



**TRIBUTE TO THOMAS G. HALLAM'S CONTRIBUTIONS TO
MATHEMATICAL ECOLOGY, ECOTOXICOLOGY, AND THE
ACADEMIC COMMUNITY**

THE GUEST EDITORS

Thomas Guy Hallam began his career as a faculty member in the Department of Mathematics at Florida State University, working in the area of comparison theorems for ordinary differential equations. While at Florida State he organized a mathematical modeling course and thus became interested in mathematical biology. He began to wonder how he, as a mathematician, might address the mounting environmental problems. He took courses in oceanography and ecology and delved deeply into the literature. During the summer of 1974, he gave a full series of lectures on mathematical biology at the University of São Carlos in São Paulo, Brazil. In 1976, he took a year's leave at the University of Georgia, Athens, in the Departments of Mathematics, Zoology, and the Institute of Ecology, where he

met Tom Gard and Ray Lassiter, with whom he has had career-long interactions. In Athens, he became interested in ecotoxicology and partial differential equation models of physiologically structured populations.

Professor Hallam moved to the University of Tennessee, Knoxville, in 1977 with a joint appointment in the Graduate Program in Ecology and the Department of Mathematics. He started an ecotoxicology research group, soon became acquainted with the work of S. A. L. M. (Bas) Kooijman on *Daphnia*, and traveled to Amsterdam to meet Kooijman in 1979, a meeting that led to a great deal of academic collaboration. During the 1980s and 1990s, Tom's research group, which included many graduate students from both mathematics and ecology, worked to integrate ecotoxicology and population dynamics toward a watershed quality assessment tool for the Environmental Protection Agency (EPA). Later, he participated in the SIGMA Project, funded by the Office of Naval Research, which studied particle aggregations in the ocean due to planktonic communities. In 1995, Hallam moved to the newly formed Department of Ecology and Evolutionary Biology at the University of Tennessee. He eventually served as Department Head for four years.

One of Tom Hallam's most important contributions to the field is his twenty-year body of work in ecotoxicology. This research has emphasized the link between mechanisms at the individual level and dynamics at the population, community, ecosystem, and landscape scale. His current research, funded by two grants from the National Science Foundation and one from the EPA, focuses on bats through collaboration with ecologist Gary McCracken of the University of Tennessee and other scientists at Boston University and Texas A&M. Their work addresses the effects of the plant-incorporated protectant *Bacillus thuringiensis* on the insect-bat food chain and the development of advanced imaging and information technology for assessing the ecological and economic impact of Brazilian Free-Tailed Bats on agroecosystems. This work and associated work on the epizootiology of rabies in bats is just now beginning to appear in the literature.

Professor Hallam also has had a tremendous impact on the field through his extensive training of students. As of this writing, he has trained seven postdoctoral students, as well as twenty-one PhD students—two in mathematics, thirteen in mathematical ecology, five in ecology, and one in environmental toxicology. He has mentored thirty-four masters students in Mathematics, Ecology and Evolutionary Biology, and Electrical and Computer Engineering. Many of these students were international students or from underrepresented groups. Tom Hallam's students consider him a friend. He and his wife Rachel have been parent figures for many, especially international students far from home. He has tirelessly promoted their careers and consistently served as a role model as he always treats everyone with the same courteous manner and gentle respect. His kindness, concern, support, and encouragement have had long-lasting positive impacts on the lives and professional careers of his colleagues and students.

Professor Hallam's impact through service is unusually extensive. He has served on the International Scientific Advisory Boards and Editorial Boards as Editor or Associate Editor for several centers, societies, and journals. He also has strong social feelings and is deeply concerned with the problems of developing countries. In 1982, Tom and Simon Levin were invited by Giovanni Vidossich of Italy to organize an International Course on Mathematical Ecology at the International Centre for Theoretical Physics (ICTP) in Trieste, Italy. In 1986, they were joined by Lou Gross to direct the Second International Course on Mathematical Ecology.

The series of courses and workshops that took place in 1986, 1988, 1990, 1992, 1994, 1996, and 2000 had a huge impact on the spread of mathematical ecology in developing countries and the integration of research groups and networks in Latin America, Asia, Eastern Europe, and Africa. Hallam's enthusiasm and expertise were key to the enormous far-reaching success of these state-of-the-art courses and workshops in which participants from all over the world could sit and discuss with prominent scientists pressing ecological and environmental problems and the use of mathematical tools to tackle them. In 2000, Hallam, Gross, and Levin retired from the organization of these international courses, leaving in charge a new international team of directors who were former participants of the activities they had organized at ICTP. Hallam's extensive service abroad is equaled by his service to the local community. For example, he has worked for many years with young people at homes for abused children. He is active in the work of his local church (Second Presbyterian Church of Knoxville) and in service organizations.

It is with the deepest love and respect that we dedicate this special issue to Professor Thomas G. Hallam, our colleague, mentor, and friend.

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