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Henri Tachet (1937–2025): In recognition of his contribution to freshwater macroinvertebrate taxonomy and ecology

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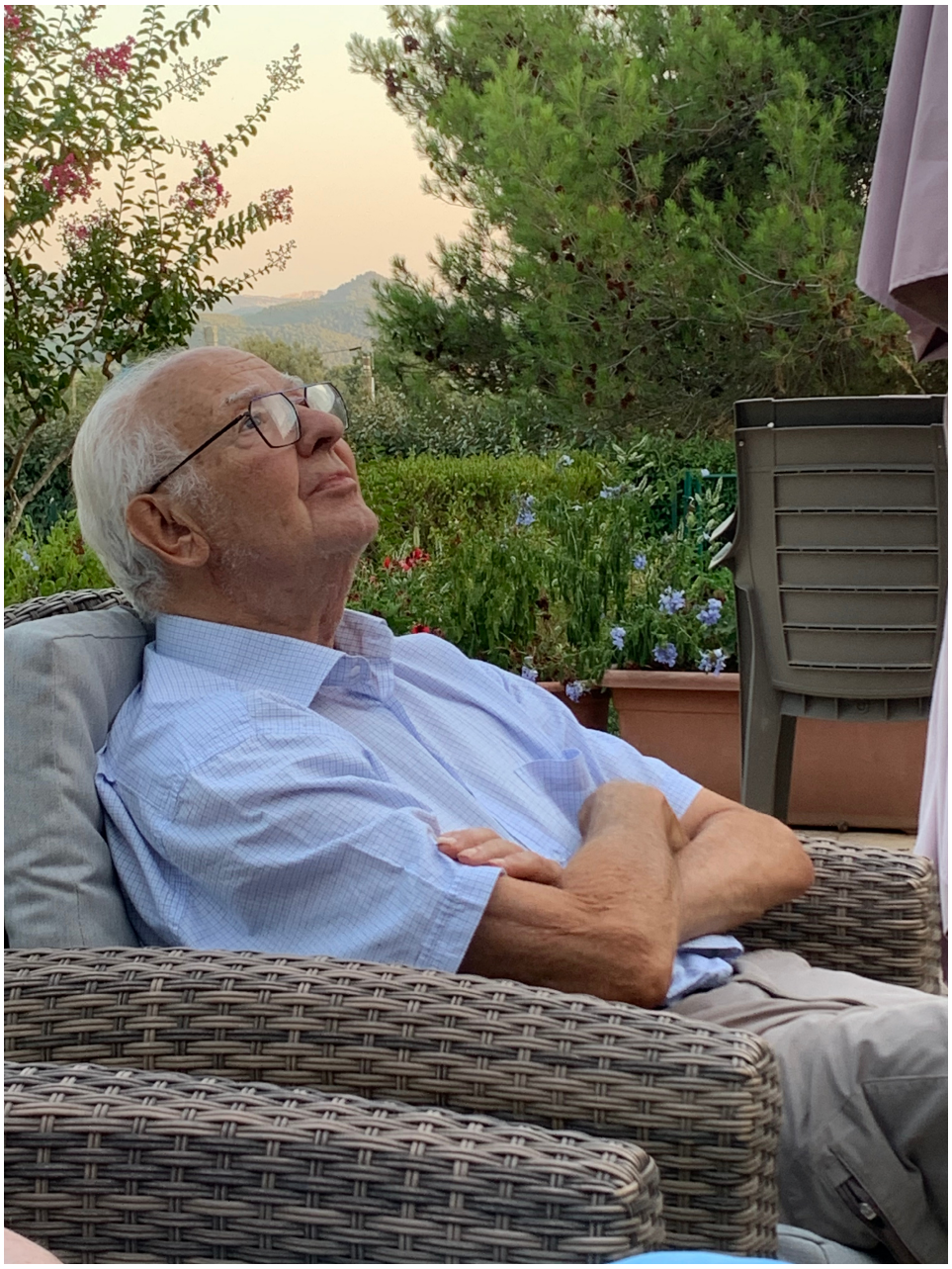

FIGURE 1. Henri Tachet, in quiet contemplation of the birds in his garden. Provence, France, August 1st, 2024.

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Dr Henri Tachet, senior lecturer at the University Claude Bernard, Lyon 1 (UCBL) passed away on August 23, 2025, at the age of 87. The late Henri Tachet was a pioneering researcher in freshwater ecology, whose work has deeply improved our collective knowledge on the taxonomy and functional ecology of benthic invertebrates worldwide.

Henri Tachet was born in Villeneuve-Saint-Georges, near Paris. During his childhood, he followed the successive relocations of his family, as his father worked for the French railway company. Although raised in several cities, his family roots were in Saône-et-Loire, where he spent extended periods during his youth. These stays in the countryside, particularly at his grandmother's farm during the 2nd world war, likely inspired his early interest in nature and wildlife, especially birds. As a result, Henri Tachet's early scientific career was devoted to ornithology. In the 1960s, he actively participated in bird census programs in the Rhône-Alpes region and published several reports on local birdlife. This early period marked the beginning of an approach based on field observations of organisms and their environment, which is at the foundation of his scientific career. He completed his schooling in Lyon where he chose to study experimental sciences for his high school diploma. He then pursued research in biology and zoology at the University of Lyon. Early in his academic career, Professor Jacques Wautier (head of the "Laboratoire de Biologie Animale") offered him a position as assistant and encouraged him to undertake doctoral research. Thus, he switched to research on aquatic biota by completing a doctoral thesis in 1975 entitled "Recherches sur le comportement alimentaire et le comportement constructeur chez la larve de *Plectrocnemia conspersa* (Trichoptera, Polycentropodidae)", which carried out at UCBL (Université Claude Bernard Lyon 1) under the supervision of Professor Wautier. At the end of the 1970s, Professor Albert-Louis Roux initiated a major research program on the Rhône River and its aquatic communities, particularly fish and macroinvertebrates, and Henri Tachet quickly joined this initiative as associate professor, which would shape much of his scientific career and for which he would contribute with few others to building the present LEHNA ("Laboratoire d'Ecologie des Hydrosystèmes Naturels et Anthropisés") of UCBL.

