Obituary

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Obituário: Claudio Gilberto Froehlich (1927-2023), um mentor para múltiplas gerações de pesquisadores em biodiversidade

Pitágoras da Conceição Bispo¹* [0], Adriano Sanches Melo² [0], Adolfo Ricardo Calor³ [0],

Rodolfo Mariano⁴ and Luiz Carlos Pinho⁵

¹Laboratório de Biologia Aquática, Departamento de Ciências Biológicas, Universidade Estadual Paulista – UNESP, Av. Dom Antônio, 2100, Parque Universitário, CEP 19806-900, Assis, SP, Brasil

²Departamento de Ecologia, Universidade Federal do Rio Grande do Sul – UFRGS, Av. Bento Gonçalves, 9500, Agronomia, CEP 91501-970, Porto Alegre, RS, Brasil

³Laboratório de Entomologia Aquática, Departamento de Zoologia, Universidade Federal da Bahia – UFBA, R. Barão de Geremoabo, 147, Campus Ondina, CEP 40170-180, Salvador, BA, Brasil

⁴Laboratório de Organismos Aquáticos, Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz – UESC, Rodovia Ilhéus-Itabuna, Km 16, Salobrinho, CEP 45662-900, Ilhéus BA Brasil

⁵Laboratório de Sistemática de Diptera, Departamento de Zoologia e Ecologia, Universidade Federal de Santa Catarina – UFSC, Campus Universitário, Trindade, CEP 88040-900, Florianópolis, SC, Brasil

*e-mail: pitagoras.bispo@unesp.br

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Prof. Claudio Gilberto Froehlich, an inspiring zoologist and limnologist of the University of São Paulo (USP, Brazil), died on November 27, 2023. He is survived by his wife Marlene Arcifa Froehlich, his sons Augusto, Felipe and Ricardo, and his daughter Júlia. His other son, Otávio, passed away in 2015. He was born on June 10, 1927 in São Paulo, SP, Brazil and was one of the two sons of Augusto Froehlich (born in Germany) and Ottilia Froehlich (born in Latvia). He grew up in this multicultural family in the city of São Paulo, which at that time was full of immigrants from various origins. His grandparents had a small farm in Nova Odessa, located in the countryside of São Paulo state, where he spent his holidays and probably had his first contact with nature. In this

family environment, he and his brother Paulo Augusto Adalberto Froehlich, who would later become Professor at the State University of São Paulo (UNESP), developed curiosity for languages and nature. The childhood and adolescence of Prof. Claudio G. Froehlich occurred between the 1930s and 1940s, a period of economic and political instability, including wars and great changes. In 1932, the state of São Paulo was involved in an armed conflict against the dictatorship of Brazilian president Getúlio Vargas. Despite the defeat, the 1932 Revolution, as it became known, reaffirmed São Paulo's identity and one of the consequences was the creation of the University of São Paulo (USP). Initially, the new university brought together several isolated tertiary schools that already existed; later,



over the decades it became the largest Brazilian higher education institution. Meanwhile, in Europe political pressure was increasing on Jews, including researchers from renowned universities, amongst which was Prof. Ernst Gustav Gotthelf Marcus, who had a renowned career at the University of Berlin (Germany) (Winston, 2002). Due to the persecution he was suffering, he accepted an invitation to teach Zoology at USP, replacing the late Prof. Ernst Bresslau and assuming the position of Cathedratic Professor in Zoology in 1936. In 1948, the young Claudio G. Froehlich started his career at USP as a student of Natural History, where he met Prof. Ernst Marcus and later became one of his students and friends. The relationships with Prof. Marcus and USP were fundamental to Prof. Froehlich's training and academic life. All in all, he had a 70-year relationship with the referred institution: first as student, then as Lecturer/ Professor, and finally as a retired Collaborating Professor.

1. Period in São Paulo - SP

The Natural History course of USP at that time included varied topics in biosciences and geosciences and was a precursor of current courses on Biological Sciences and Geology. In his first years as an undergraduate student, he served as an intern in projects on botany and virus transmission in plant grafting. Later, in his last year in the Natural History course (1951), he was invited by Prof. Ernst Marcus to work as his assistant in the preparation of classes and research on land planarians (Figures 1 and 2).

