

Tom Lovejoy 1941-2021: Advocate for Tropical Nature

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We lost a colossal advocate for the Earth with Tom Lovejoy's passing on December 25th, 2021, aged 80, but his legacy lives on. Tom pioneered knowledge and solutions at the nexus of the two most consequential crises confronting humankind: loss of biological diversity and climate change. He also understood that tropical forests promise hope for both crises, and his successes in implementing realistic solutions inspires us to carry on ever more assertively.

Thomas Eugene Lovejoy III was born in Manhattan on August 22nd, 1941, and attended the Millbrook School north of the city in rural Dutchess County. While there he worked at the Trevor Zoo, founded by Frank and Janet Trevor, which kindled his lifelong commitment to Biology. He leaves behind three children and six grandchildren besides his other distinguished accomplishments.

Tom began a life-long affiliation with Yale University, where he was graduated in 1964, notably serving as a zoological assistant in the Peabody Museum of Natural History. He progressed to the Ph.D. at Yale in 1971 as one of G. Evelyn Hutchinson's last graduates, initially studying migratory birds in the Amazon, and then switching to resident birds, near Belém, Brazil. His earliest publications included a method to net birds in tropical rainforest canopy, reducing the bias inherent in mist net studies. He extracted from these data pioneering insights into the astounding diversity of rainforest birds—including their rarity, vertical stratification, and ecological precariousness. His paper in the Cornell Laboratory of Ornithology's publication *Living Bird* (1975) was just one early revelation of the uniqueness of tropical rainforest faunas. Russell Mittermeier noted (per *NY Times* obituary) that "He really put the Amazon, and in particular Amazonia, on the international conservation map... When the whole conservation business started in the '60s and '70s, there was little focus on South America." Tom went on to chair the Yale Institute for Biospheric Studies. He also published multiple books with Yale University Press: *Global Warming and Biological Diversity* (with R. L. Peters, 1992), *Lessons from Amazonia* (as co-editor with R. O. Bierregaard, Jr., C. Gascon, and R. Mesquita, 2001); and as an editor with L. Hannah both *Climate Change and Biodiversity* (2005), and *Biodiversity and Climate Change: Transforming the Biosphere* (2019). He authored or edited five other books, and over 320 journal articles.

Besides Tom Lovejoy, conservationists mourn the passing in December of Edward O. Wilson and Richard Leakey. All three compelled us to see deeply, as they did, our immeasurably valuable biological inheritance. Tom's distinctive contributions included popularizing the term "biodiversity", putting Neotropical rainforests on the conservation map, and—above all—making a difference for humanity with concrete actions on-the-ground. One of his most recognized actions was developing "debt-for-nature-swaps" (https://en.wikipedia.org/wiki/Debt-for-nature_swap), which have incentivized many countries in Latin America and the Caribbean to relieve national debt by investing in local environmental conservation. Another milestone: Tom planned with B. A. Wilcox for the 1978 *First International*

Conference on Research in Conservation Biology, which launched the field of Conservation Biology.

Another profound contribution that keeps on giving began soon after Tom completed his Ph.D. dissertation. Brazilian farmers were legally bound at the time to protect a proportion of their land in forest. Tom recognized the opportunity to test conservation applications of the Theory of Island Biogeography using rainforest fragments—forest islands in a sea of pasture or second growth—and persuade the farmers to set aside rainforest in a prescribed range of patches of 1, 10, and 100 ha, for comparison with nearby control areas. Tom established this experimental test of the effects of tropical forest fragmentation, now known as the Biological Dynamics of Forest Fragments Project (BDFFP), in 1979 near Manaus. The BDFFP has grown into one of the most influential tropical research projects globally, providing hundreds of influential publications on both the nature and threats to tropical biological diversity.

I was lucky to visit the BDFFP in 2010, led by Mario Cohn-Haft's ear for birds and his knowledge of Amazonian natural history. Mario absorbed much of Tom Lovejoy's passion for Amazonia, in part from Tom's annual New Year's visits to BDFFP, and passed it on during one of my most memorable weeks ever there, reinforcing for me why Tom Lovejoy dedicated so much of his career to tropical forest conservation. The diversity of wildlife and habitats was astounding, including a Rio Negro flooded forest, the Solimões river plus tributaries and newly forming islands, the perspective of a canopy tower, and white sand forest. Tom recognized that tropical rainforests are "the greatest expression of life on earth" (Mark Plotkin, *The Amazon: What Everyone Needs to Know*, 2020, p. 3).

