

The Ornaments of Life

The average kilometer of tropical rainforest is teeming with life; it contains thousands of species of plants and animals. As 'The Ornaments of Life: Coevolution and Conservation in the Tropics' (Fleming and Kress 2013) reveals, many of the most colorful and eye-catching rainforest inhabitants—toucans, monkeys, leaf-nosed bats, and hummingbirds to name a few—are an important component of the infrastructure that supports life in the forest. These fruit-and-nectar eating birds and mammals pollinate the flowers and disperse the seeds of hundreds of tropical plants, and unlike temperate communities, much of this greenery relies exclusively on animals for reproduction.

Synthesizing recent research by ecologists and evolutionary biologists, Theodore H. Fleming and **W. John Kress** demonstrate the tremendous functional and evolutionary importance of these tropical pollinators and frugivores. They shed light on how these mutually symbiotic relationships evolved and lay out the current conservation status of these



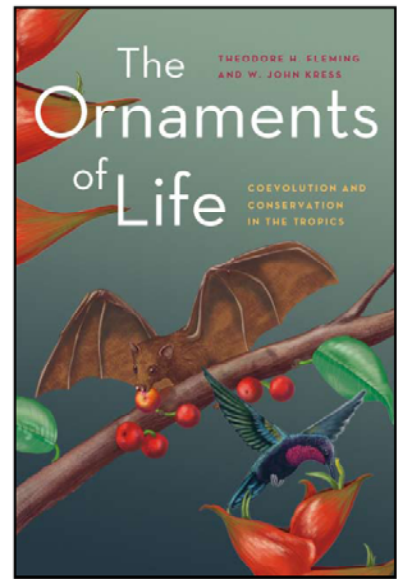
New World or Madagascan nectarivores are featured in 'The Ornaments of Life', including a hummingbird (*Eulampis jugularis* with *Heliconia caribaea*), phyllostomid bat (*Choeronycteris mexicana* with *Chelonanthus alatus*), and a Madagascan lemur (*Varecia variegata* with *Ravenala madagascariensis*).

essential species. In order to illustrate the striking beauty of these "ornaments" of the rainforest, the authors have included a series of breathtaking color plates and full-color graphs and diagrams.

'The Ornaments of Life' represents a collaboration between Fleming, now an emeritus professor of biology at the University of Miami, and three members of the Department of Botany, National Museum of Natural History – Kress, **Ida Lopez**, and **Alice Tangerini**. Fleming's research on the importance of fruit-eating bats as dispersers of tropical seeds began in Costa Rica in 1970. By 1977 he was thinking about writing a book dealing with the ecology and evolution of fruits and frugivores. It wasn't until 2000, however, after he had studied bats as pollinators of giant columnar cacti in Mexico for a decade, that he began to seriously pursue this idea, this time including vertebrate pollinators and as well as frugivores in the synthesis.

At the Association for Tropical Biology and Conservation's (ATBC) annual meeting in Bangalore, India, in 2001, Fleming asked his long-time friend Kress to be a co-author. He reasoned that this duo would be an excellent team in which he would cover ecological topics and Kress would cover evolutionary and phylogenetic topics. In 2002, they sent a detailed book prospectus to the University of Chicago Press and received a contract from them in early 2003. Fleming began to write ecological sections of the book in the summer of 2003, asking Kress to contribute specific sections along the way. By 2007, they were ready to tackle two chapters dealing with the evolutionary consequences and phylogenetic history of these mutualisms from both the animal and plant sides. In fall 2007, Fleming spent 10 weeks in the Department of Botany working with Kress on these chapters. Four more chapters, including one dealing with conservation issues with Kress as the lead author, followed, and a clean first draft was sent to the Press for outside review in August 2011. The final revised draft was returned to the Press in April 2012.

A critical aspect of this book, which is the most extensive synthesis of tropical plant-animal interactions ever published, was the artwork. Because the book contains many phylogenetic trees, Fleming and Kress convinced the Press that all of the artwork, including a series of plates



illustrating these plant and animal 'ornaments,' needed to be published in color. Lopez, Kress' research assistant, helped produce many of these trees, plates, and other figures. Tangerini, the Department's botanical illustrator, contributed the beautiful cover art as well as a classic figure evolution in New and Old World vertebrate pollinators and seed dispersers. Funding for all of the color work was generously provided by the Department of Botany, NMNH; the College of Arts and Sciences, University of Miami; and Bat Conservation International.

The book is scheduled to be released in hardback and paper editions on October 9, 2013.

Tangerini Artwork on Display at "Smithsonian Week in Riverside"

The Riverside Metropolitan Museum (RMM) in Riverside, California, hosted a week-long series of programs featuring the work of Smithsonian staff as it relates to current exhibits on plant biodiversity and conservation. "Smithsonian Week in Riverside," co-sponsored by the Smithsonian Associates took place April 23 -25, 2013. Botanical illustrator **Alice Tangerini** traveled to Riverside to participate in the program with a series of lectures and