In 1951, he obtained his bachelor's degree in Natural History, specializing in Biology. In 1952, at the age of 25, he became a Lecturer of the Department of Zoology at USP. He successfully defended his PhD on morphology and taxonomy of land planarians in 1954. In 1955 he published his first paper, which addressed the taxonomy of land planarians, including the description of new species. Taking into account that a book chapter was published in 2024 and a manuscript is under consideration, both co-authored by Prof. Froehlich, we can affirm that he continued producing knowledge for almost 70 years. In 1959 he obtained the title of Livre Docente (Independent Professor) and in the same year he was granted a Rockefeller fellowship to spend a sabbatical year at the University of Lund (Sweden) with Prof. Per Brink to study the morphology, systematics and ecology of aquatic insects, particularly Plecoptera (stonefly), the group to which he would devote most of his

career. When he returned to Brazil, he continued studying land planarians and started working with aquatic insect orders, mainly Ephemeroptera and Plecoptera.

In the 1960s, in addition to publishing papers on land planarians and aquatic insects, he also studied onychophorans, which resulted in the publication of two papers on the subject. During this period, he also published a note recording the occurrence of the polypoid form of a limnic species of Cnidaria. Despite working with many different groups of organisms, Plecoptera was increasingly gaining his attention, so much so that in 1968 he traveled to Sweden to participate in the 4th International Symposium on Plecoptera (see Figure 5B in Mariano et al., 2023) and to Germany to study the systematics of this group for three months with Joachim Illies at Schlitz River Station of the Max Planck Institute for Limnology in Schlitz (Germany). This trip around Europe also allowed him to visit colleagues in several places (e.g., Kiel, Germany; Vienna, Austria; and Lund, Sweden) and study stonefly specimens housed in the British Museum of Natural History (London, UK) and the National Museum of Natural History (Paris, France). During this trip, he also visited the Institute of Limnology in Plön (Germany), being received by

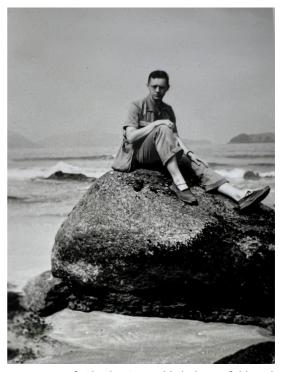


Figure 1. Prof. Claudio G. Froehlich during field work in 1951, when he began his career as Prof. Ernst Marcus's research assistant. Photo: IB-USP.



Figure 2. Prof. Claudio G. Froehlich during field work in 1951 with students and professors of the undergraduate course in Natural History at the University of São Paulo. Prof. Claudio G. Froehlich is standing, while Prof. Ernst Marcus is sitting on the right side of his wife Eveline Marcus. Photo: IB-USP.

its director Harold Sioli and participating in some field activities with Jurgen Overbeck. This was a remarkable trip for Prof. Claudio G. Froehlich, as it helped him to understand the diversity of Plecoptera in the Neotropical region by studying a large number of specimens deposited in Schlitz and other European Institutions. Furthermore, this visit to the Institute of Limnology in Plön sparked his interest in ecology and limnology, resulting in the subsequent creation of a research group on limnology at USP. Despite his previous experience in Invertebrate Zoology, it was his involvement with limnology that allowed him to perceive the growing importance of Ecology.

Between the 1960s and 1970s, Prof. Claudio G. Froehlich helped structure some undergraduate courses in Biology at other institutions, translated textbooks and scientific dissemination books, participated as a consultant in scientific journals and environmental projects and established scientific partnerships with foreign researchers. One example was his support in the organization of the Department of Zoology of Botucatu, where in 1965 he taught Zoology classes. Currently, this department is associated with the Institute of

Biosciences of Botucatu, which is one of the units of the São Paulo State University (UNESP). He also contributed to the curricular organization of the basic cycle of Biology at the University of Campinas (UNICAMP). In the early 1970s, realizing the great development and social importance of Ecology, Prof. Froehlich, together with Prof. Edison Pereira dos Santos, proposed the creation of a Department of Ecology at the Institute of Biosciences at USP, which was finally implemented after several years, in 1977. Due to his full commitment, Prof. Froehlich became the first head of the department. In fact, between the 1960s and 1970s, he performed administrative duties, first serving as deputy head of the Department of Zoology (1970-1977), and then becoming the first head of the newly created Department of Ecology (1977-1981), participating in dozens of internal and external committees. At the end of the 1960s, Prof. Froehlich was also heavily involved in discussions about graduate studies.

