

## In Memoriam: Luc Hoffmann 1923-2016



**Dr. Luc Hoffman at Prespa Lakes National Park, Greece, 2013.**

*Photo courtesy of Jean Jalbert, Station Biologique de la Tour du Valat.*

Luc Hoffmann passed away on July 21, 2016, at the age of 93 at the place he loved, his home deep in the marshes of the Rhone Delta in the south of France, surrounded by flamingos, gulls, terns, and herons. It was here in 1954 that he came to establish his research station, Station Biologique de la Tour du Valat, located in the heart of the Camargue, which he actively managed for 20 years and supported throughout its 70-year history and which in that time span became one of the world's great centers for waterbird and wetland research and conservation.

Dr. Hoffmann's contribution to world health through his influence within his family's biotechnical company Roche, his contributions to institutional ethics, the wide-ranging research and conservation action he empowered, and his seminal and visionary

influence on the course of conservation in the 20th century will be well memorialized elsewhere. Here, we set those accomplishments aside to celebrate his lifelong devotion to waterbirds.

His first ornithology paper at the age of 18 was on the passage of seabirds in the vicinity of Basel; his Ph.D. thesis, on the morphogenesis of natal down in the Common Tern. Despite being credited with authoring 60 publications, Dr. Hoffman's contributions to waterbird biology and conservation consist also in the works, published or not, of individuals he encouraged, supported, nourished, and sheltered. Nearly 1,000 papers and over 70 dissertations from 12 countries have emerged from research conducted at his Station. His fascination with the Camargue's flamingos led to one of the greatest

long-term studies of any waterbird population and to its protection. He nurtured Alan Johnson and Heinz Hafner, both enjoying honored memories within the Waterbird Society. Alan arrived at the Station as a carpenter, obtained his Ph.D., founded the International Union for Conservation of Nature's (IUCN) Flamingo Specialist Group, and became the ultimate authority on the Greater Flamingo. Heinz arrived at the Station as a chef, obtained his Ph.D., co-founded the IUCN Heron Specialist Group, and created for his time the world's most productive and incisive research group on herons. Alain Crivelli arrived at the Station to study fish and moved up the food chain to lead studies and education and management programs that doubled the Dalmatian Pelican population and led to his becoming global coordinator of the IUCN Pelican Specialist Group.

These are but the beginning of a list of the waterbird people he and his Station encouraged. Mike Moser, Pat Dugan, Frank Cezilly, Olivier Pineau, Brigitte Poulin, Yves Kayser, Arnaud Béchet, and Christian Perennou, as well as European colleagues such as Mauro Fasola and Xavier Ruiz, are but a few. In 2015 alone, the Station was responsible for waterbird papers on avian malaria (or lack of it) in herons, reports of amazingly long 50-year studies of Mallard and teal populations, lack of adverse effects of banding and capture on ducks, flamingo disease, competition in drying wetlands, correlations and approaches to rice cultivation and duck conservation, Black Sea pelican populations, and the benefits of non-toxic shot; these in only one of the Station's 72 years of scientific contributions to waterbird biology and conservation. In recognition of his multi-faceted influence on the study of waterbird biology and his advocacy of waterbird conservation, Luc Hoffmann was awarded the Waterbird Society's Kai Curry Lindahl Award for Waterbird Conservation, which he accepted in person at the 1994 annual meeting.

Dr. Hoffmann encouraged participation of the Station's scientists in the Waterbird Society. They came to meetings and assumed leadership roles. I well recall the contingent enjoying the experience of Oxford, Missis-

sippi, in 1992. The Station's own hosting of the Society's annual meeting in Arles, France, in 1993, resounds still in the memory of the participants. One memorable moment was upon arrival when participants encountered banners placed throughout the city welcoming attendees, but realizing on closer inspection that the French had translated our name to "Waterbed." And the banquet, which by local custom went late into the night, presented near midnight its main course, a roasted bull carried into the dining hall on a litter born by candle-holding acolytes and accompanied by a Provençale band. The Station encouraged and supported the Society's meetings in Grado, Italy, in 1999 and in Barcelona, Spain, in 2007.

Luc Hoffmann maintained an appreciation for the value of waterbird species studies—of behavior, migration, population biology, monitoring, and long-term data collection—even as the scientific community moved its approbation decisively from organismal to genetic studies. He by no means discounted the value of genetic science, which fueled the success of Roche on whose board he served in a leadership role for over 40 years. Rather, his actions reveal that he continued to believe that organisms count too. Such appreciation for organismal-level study species led him to bring the International Waterfowl Research Bureau (IWRB) to the Camargue. He was a leader in modernizing the International Council for Bird Preservation (ICBP) (now BirdLife International), the Red List authority for bird species. He served as vice-president of the IUCN through the 1960s. Following the Morges Manifesto, Peter Scott, Max Nicholson, and he moved to institutionalize a way to garner financial support for the kind of programs the IUCN was initiating, thereby creating the World Wildlife Fund (WWF), which in 2016 alone carried out nearly \$260 million of conservation programs worldwide, many of them species and waterbird oriented. WWF's Hoffmann Institute was established to address scientific solutions to sustainability. The IUCN retains a focus on species conservation through its Species Survival Commission, which Dr. Hoffman sup-

ported through the years. During his IUCN leadership period, he also directed Project MAR, a joint IUCN/IWRB/ICBP program on Mediterranean wetlands, from which emerged not only a regional appreciation for wetlands but wintering waterfowl counts that by 1967 evolved into what became the International Waterbird Census, now just past its 50th year of operation. In his honor, the University of Oxford established the Luc Hoffmann Chair of Field Biology.

