomological Society* 60: 451-461. <https://www.jstor.org/stable/25084923>
- Ferrington Jr., L.C. and Sæther, O.A. 1995. *Physoneura* a new genus of Orthocladiinae from Patagonia and South Chile (Diptera: Chironomidae). - *Aquatic insects* 17: 57-63. DOI: <https://doi.org/10.1080/01650429509361570>
- Ferrington Jr., L.C. and Sæther, O.A. 1995. Afrotropical species of *Parakiefferiella* Thienemann, with a review of species with palpal projections (Diptera: Chironomidae). In Cranston, P.S. (Ed.) Chironomids: From genes to ecosystems. CSIRO Publications, East Melbourne, pp. 369-377.
- Ferrington Jr., L.C. and Sæther, O.A. 2006. *Rhagosmittia* and *Trondia*, two new genera of Orthocladiinae from Oceania and Australia (Diptera: Chironomidae). - *Aquatic Insects* 28: 243-250. DOI: <https://doi.org/10.1080/01650420601085906>
- Ferrington Jr., L.C. and Sæther, O.A. 2011. A revision of the genera *Pseudosmittia* Edwards, 1932, *Allocladius* Kieffer, 1913, and *Hydrosmittia* gen. n. (Diptera: Chironomidae, Orthocladiinae). - *Zootaxa* 2849: 1-314. DOI: <http://dx.doi.org/10.11646/zootaxa.2849.1.1>
- Ferrington Jr., L.C., Stringer, S.T. and Stringer, S.M. 1999. Summary of water chemistry and macroinvertebrate communities for selected sites at the Galena sub-site of the Cherokee County Superfund Site, Cherokee County, Kansas, within the Tri-State Mining District, Year one of Phase III. Technical Report Number 94 of the Kansas Biological Survey. pp. 18 + appendices.
- Ferrington Jr., L.C., Stringer, S.T. and Stringer, S.M. 2000. Summary of water chemistry and macroinvertebrate communities for selected sites at the Galena sub-site of the Cherokee County Superfund Site, Cherokee County, Kansas, within the Tri-State Mining District, Year two of Phase III. Technical Report Number 97 of the Kansas Biological Survey. pp. 25 + appendices.
- Ferrington Jr., L.C., White, M.M. and Lichtwardt, R.W. 2003. A new genus of trichomycetes (*Pseudoharpella arcolamylica*) from *Dixa flavica* Peters (Diptera: Dixidae). - *Aquatic Insects* 25: 85-94. DOI: <https://doi.org/10.1076/aqin.25.2.85.14039>
- Ferrington Jr., L.C., Wright, C.A., Anderson, T.M. and Goldhammer, D.S. 1994. Sediment transfers and representativeness of mesocosm test fauna. In Rachlin, J.W. (Ed.) Aquatic Mesocosm Studies in Ecological Risk Assessment. Lewis Publishers, Boca Raton. pp. 179-200.

- French, W.E., Vondracek, B., Ferrington Jr., L.C., Finlay, J.C. and Dieterman, D.J. 2014. Winter feeding, growth and condition of brown trout *Salmo trutta* in a groundwater-dominated stream. - *Journal of Freshwater Ecology* 29: 187-200. DOI: <https://doi.org/10.1080/02705060.2013.847868>
- French, W.E., Vondracek, B., Ferrington Jr., L.C., Finlay, J.C. and Dieterman, D.J. 2016. Winter diet of brown trout *Salmo trutta* in groundwater-dominated streams: influence of environmental factors on spatial and temporal variation. - *Journal of Fish Biology* 89: 2449-2464. DOI: <https://doi.org/10.1111/jfb.13128>
- French, W.E., Vondracek, B., Ferrington Jr., L.C., Finlay, J.C. and Dieterman, D.J. 2017. Brown trout (*Salmo trutta*) growth and condition along a winter thermal gradient in temperate streams. - *Canadian Journal of Fisheries and Aquatic Sciences* 74: 56-64. DOI: <https://doi.org/10.1139/cjfas-2016-0005>
- Goldhammer, D., Wright, C., Blackwood, M. and Ferrington Jr, L.C. 1992. Composition and phenology of Chironomidae from the Nelson environmental study area, University of Kansas. - *Netherland Journal of Aquatic Ecology* 26: 281-291. DOI: <https://doi.org/10.1007/BF02255253>
- Gresens, S.E. and Ferrington Jr, L.C. 2008. Taxonomic distinctness provides an alternative view of the diversity of Chironomidae (Diptera) assemblages. - *Boletim do Museu Municipal do Funchal (História Natural) Supplement* 13: 101-108.