In 1970, the Graduate Program in Zoology of the University of São Paulo was created, having Prof. Claudio G. Froehlich as its first coordinator. This program remained for a long time as the only graduate program in the area in Brazil. Prof. Froehlich's involvement with graduate studies deserves a separate chapter. He earned his PhD in 1954, when scientific research in Brazil was restricted to a few institutions. In spite of the creation of the National Museum in Rio de Janeiro with the arrival of the Portuguese Royal Family, major Brazilian research institutions were created much later (e.g., Oswaldo Cruz Institute in 1900 and Butantan Institute in 1901). Modern universities were only created in the 1920s, despite their roots as independent higher education schools in the late 18th and early 19th centuries (Barreto & Filgueiras, 2007). Accordingly, holders of PhD degrees were scarce when Prof. Froehlich obtained his own. Such situation would only change in the 1970s, after the "Parecer Sucupira" in 1965, which laid the basis for the current graduate system, the consolidation of CAPES (Coordination for the Improvement of Higher Education Personnel) in 1966 (an agency created in 1951 to foster graduate studies) and the first National Pos-Graduate Plan (between 1975-1979) (Cabral et al., 2020). As a result, between 1968-1982 Prof. Froehlich supervised several master's (13) and doctoral students (11) on varied subjects (i.e., taxonomy, natural history, ecology) and zoological groups (i.e., fish, amphibians, planarians, zooplankton [Rotifera, Cladocera, and Copepoda], spiders, insects [Odonata and Diptera] and freshwater cnidaria). In 1984, Prof. Claudio G. Froehlich retired, but continued acting as supervisor for the Graduate Program in Zoology in São Paulo. Later, he moved to Ribeirão Preto, where he remained as supervisor for the Graduate Program in Entomology at the School of Philosophy, Sciences and Languages of USP -Ribeirão Preto until 2015.

2. Period in Ribeirão Preto - SP

Prof. Claudio G. Froehlich moved to Ribeirão Preto in 1985 to work as a volunteer at USP, with the idea of helping expand the Graduate Program in Entomology that had started its activities in 1980 and offered only the master's degree. Although Entomology was still taking its first steps on the campus, there were young professors who were very motivated to structure the graduate program. Thus, Prof. Froehlich quickly joined the Entomology Program team. At first, he offered a course on insect diversity and biology, for which he was in charge for 30 years. The first master's defenses in this program under his supervision

took place in the early 1990s. In 1995, he spent a year at the Smithsonian National Museum of Natural History, where he carried out research on Neotropical Plecoptera. As one of the most experienced members in the Graduate Program in Entomology, he actively worked to make it better every day. Today, the Professors of Entomology at USP - Ribeirão Preto acknowledge that Prof. Claudio G. Froehlich was fundamental to the evolution of the Program, which is currently one of the best in the area of Biodiversity in Brazil. Additionally, still at USP in Ribeirão Preto, in the mid-1990s he was part of the team that proposed the Graduate Program in Comparative Biology, which began its activities in 1997 and where he supervised some master's and doctoral students.

Prof. Claudio G. Froehlich remained at USP - Ribeirão Preto for approximately 35 years, working with strong dedication as a volunteer. After many years in the city, he joked that he already had time for a second retirement, since he had worked for more than 30 years in São Paulo and more than 30 years as a volunteer there. As a retired Professor and without administrative commitments, Prof. Froehlich dedicated himself entirely to scientific research and the training of new researchers. In the mid-1990s, he decided to finish the master's and doctoral projects that were in progress and stop working. However, in the beginning of 1996, when he was approaching 70 years old, he took on new students and began one of the most productive periods of his academic life, which included the publication of dozens of scientific papers, the mentoring of several students, partnerships with national and international researchers and the coordination of large thematic projects.