As a result, he switched from the behavioural ecology of macroinvertebrates towards research focused on the taxonomy and ecology of caddisflies, particularly the family Hydropsychidae, which inhabits large rivers such as the Rhône. His research on new macroinvertebrate sampling techniques in large rivers (i.e., artificial substrates, Khalaf & Tachet 1980) and the ecology of macroinvertebrate communities in many streams and rivers such as the Rhône (Bournaud *et al.* 1987; Tachet *et al.* 1992; Guinand *et al.* 1994), the Drôme (Peeters & Tachet 1989), the Ardèche (Dolédec & Tachet 1989) and the Loire (Ivol *et al.* 1997) has provided lasting references for studying and understanding the ecology of large rivers.

Among his most influential contributions are the co-organization, with the late Michel Bournaud, of the 5th International Symposium on Trichoptera in Lyon (France) in 1986 (Bournaud & Tachet 1987) and his pioneering work on the quantification of biological and ecological traits of benthic macroinvertebrates. This latter work started within a freshwater biology special issue in 1994, where he tested the River Habitat Templet Concept using Trichoptera (Tachet *et al.* 1994), Plecoptera and Ephemeroptera (Usseglio-Polatera & Tachet 1994) communities. This set of research was followed by a paper proposing a new functional classification of freshwater invertebrates (Usseglio-Polatera *et al.* 2000), which represents a major milestone in the functional ecology of freshwater communities. This first operational trait database for 472 European taxa (mainly genera), currently accessible at https://www.freshwaterecology.info/ (Schmidt-Kloiber & Hering 2015), was an outmost contribution to the methodological foundations of trait-based bioassessment, now widely used in biomonitoring programs and hydrosystem management.

Henri Tachet was an internationally renowned specialist of the taxonomy of Trichoptera. He devoted numerous publications to the description and redescription of larvae and imagos (e.g., Lecureuil *et al.* 1983; Tachet *et al.* 2001; Coppa & Tachet 2005; 2007; Coppa *et al.* 2012; Tachet *et al.* 2018), thereby contributing to the improvement of knowledge about this major order of aquatic fauna. The remarkable quality of his illustrations, the precision of the details provided for morphological identification criteria, and their articulation with a functional vision of communities are some of the hallmarks of his scientific work. When Henri Tachet started his career in aquatic ecology, there was no synthetic book allowing the identification of all macroinvertebrate groups in the same place, making ecological research even more difficult. He early led a project aiming at grouping the taxonomic and first ecological information in the same book, which covered the identification of macroinvertebrate families in French freshwaters (Tachet *et al.* 2009, last edition) and has inspired the professional careers of many students. His most iconic and testimonial contribution remains the book entitled "Invertébrés d'eau douce. Systématique, biologie, écologie" co-authored with P. Richoux, M. Bournaud, and P. Usseglio-Polatera (Tachet *et al.* 2010, last edition). Used worldwide, this authoritative work cumulating 35 years of field observations and thousands of bibliographical records, is a reference for the taxonomy and ecology of freshwater macroinvertebrates. As a true synthesis combining identification keys, biological and ecological knowledges, towards a functional approach, it has become an indispensable tool for researchers, managers, and students.

Henri Tachet played a key role in the development of hydrobiology as a senior lecturer mentoring several master students at the UCBL. He notably supervised several PhD theses: Jean-Paul Pierrot (1984), about an experimental study of the larval ecological niche of several species of *Hydropsyche* (Trichoptera, Hydropsychidae), Bruno Guinand (1996), on the contribution of multivariate statistical methods to the analysis of population differentiation, Jeanne-Marie Ivol-Rigaut (1998), devoted to hydro-ecoregions and the variability of macrobenthos communities in the Loire basin and Éric Fièvet (1999) on amphidromous shrimp and fish in the developed waterways of Guadeloupe. He also co-supervised Fresia Rojas-Camousseight (1985) on the taxonomy and use of adult caddisflies as ecological indicators, and influenced several other PhD students not directly under his supervision during the 1980s and early 1990s.

Beyond the academic world, Henri Tachet maintained close ties with the naturalist community, particularly through his involvement with OPIE-Benthos (Office for Insects and Their Environment). More than twenty years ago, he initiated an inventory of caddisflies in France, which he followed with consistency and generosity. Even after his academic career, he remained attentive to the progress of this program, responding to taxonomic requests and co-authoring several important publications with members of the network. Through his openness and kindness, he was a true link between academic research and associative naturalist entomology, contributing to the pooling of skills in the service of knowledge about rivers.

All those who knew him emphasize his great culture, his intellectual rigor, his taxonomic precision, and his scientific integrity. They also recall his modesty, his availability, and his constant enthusiasm for observing living things. Henri Tachet's work has deeply shaped contemporary freshwater ecology, from systematics to functional ecology, from fundamental research and its application in bioassessment. His scientific legacy lives on through the methods, publications, and researchers he trained. The international hydrobiological community has lost an exceptional scientist whose influence will continue to inspire future generations.

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