- Gresens, S.E. and Ferrington Jr., L.C., 2010. Chironomid species assemblages of streams draining areas of serpentine versus non-serpentine bedrock. Proceedings of the XV International Symposium on Chironomidae, pp. 55-69.
- Grodhaus, G. and Ferrington Jr., L.C. 1989. The occurrence of *Chironomus (Lobochironomus) mendax* Stora in North America. - *Journal of the Kansas Entomological Society* 62: 292-293. DOI: <https://www.jstor.org/stable/25085089>
- Hayford, B. and Ferrington Jr., L.C. 2006. Distribution of Chironomidae (Diptera) in Lake Hövsgöl, Mongolia. - In Goulden, C.E., Sitnikova, T., Gelhaus, J. and Boldgiv B. (Eds.) The geology, biodiversity and ecology of Lake Hövsgöl (Mongolia). Backhuys Publishers, Leiden, Netherlands pp. 433-452.
- Hayford, B.L. and Ferrington Jr., L.C. 2005. Biological assessment of Cannon Creek, Missouri by use of emerging Chironomidae (Insecta: Diptera). - *Journal of the Kansas Entomological Society* 78: 89-99. DOI: <https://doi.org/10.2317/0405.20.1>
- Howick, G.L., Giddings, J.M., Denoyelles, F., Ferrington Jr., L.C., Kettle, W.D. and Baker, D. 1992. Rapid establishment of test conditions and trophic-level interactions in 0.04-hectare earthen pond mesocosms. - *Environmental Toxicology and Chemistry* 11: 107-114. DOI: <https://doi.org/10.1002/etc.5620110110>
- Huggins, D.G., Liechti, P.M., and Ferrington Jr., L.C. (eds.). 1981. Guide to the Freshwater Invertebrates of the Midwest. Biological Survey of Kansas, Technical Publication Number 11. 221 pp.
- Huggins, D.C. and Ferrington Jr., L.C. 1981. Introduction to the Insects. In Huggins, D.G., Liechti, P.M., and Ferrington Jr., L.C. (Eds.) Guide to the freshwater invertebrates of the Midwest. Biological Survey of Kansas, Technical Publication Number 11. pp. 49-57.
- Kavanaugh, R.G., Egan, A.T. and Ferrington Jr., L.C. 2014. Factors affecting decomposition rates of chironomid (Diptera) pupal exuviae. - *Chironomus Newsletter on Chironomidae Research* 27: 16-24. DOI: <https://doi.org/10.5324/cjcr.v0i27.1700>
- Kranzfelder, P., Anderson, A.M., Egan, A.T., Mazack, J.E., Bouchard Jr., R.W., Rufer, M.M. and Ferrington Jr., L.C. 2015. Use of Chironomidae (Diptera) surface-floating pupal exuviae as a rapid bioassessment protocol for water bodies. - *Journal of Visualized Experiments* e52558. DOI: <https://doi.org/10.3791/52558>
- Kranzfelder, P. and Ferrington Jr., L.C. 2018. Chironomidae (Diptera) species diversity of estuaries across a land use gradient on the Caribbean coast of Costa Rica. - *Revista de Biología Tropical* 66: 1118-1134. DOI: <http://dx.doi.org/10.15517/rbt.v66i3.31927>
- Kranzfelder, P. and Ferrington Jr., L.C. 2015. Characterization of Chironomidae (Diptera) surface-floating pupal exuviae sample sort time from coastal tropical aquatic systems. - *Environmental Monitoring and Assessment* 187: 1-8. DOI: <https://doi.org/10.1007/s10661-015-4313-0>
- Kranzfelder, P. and Ferrington Jr., L.C. 2016. Temporal and spatial variability of Chironomidae (Insecta: Diptera) species emergence in a Neotropical estuary. - *Freshwater Science* 35: 631-643. DOI: <https://doi.org/10.1086/685907>

- Krider, L.A., Magner, J.A., Perry, J., Vondracek, B. and Ferrington Jr., L.C. 2013. Air-water temperature relationships in the trout streams of southeastern Minnesota's carbonate-sandstone landscape. - *Journal of the American Water Resources Association* 49: 896-907. DOI: <https://doi.org/10.1111/jawr.12046>
- Lichtwardt, R.W., Ferrington Jr., L.C. and Lasstra, C.L. 1999. Trichomyces in Argentinean aquatic insect larvae. - *Mycologia* 91: 1060-1082. DOI: <https://doi.org/10.2307/3761637>
- Lichtwardt, R.W., Williams, M.C., Ferrington Jr., L.C. and Hayford, B.L. 1997. Harpellales: generic confusion due to precocious development. - *Mycologia* 89: 109-113. DOI: <https://doi.org/10.2307/3761179>