At the age of 72, Prof. Claudio G. Froehlich began one of the most remarkable stages of his career. At that moment, he was supervising several master's and doctoral students and was concerned about having enough funds to develop the projects and award scholarships to the students. He then decided to participate in the BIOTA-FAPESP Program, developing the thematic project "Survey and biology of freshwater crustaceans, insects and mollusks in the state of São Paulo" from 1999 to 2003. This project included the participation of professors from the University of São Paulo, both from Ribeirão Preto and São Paulo, and the Federal University of São Carlos (UFSCar) under his coordination. With the funds from this project, Prof. Claudio G. Froehlich acquired a

vehicle, built a laboratory, acquired various types of equipment and obtained grants for students and post-doctoral researchers. During the development of this project, two master's theses, five doctoral dissertations and two post-doctoral projects under his supervision were concluded. From 2005 to 2009, a second thematic project called "Survey and biology of aquatic Insecta and Oligochaeta from lotic systems in the state of São Paulo" was developed. In this project, six master's theses, eight doctoral dissertations and six post-doctoral projects under the supervision of Prof. Froehlich were concluded. Additionally, dozens of theses and dissertations were concluded under the supervision of other professors participating in both projects. The influence of these projects on the study of freshwater macroinvertebrates was immense, since in addition to the papers published, various master's and doctoral students trained during this time nucleated research groups in different Brazilian regions (Mariano et al., 2023). These new research centers have trained new researchers and generated relevant knowledge about aquatic biodiversity and continental aquatic environments.

In the 2010s, at more than 80 years old, Prof. Claudio G. Froehlich began to slow down. Even so, he published 20 papers in this decade. In 2012, he supervised his last graduate student. In 2015, he stopped offering the "Diversity and Biology of Hexapoda" course. The last paper he published as sole author was in 2016. In 2022, he co-authored his last paper while alive. A few months after his death, a book chapter was published and a manuscript co-authored by him was submitted for consideration. Therefore, we can state that he was active until his death. Prof. Froehlich had a long and productive life since he entered university as a student in 1948 until he stopped attending university in 2020 with the advent of the COVID pandemic. Even during this pandemic time he remained active, mainly discussing with experienced researchers and beginning students via email on the taxonomy of Plecoptera - the group he was most involved with at the end of his career. Throughout his life, he experienced great transformations in Brazil and saw and worked for the consolidation of Brazilian higher education. Many of the people who interacted with Prof. Claudio G. Froehlich, including his students, had the privilege of learning about the history of Brazilian universities, funding agencies and scientific societies from this experienced

professional who lived intensely in the university system for more than 70 years.

3. Scientific Contributions

Prof. Claudio G. Froehlich graduated in Natural History, and therefore had a broad interest in nature. This was reflected in his long academic life, evidenced by his interest in the study of different groups and ecosystems. Here, we will try to group his scientific contributions into three research topics.

Land planarians, onychophorans and cnidarians. In the first years of his career as a researcher, Prof. Claudio G. Froehlich worked with land planarians. As a result, from 1955 to 1972 he published nine papers, which included studies on the taxonomy, morphology, biology and biogeography of these organisms. Furthermore, his first master's student developed a dissertation project on this topic in 1968. The studies conducted by Prof. Froehlich on land planarians were fundamental and remain relevant to date, so much so that around 200 Brazilian species of land planarians are currently known, of which around 60 species (30% of known species) were described by him (Mariano et al., 2023). Between 1962 and 1966, he also dedicated himself to the study of onychophorans, publishing two taxonomic papers. In the case of Cnidaria, Prof. Claudio G. Froehlich recorded the occurrence of the polypoid form of a freshwater jellyfish species of the genus Craspedacusta (Limnomedusae) on the USP Campus in São Paulo. Below are the journal papers resulting from his research on the topic.

Froehlich, C.G., 1955. Notas sobre geoplanas brasileiras. Papéis Avulsos Zoologia 12 (7), 189–198.

Froehlich, C.G., 1955. Sobre morfologia e taxonomia das Geoplanidae. Zoologia 19, 195–279.

Froehlich, C.G., 1956. Turbellaria terricola das regiões de Teresópolis e Ubatuba. Papéis Avulsos Zoologia 12 (16), 313–343.

Froehlich, C.G., 1956. On the biology of land planarians. Boletim Zoologia 20, 263–272.