One of the most impressive aspects of Tom Lovejoy's life and career was his humility, and sheer energy and generosity towards so many people, societies, and organizations on behalf of birds, conservation, and the tropics. He accepted an invitation to dinner (along with Dr. Arturo Gomez-Pompa) from Beth Braker (now OTS's CEO) while she was a post-doc at University of California, Riverside. He served on the Organization for Tropical Studies Board of Supervisors from 1992-2006. During this period Costa Rica's INBio honored Tom by naming a wasp that parasitizes butterflies after him: *Polycyrtus lovejoyi*. He accepted innumerable invitations to speak at universities, including my invitation from Tulane, in which he impressed on all of us the importance of protecting tropical forests to address both climate change and biological diversity loss simultaneously—a theme he pursued increasingly up to his last months. Tom quickly and graciously accepted our (American Ornithological Society's) invitation to serve as honorary chair and keynote speaker at the 7th North American Ornithological Conference (originally scheduled for Puerto Rico, and moved on-line in August 2020). He was a friend and advisor to the U.S. National Geographic Society, receiving his first grant in 1971, and becoming an Explorer at Large in 2019. Jill Tiefertaler, NGS's CEO, noted that "he was also a consummate connector, helping bring people and organizations together to preserve and protect some of our most fragile ecosystems and cornerstone species."

Tom's activism, to quote Wikipedia, included "President of the Amazon Biodiversity Center, a Senior Fellow at the United Nations Foundation and a university professor in the Environmental

Science and Policy department at George Mason University... the World Bank's chief biodiversity advisor and the lead specialist for environment for Latin America and the Caribbean as well as senior advisor to the president of the United Nations Foundation. In 2008, he also was the first Biodiversity Chair of the H. John Heinz III Center for Science, Economics and the Environment... he served as president of the Heinz Center since May 2002... He was a past chair of the Scientific Technical Advisory Panel (STAP) for the Global Environment Facility (GEF), the multibillion-dollar funding mechanism for developing countries in support of their obligations under international environmental conventions." Other activities, to name too few (see <https://science.gmu.edu/media/telcvedited0pdf> for many others), included director of the conservation program at The World Wildlife Fund-U.S., assistant secretary for environmental and external affairs for the Smithsonian Institution, chief biodiversity adviser to the president of the World Bank, senior adviser to the president of the United Nations Foundation, and past president of both the American Institute of Biological Sciences and the Society for Conservation Biology. He served as an early advisor for the public television series NATURE, and was an official advisor to multiple U.S. presidents. He served as University Professor, George Mason University, starting in 2010.

Tom Lovejoy's expertise on Amazon rainforests, and lifelong defender of the environment, earned him the title "Godfather of biological diversity." His many professional recognitions attest to his successes and impact. For his many conservation initiatives in Brazil, he was the first environmentalist to be decorated by the Brazilian government with the Order of Rio Branco, and in 1998 Brazil awarded him the Grand Cross of the Order of Scientific Merit. He won the Tyler Prize for Environmental Achievement (University of Southern California) along with Jared Diamond in 1981, and in good company with others so recognized, including his Ph.D. advisor Hutchinson, Roger Revelle, E. O. Wilson, Jane Goodall, and Anne and Paul Ehrlich. He was elected to the American Academy of Arts and Sciences in 1996, the American Philosophical Society in 1999, and the US National Academy of Sciences in April, 2021. One of his most recent accomplishments points humanity's way forward, as a member of the Scientific Advisory Group crafting the U.N.'s *Making Peace with Nature: a Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies* (Feb. 2021).

It is easy to become depressed about the state of the global environment, and the abject failure of most governments to recognize the challenges, let alone enact even remotely adequate solutions. Tom Lovejoy's irrepressible optimism and activism, throughout his career, provide a beacon of hope and inspiration. I believe I speak for many to say I've lost a dear friend, however much I knew him personally, because of his extraordinary generosity towards people and Nature.



Photo by Slodoban Randjelovic, World Wildlife Fund, provided to Sherry by Tom Lovejoy.