- Liu, W., Ferrington Jr., L.C. and Wang, X. 2016. First record of *Odontomesa* Pagast from China, with description of the immature stages of *O. ferringtoni* Sæther (Diptera, Chironomidae, Prodiamesinae). - *Zootaxa* 4132: 135-142. DOI: <https://doi.org/10.11646/zootaxa.4132.1.12>
- Liu, W.B., Ferrington Jr., L.C. and Wang, X.H. 2016. *Sympoithastia wuyiensis* sp. n. from China, with description of the immature stages of *S. takatensis* (Tokunaga) (Diptera, Chironomidae). - *Zootaxa* 4126: 427-434. DOI: <https://doi.org/10.11646/zootaxa.4126.3.7>
- Liu, W., Ferrington Jr., L.C. and Wang, X. 2017. First Record of the Genus *Telmatopelopia* Fittkau, 1962 from Oriental China (Diptera: Chironomidae). - *Entomological News* 126: 352-357. DOI: <https://doi.org/10.3157/021.126.0503>
- Mazack, J.E., Kranzfelder, P., Anderson, A.M., Bouchard Jr., R.W., Perry, J., Vondracek, B. and Ferrington Jr., L.C. 2014. Survivorship and longevity of adult *Diamesa mendotae* Muttowski, 1915 (Diptera: Chironomidae) at controlled, sub-freezing temperatures. - *Aquatic Insects* 36: 35-42. DOI: <https://doi.org/10.1080/01650424.2014.990040>
- McGee, B.L., Pinkney, A.E., Velinsky, D.J., Ashley, J.T., Fisher, D.J., Ferrington Jr., L.C. and Norberg-King, T.J. 2009. Using the sediment quality triad to characterize baseline conditions in the Anacostia River, Washington, DC, USA. - *Environmental Monitoring and Assessment* 156: 51-67. DOI: <https://doi.org/10.1007/s10661-008-0462-8>
- Michailova, P.V. and Ferrington Jr., L.C. 1992. The karyotype of *Axarus festivus* (Say) and a comparison with species of *Lipiniella* (Chironomidae: Diptera). - *Netherland Journal of Aquatic Ecology* 26: 181-185. DOI: <https://doi.org/10.1007/BF02255239>
- Michailova, P. and Ferrington Jr., L.C. 2016. Larva and karyotype of *Xenochironomus* sp. (Diptera, Chironomidae) from North America. - *Journal of the Kansas Entomological Society* 89.1: 53-64. DOI: <https://doi.org/10.2317/0022-8567-89.1.53>
- Nyquist, C., Gislason, G.M., Vondracek, B. and Ferrington Jr., L.C. 2021. Longevities of adult Chironomidae (Diptera) from two streams in Iceland. - *CHIRONOMUS Journal of Chironomidae Research* 34: 4-12. DOI: <https://doi.org/10.5324/cjcr.v0i34.3431>
- Nyquist, C., Vondracek, B. and Ferrington Jr., L.C. 2020. The influence of an in-stream thermal gradient on chironomid emergence during winter. - *Hydrobiologia* 847: 15. DOI: <https://doi.org/10.1007/s10750-020-04281-3>
- Pfrender, M.E., Hawkins, C.P., Bagley, M., Courtney, G.W., Creutzburg, B.R., Epler, J.H., Fend, S., Ferrington Jr., L.C., Hartzell, P.L., Jackson, S., Larsen, D.P., Lévesque, C.A., Morse, J.C., Petersen, M.J., Ruiter, D., Schindel, D.A. and Whiting, M. 2010. Assessing macroinvertebrate biodiversity in freshwater ecosystems: Advances and challenges in DNA-based approaches. - *The Quarterly Review of Biology* 85: 319-340. DOI: <http://dx.doi.org/10.1086/655118>
- Pinkney, A.E., McGowan, P.C., Murphy, D.R., Lowe, T.P., Sparling, D.W. and Ferrington Jr., L.C. 2000. Effects of the mosquito larvicides temephos and methoprene on insect populations in experimental ponds. - *Environmental Toxicology and Chemistry* 19: 678-684. DOI: <https://doi.org/10.1002/etc.5620190320>
- Pitt, J.L., Surampalli, R.Y., Crisp, N.H. and Ferrington Jr., L.C. 1998. Predicting aqueous metal species in a stream impacted by mining activity. - *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management* 2: 166-171. DOI: [https://doi.org/10.1061/\(ASCE\)1090-025X\(1998\)2:4\(166\)](https://doi.org/10.1061/(ASCE)1090-025X(1998)2:4(166))