Froehlich, C.G., 1957. Planárias terrestres do Paraná. Dusenia 7 (4), 173–191.

Froehlich, C.G., 1958. On a collection of Brazilian land planarians. Boletim Zoologia 21, 93–121.

Froehlich, C.G., 1960. On Geoplanids from Brazil. Bol. Zoologia 22, 210–265.

Froehlich, C.G., 1963. Ocorrência de forma polipoide de *Craspedacusta sowerby* Lank.

(Limnomedusae). Anais da Academia Brasileira de Ciências 35 (3), 421–422.

Froehlich, C.G., 1963. A *Peripatus* from Barbados. Boletim de Zoologia (24), 325–333.

Froehlich, C.G., 1967. A Contribution to the zoogeography of Neotropical land planarians. Acta Zoologica Lilloana 23, 153–162.

Froehlich, C.G., 1968. On some Brazilian Onychophores. Beitrage zur Neotropischen Fauna 5 (3), 160–171.

Froehlich, C.G., 1972. Land planarians from the Amazonian region. Pap. Avulsos Zoologia 26 (2), 29–45.

Taxonomy and morphology of aquatic insects. In 1960, Prof. Claudio G. Froehlich published his first papers on taxonomy and morphology of aquatic insects. From then on, he worked with insects throughout his life. As a result, he published 49 papers and book chapters, and supervised seven theses and seven dissertations on the topic. Among the insects he studied, his focus was especially on Plecoptera (stoneflies) – a small order of aquatic insects. His contribution to the knowledge of

Neotropical stoneflies was central, so much so that of the 200 Brazilian species of the order, he described more than 80, which corresponds to more than 40% of the species (Mariano et al., 2023). He also published a book on South American Plecoptera in partnership with other researchers (Stark et al., 2009) and a catalog on Neotropical Plecoptera (Froehlich, 2010). At the end of his career, in addition to training directly several researchers on Plecoptera taxonomy, due to his great knowledge and generosity, he helped countless researchers (Figure 3). Besides Plecoptera, he contributed to taxonomic and systematic studies of Ephemeroptera, Diptera (Chironomidae), Coleoptera (Elmidae) and Trichoptera. Regarding morphology, he mainly published papers on mouthparts and reproductive organs of Ephemeroptera and Plecoptera. Below are the journal papers and book chapters resulting from his research on the topic.

Froehlich, C.G., 1960. Some Gripopterygids and Notonemourines (Plecoptera) from South America. Lunds Universitets Arsskrift 56 (13), 0–24.



Figure 3. Committee for the defense of the dissertation on Plecoptera by Marcos Carneiro Novaes that took place in 2014 and was composed exclusively of researchers experts in stoneflies. From left to right, Professors Claudio G. Froehlich, José Moacir Ferreira Ribeiro, Pitágoras C. Bispo, Lucas S. Lecci, and Karina O. Richi-Cavallaro. Photo: José Moacir Ferreira Ribeiro.

Brinck, P., & Froehlich, C.G., 1960. On the stonefly fauna of Western Lule Lappmark, Swedish Lappland. Kungliga Fysiografiska Sällskapets i Lund Förhandlingar 30 (1), 1–19.

Brinck, P., & Froehlich, C.G., 1960. The reproductive organs of the plecopteron "*Isoperla Grammatica*" (Poda, 1767). Entomologisk. Tidsskrift 81 (3–4), 53–62.

Froehlich, C.G., 1963. The feeding apparatus of the nymph of "*Arthroplea congener*" Bengtsson (Ephemeroptera). Opuscula Entomologica 29 (3), 188–208.

Froehlich, C.G., 1969. Studies on Brazilian Plecoptera 1. Some from the biological station at Paranapiacaba, state of São Paulo. Beitrage zur Neotropischen Fauna 6 (1), 17–39.

Froehlich, C.G., 1969. *Caenis cuniana* sp. n., a parthenogenetic mayfly. Beitrage zur Neotropischen Fauna 6 (2), 103–108.

Froehlich, C.G., 1984. Brazilian Plecoptera 2. Species of the *serrana*-group of *Kempnyia* (Plecoptera). Aquatic Insects 6 (3), 137–147.