Despite retaining this enduring appreciation for species studies and species conservation, and in fact because of it, he was among the first international opinion leaders to advocate that species conservation could be successful only in the context of conservation and management of the ecosystems on which they depend. As a waterbird biologist, his ecosystem of concern was wetlands, especially coastal wetlands, starting at a moment in history when wetlands still were regarded as something to be reclaimed, rid of pestilent mosquitos, sprayed with DDT, and turned into farms and pasturage, without questioning, for the good of mankind and the economy. Seventy years later, the values of waterbird and wetland protection have been proven and can be elucidated clearly to decision makers and local stakeholders worldwide. Management methods have been devised and promulgated; the sustainable use of wetlands is better understood; and wetland and waterbird protection and management have been included into regional, national, and international programs. These are all part of Dr. Hoffmann's legacy benefiting waterbirds.

His unwavering, incessant, and clearly irresistible advocacy for wetland conservation, and therefore waterbird habitat, became a guiding theme expressed through the organizations he influenced. Today, the IUCN supports ecosystem conservation through its Commission on Ecosystem Management (CEM) and on Protected Areas. In recognition of his leadership, CEM sponsors the Luc Hoffmann Award for Ecosystem Management to highlight the work, not of organizations or of professionals, but of local, volunteer environmental leaders. His work

with Project MAR led to the idea of an international agreement on identifying and protecting important wetlands, which was negotiated through the 1960s under his watch and effectuated in 1971 as the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, now better known as the Ramsar Convention. The Convention has named 2,200 wetlands of international importance covering 2.1 million km<sup>2</sup>, all of which provide crucial habitat for waterbirds. In fact, waterbird populations are the focus of two criteria by which such wetlands can qualify to be recognized. And BirdLife International has identified over 12,000 sites as Important Bird Areas, a great proportion of which support waterbirds.

Hoffmann took into his own hands on-the-ground conservation of waterbird habitat, melding partnerships of private property owners and government and non-governmental organizations. Principal among these was Tour du Valat itself, which now protects 2,700 ha of Camargue landscape, including 1,845 ha placed within a Regional Natural Reserve. His leadership led to the Camargue being declared a Biosphere Reserve and the protection of 1,000 km<sup>2</sup> within the Parc Naturel Régional de Camargue. In similar ways, he participated in the creation of Prespa National Park in Greece, Banc d'Arguin National Park in Mauritania, and Doñana National Park in Spain. He created the Mediterranean Wetlands Initiative (MedWet) and Mediterranean Wetland Observatory to monitor and assess status of Mediterranean Wetlands.

An additional aspect of Dr. Hoffmann's vision was that conservation of wetlands was not only about the birds that brought him there, but about protecting the natural support systems necessary for humans. He was among the earliest to advocate that habitat conservation would be sustainable only if such conservation involved local people, benefitted local communities, and was carried out through persistent partnerships among the people and institutions. Thus, wetlands were for both waterbirds and people. Many wetlands across the world do now provide the dual benefits of sustainable human use and habitat for waterbirds.

These emphases on sustainability, science, and community involvement are well illustrated by the institutions, noted above, that bear his name. Fortunately, his initiatives in the coming years will continue to be encouraged by foundations he left behind, especially Fondation Tour du Valat, Fondation Hoffmann, and Fondation MAVA – all now ably led by André Hoffmann.

Luc Hoffmann's enormous body of work has been recognized by numerous organizations and countries including the American Ornithologists' Union, AAAS, Intecol, WWF, IUCN, Ramsar, BirdLife International, France, The Netherlands, Greece, U.K, Mauritania, Romania, Switzerland, and most recently the Zayed International Prize for the Environment. His Waterbird Society recognition surely was among his most minor.

There can be little doubt that the most significant awards of Dr. Luc Hoffmann's long life were not medals and titles, but are to be found in his appreciation of the successes of his conservation engagements on behalf of waterbirds, wetlands, and coastal environments, his support of individual accomplishment, his promulgation of wise use to provide a sustainable future for both man and nature, his creating durable conservation structures, and, especially, his family, who will carry on his work in conservation, business, arts, and culture. And among the many beneficiaries of Luc Hoffmann's legacy are the world's waterbirds.

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