- Reynolds Jr., S.K. and Ferrington Jr., L.C. 2001. Temporal and taxonomic patterns of mouthpart deformities in larval midges (Diptera: Chironomidae) in relation to sediment chemistry. - *Journal of Freshwater Ecology* 16: 15-27. DOI: <https://doi.org/10.1080/02705060.2001.9663783>

- Reynolds Jr., S.K. and Ferrington Jr., L.C. 2002. Differential morphological responses of chironomid larvae to severe heavy metal exposure (Diptera: Chironomidae). - *Journal of the Kansas Entomological Society* 172-184. <https://www.jstor.org/stable/25086066>
- Roback, S.S. and Ferrington Jr., L.C. 1983. The immature stages of *Thienemannimyia barberi* (Coquillett) (Diptera: Chironomidae: Tanypodinae). - *Freshwater Invertebrate Biology* 2: 107-111. DOI: <https://doi.org/10.2307/1467115>
- Rufer, M.M. and Ferrington Jr., L.C. 2007. Key to the Chironomidae pupal exuviae in the twin cities metro area lentic waters. Chironomid Research Group, University of Minnesota, St. Paul, Minnesota, USA, pp. 100. https://midge.cfans.umn.edu/sites/midge.cfans.umn.edu/files/files/rufer_pupalkey1.pdf
- Rufer, M.R. and Ferrington Jr., L.C. 2008. Sampling frequency required for chironomid community resolution in urban lakes with contrasting trophic states. - *Boletim do Museu Municipal do Funchal (História Natural) Supplement* 13: 77-84.
- Sæther, O.A. and Ferrington Jr., L.C. 1993. Redescription of *Prosmittia jemtlandica* (Brundin, 1947), with a review of the genus. - *Journal of the Kansas Entomological Society* 257-262. <http://www.jstor.org/stable/25085447>
- Sæther, O.A. and Ferrington Jr., L.C. 1997. A review of the genus *Semiocladius* Sublette et Wirth, 1980 (Diptera: Chironomidae). - *Aquatic Insects* 19: 219-236. DOI: <https://doi.org/10.1080/01650429709361657>
- Sæther, O.A. and Ferrington Jr., L.C. 2003. Nomenclature notes on some orthocladids (Diptera: Chironomidae). - *Zootaxa* 322: 1-7. DOI: <https://doi.org/10.11646/zootaxa.322.1.1>
- Sæther, O.A. and Ferrington Jr., L.C. 2003. New combinations and synonyms in European *Pseudosmittia* Goetghebuer and related genera. - *CHIRONOMUS Journal of Chironomidae Research*. DOI: <https://doi.org/10.5324/cjcr.v0i16.90>
- Sealock, A.W. and Ferrington Jr., L.C. 2008. Key and Descriptions of the Chironomidae Pupal Exuviae of Hardwood Creek, near Hugo, Minnesota. Chironomid Research Group, University of Minnesota, St. Paul, Minnesota, USA, pp. 86. <https://midge.cfans.umn.edu/sites/midge.cfans.umn.edu/files/files/sealock-chironomidae-pupal-hardwook-creek-edited.pdf>
- Sealock, A.W. and Ferrington Jr., L.C. 2008. Sampling efficiency of Chironomidae (Diptera) across disturbance gradients. - *Boletim do Museu Municipal do Funchal (História Natural) Supplement* 13: 85-92.
- Slaymaker, A.K., Ferrington Jr., L.C. and Lichtwardt, R.W. 1998. Chironomidae-Trichomycete associations: A literature review. - *Journal of the Kansas Entomological Society* 71: 490-500. <https://www.jstor.org/stable/25085866>
- Sublette, M., Sublette, J.E. and Ferrington Jr., L.C. 1989. Gail Grodhaus: March 21, 1928-December 23, 1987. - *Journal of the Kansas Entomological Society* 62:294-296. <https://www.jstor.org/stable/25085090>
- Swegman, B.G. and Ferrington Jr., L.C. 1980. New records of Western Trichoptera with notes on their biology. - *The Great Basin Naturalist* 40: 287-291. <https://www.jstor.org/stable/41711896>
- Wright, C.A., Ferrington Jr., L.C. and Crisp, N.H. 1996. Analysis of chlordane-impacted streams using chironomid pupal exuviae (Diptera: Chironomidae). - *Hydrobiologia* 318: 69-77. DOI: <https://doi.org/10.1007/BF00014133>
- Zhang, R., Liu, W., Ferrington Jr., L.C. and Wang, X. 2016. Two new species of genus *Hydrosmittia* Ferrington & Sæther (Diptera: Chironomidae) from China. - *Zootaxa* 4121: 167-174. DOI: <https://doi.org/10.11646/zootaxa.4121.2.6>