Froehlich, C.G., 1984. Brazilian Plecoptera 3. *Macrogynoplax veneranda* sp. n. (Perlidae: Acroneuriinae). Annales de Limnologie 20 (1–2), 39–41.

Froehlich, C.G., 1984. Brazilian Plecoptera 4. Nymphs of perlid genera from south-eastern Brazil. Annales de Limnologie 20 (1–2), 43–47.

Froehlich, C.G., 1988. Brazilian Plecoptera 5. Old and new species of (Perlidae). Aquatic Insects 10 (3), 153–170.

Froehlich, C.G., 1990. Brazilian Plecoptera 6. from Campos do Jordão, State of São Paulo (Gripopterygidae). Studies on Neotropical Fauna and Environment 25 (4), 235–247.

Froehlich, C.G., 1990. Size Variation in *Kempnyia* (Plecoptera: Perlidae). Mayflies and Stoneflies: Life Histories and Biology. 1 ed. Dordrecht, Holanda: Kluwer Academic Publishers, pp. 353–357.

Froehlich, C.G., 1991. Flight Periods of *Kempnyia* and *Macrogynoplax* (Plecoptera: Perlidae). In: Southeastern Brazil. Overview and Strategies of Ephemeroptera and Plecoptera. 1 ed. Gainesville, Florida: The Sandhill Crane Press, Inc., pp. 353–357.

Froehlich, C.G., 1993. Brazilian Plecoptera 7. Old and new species of (Gripopterygidae). Aquatic Insects 15 (1), 21–38.

Froehlich, C.G., 1994. Brazilian Plecoptera 8. On *Paragripopteryx* (Gripopterygidae). Aquatic Insects 16 (4), 227–239.

Froehlich, C.G., 1996. Two New Species of *Kempnyia* from Southern Brazil (Plecoptera: Perlidae). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 69, 117–120.

Dorvillé, L.F.M., & Froehlich, C.G., 1997. *Kempnyia tijucana* sp. n. from southeastern Brazil (Plecoptera, Perlidae). Aquatic Insects 19 (3), 177–181.

Froehlich, C.G., 1998. Seven New Species of *Tupiperla* (Plecoptera: Gripopterygidae) from Brazil, with a revision of the genus. Studies on Neotropical Fauna and Environment 33, 19–36.

Froehlich, C.G., 1999. Biometric notes on *Tupiperla* Froehlich (Plecoptera, Gripopterygidae). Revista Brasileira de Zoologia 16 (Supl. 2), 181–183.

Dorvillé, L.F.M., & Froehlich, C.G., 1999. Additional characters to distinguish the nymphs of the perlid genera from southeastern Brazil (Insecta, Plecoptera). Aquatic Insects 21, 281–284.

Ribeiro-Ferreira, A.C., & Froehlich, C.G., 1999. New species of *Macrogynoplax* Enderlein, 1909 from North Brazil (Plecoptera, Perlidae, Acroneuriinae). Aquatic Insects 21, 133–140.

Dorvillé, L.F.M., & Froehlich, C. G. 2001. Description of the nymph of *Kempnya tijucana* Dorvillé and Froehlich (Plecoptera, Perlidae) with notes on its development and biology. In: Domínguez, E. (Org.). Trends in Research in Ephemeroptera and Plecoptera. 1 ed. New York: Kluwer/Plenum, pp. 385–392.

Froehlich, C.G., 2001. *Guaranyperla*, a new genus in the Gripopterygidae (Plecoptera). In: Domínguez, E. (Org.). Trends in Research in Ephemeroptera and Plecoptera. 1 ed. New York: Kluwer/Plenum, pp. 379–383.Polegatto, C.M., & Froehlich, C.G., 2001. Functional morphology of the feeding apparatus of the nymph of *Farrodes* sp. (Ephemeroptera: Leptophlebiidae). Acta Zoologica 82 (2), 165–175.

Ribeiro-Ferreira, A.C., & Froehlich, C.G., 2001. *Anacroneuria* Klapálek, 1909 from Amazonas State, North Brazil (Plecoptera, Perlidae, Acroneuriinae). Aquatic Insects 23 (3), 187–192.

Froehlich, C.G., 2002. *Anacroneuria* mainly from southern Brazil and northeastern Argentina (Plecoptera: Perlidae). Proceedings of the Biological Society of Washington 115 (1), 75–107.

Froehlich, C.G., 2002. Two New Species of *Tupiperla* (Plecoptera: Gripopterygidae) from the Missions Area of Argentina and Paraguay. Aquatic Insects 24 (1), 37–40.

Froehlich, C.G., 2003. Stoneflies (Plecoptera: Perlidae) from the Brazilian Amazonia with the

description of three new species and a key to *Macrogynoplax*. Studies on Neotropical Fauna and Environment 38 (2), 129–134.

Lopes, M.J.N., Froehlich, C.G., & Dominguez, E., 2003. Description of the larva of *Thraulodes schlingeri* (Ephemeroptera, Leptophlebiidae). Iheringia. Série Zoologia 93 (2), 197–200.

Polegatto, C.M., & Froehlich, C.G., 2003. Feeding strategies in Atalophlebiinae (Ephemeroptera: Leptophlebiidae), with considerations on scraping and filtering. In: Gaino, E. (Org.). Research Update on Ephemeroptera and Plecoptera. Perugia: Università di Perugia, pp. 55–61.

Froehlich, C.G., 2004. *Anacroneuria* (Plecoptera: Perlidae) from the Boraceia Biological Station, São Paulo State, Brazil. Aquatic Insects 26 (1), 53–63.

Bispo, P.C., & Froehlich, C.G., 2004. Perlidae (Plecoptera) from Intervales State Park, São Paulo State, Southeastern Brazil, with descriptions of new species. Aquatic Insects 26 (2), 97–113.

Bispo, P.C., & Froehlich, C.G., 2004. The first records of *Kempnyia* (Plecoptera: Perlidae) from Central Brazil, with descriptions of new species. Zootaxa 530, 1–7.

Bispo, P.C., Neves, C.O., & Froehlich, C.G., 2005. Two new species of Perlidae (Plecoptera) from Mato Grosso State, western Brazil. Zootaxa 795, 1–6.

Siegloch, A.E., Polegatto, C.M., & Froehlich, C.G., 2006. *Segesta riograndensis*, a new genus and species of an Atalophlebiinae (Ephemeroptera: Leptophlebiidae) mayfly from southern Brazil. Zootaxa 1299, 35–43.

Bispo, P.C., & Froehlich, C.G., 2007. Stoneflies (Plecoptera) from northern Goiás State, central Brazil: new record of *Kempnyia oliveirai* (Perlidae) and a new species of *Tupiperla* (Gripopterygidae). Aquatic Insects 29 (3/4), 213–217.

Dias, L.G., Salles, F.F., Polegatto, C.M., Silva, R.M.L., & Froehlich, C.G., 2007. Novos registros de Ephemerelloidea (Insecta: Ephemeroptera) para o Estado de São Paulo. Biota Neotropica 7, p. +bn00307032007.

Froehlich, C.G., 2007. Three new species of *Anacroneuria* (Plecoptera: Perlidae) from the State of Mato Grosso do Sul, Brazil. Zootaxa (Online), 1461, p. 15–24, 2007.

Mariano, R., & Froehlich, C.G., 2007. Description of the nymph of *Ulmeritoides uruguayensis* (Traver) (Ephemeroptera: Leptophlebiidae). Zootaxa 1642, 61–64.

Ribeiro, V.R., & Froehlich, C.G., 2007. Two new species of *Anacroneuria* (Plecoptera: Perlidae) from southern Brazil. Zootaxa 1624, 53–57.

Bispo, P.C., & Froehlich, C.G., 2008. Description of the larva and redescription of the adult of *Kempnyia neotropica* Jacobsen and Bianchi (Plecoptera: Perlidae) with biological notes. Aquatic Insects 30, 61–67.

Calor, A.R., & Froehlich, C.G. 2008. Description of the immature stages of *Notalina morsei* Holzenthal, 1986 (Trichoptera: Leptoceridae) and an updated key to larvae of Neotropical Leptoceridae genera. Zootaxa 1779, 45–54.

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Limnology and Ecology. In the late 1960s and 1970s, Prof. Claudio G. Froehlich created a research group on Limnology and began his studies on the biodiversity and ecology of aquatic environments. At the end of the 1970s, he gathered a team to participate in the project "Typology of Dams in the State of São Paulo", which was funded by FAPESP and had Prof. José Galizia Tundisi as its general coordinator. This project included researchers from the Federal University of São Carlos (UFSCar), the University of São Paulo (USP) and the Fisheries Institute of the São Paulo State Department of Agriculture. In this project, Prof. Froehlich coordinated the

team of the Biosciences Institute at USP and was responsible for obtaining data from part of the 52 reservoirs analyzed. As a result of this period, he supervised five master's and five doctoral students, and published five papers, which deepened the understanding of the functioning of these systems in tropical environments. From the 1990s onwards he began to dedicate himself, together with his students, to studies on the biology and ecology of aquatic insects of streams and stream ecology. After this period, several studies on the biology of taxa and the role of environmental and spatial factors in the distribution of the aquatic insect/ macroinvertebrate fauna of streams were carried out. As a result, 31 papers and one book chapter were published and nine master's and six doctoral dissertations were completed. The studies carried out during this period by the team coordinated by Prof. Froehlich helped put together some pieces of the puzzle of Neotropical stream ecology. Below are the journal papers and book chapters resulting from his research on the topic.

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3.1. Book chapters

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3.2. Books

Guimarães, M., Gualda, R., Vasconcelos-Sobrinho, J., Froehlich, C.G., Almeida, J.M., Carvalho, L., Ferri, M.G., Krasilchik, M., & Vieira, R., 1977. Educação Ambiental. Brasília: MINTER-SEMA, 38p.

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Figure 4. Prof. Claudio G. Froehlich receiving the honor for his long-lasting career during the III Neotropical Aquatic Insects Symposium held in Ribeirão Preto, SP in 2014. Photo: FFCLRP-USP.

4. Training of new researchers

Prof. Claudio G. Froehlich invested a great deal of time in the training of new researchers from different generations. He directly mentored more than 40 researchers, including master's and doctoral students and postdoctoral researchers, who in turn have supervised more than 350 graduate students, evidencing the professor's direct and indirect contribution (see Mariano et al., 2023). It is worth mentioning that this does not include the dozens of undergraduate students he mentored and those he helped informally. Therefore, it is evident that Prof. Froehlich's impact on the study of Neotropical biodiversity goes far beyond his research. It is represented in each new research group formed, in each paper published and in each new researcher trained by his direct students and their scientific descendants.

5. Conclusion

In addition to being a great researcher, Prof. Claudio G. Froehlich had a great ability to connect people from different places and different historical periods over his long-lasting scientific career. One of his greatest contributions was the development of Brazilian entomology and

aquatic ecology. Fortunately, Prof. Froehlich received all the recognition for his long and fruitful career in life. Among the honors he received, we highlight the "Lifetime Achievement Award" in 2008 from the International Society of Plecopterologists (see Figure 2A in Mariano et al., 2023), a symposium dedicated to his work (III Symposium of Neotropical Aquatic Insects in 2014, Figures 4 and 5) and a special volume of the Brazilian Journal of Entomology in 2023 organized in his tribute. However, for him, more important than these honors were the many good friends he made (Figures 3, 5 and 6). His love for science and nature was contagious to everyone who knew him. When talking about him to his students, friends and colleagues from different generations, everyone smiles and unanimously highlights his joy, good humor and generosity. Moreover, everyone is grateful for the opportunities and commitment of Prof. Froehlich to training students and creating an environment conducive to scientific development. This text is a small tribute to Prof. Claudio G. Froehlich and an acknowledgement for everything he did for his students, colleagues and Brazilian science. He is certainly a friend who will always be remembered.



Figure 5. Prof. Claudio G. Froehlich during the III Neotropical Aquatic Insects Symposium held in Ribeirão Preto, SP in 2014. From left to right, Professors Adolfo R. Calor; Claudio G. Froehlich; Ralph W. Horzenthal, and Oliver Flint. Photo: FFCLRP-USP.



Figure 6. Prof. Claudio G. Froehlich during the Plecoptera Symposium held in Lausanne, Switzerland in 1995. From left to right, Professors G. Froehlich, Per Brinck and Ian D. McLellan. Photo: Peter Zwick.

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