

# iFAST: The International Forum on Advanced Environmental Sciences and Technology

*A series of distinguished seminars by eminent scientists*

**8 a.m. CDT, 9 a.m. EDT, 1 p.m. GMT, 9 p.m. China**  
**Wednesday, Sept. 27, 2023**



**JONATHAN B. LOSOS**  
WASHINGTON UNIVERSITY  
IN SAINT LOUIS

<https://biology.wustl.edu/people/jonathan-losos>

Jonathan B. Losos is an evolutionary biologist known for his research on how lizards rapidly evolve to adapt to changing environments. Losos graduated from Harvard University and received his doctorate from the University of California. After a postdoctoral stint at the University of California Davis, he moved to Washington University for his first faculty position, before leaving to become a professor of biology at Harvard and curator of herpetology at the university's Museum of Comparative Zoology. He then returned to Washington University in 2018 to become the founding director of the Living Earth Collaborative, a partnership between Washington University, the Saint Louis Zoo and the Missouri Botanical Garden. This new biodiversity center, nearly unique in partnering a leading university, zoo and garden, has as its mission to the advancement of knowledge and conservation of biodiversity. Losos has written more than 250 scientific papers and three books, most recently *The Cat's Meow: How Cats Evolved from the Savanna to Your Sofa* (Penguin Random House, 2017), and is an author of a leading college biology textbook (Raven et al., *Biology*). Losos has been elected a member of the National Academy of Sciences, a fellow of the American Academy of Arts and Sciences and is the recipient of the Daniel Giraud Elliot Medal from the National Academy of Sciences, the Theodosius Dobzhansky Prize from the Society for the Study of Evolution, the Edward O. Wilson Naturalist Award from the American Society of Naturalists and the David Starr Jordan Prize.

## **Using Experiments in Nature to Study Evolution in Real Time: Research on Lizard Adaptation in the Bahamas**

Researcher Statement: Biologists used to think that evolution proceeded at a glacial pace, so slow that change could only be detected over the span of eons. We now know that this view is wrong. Quite the contrary, when environments change and natural selection pressures are strong, evolution can occur very quickly, rapidly enough to be detected over short periods. A corollary of this finding is that the experimental method, the gold standard of scientific research, can now be applied to test evolutionary hypotheses. In this talk, Jonathan Losos describes a 30-year experimental evolution research program studying lizard adaptation to changing conditions in the Bahamas. The work is based on detailed studies of the evolution of the 400-species-rich lizard genus *Anolis*, which has diversified throughout the Caribbean and Central and South America. Based on understanding of how species have adapted over thousands and millions of years, Losos and colleagues designed experiments to test the hypothesized drivers of evolutionary change. To do so, the researchers introduced lizards to small islands in the Bahamas (the species are native to the area and regularly colonize and become extinct on small islands, so the research was emulating a natural, ongoing process). The researchers then monitored evolutionary change of the populations through times. Despite the intervention of too many hurricanes, the researchers documented that natural selection pressures can be intense and that, correspondingly, lizard populations evolve rapidly and in the predicted direction.



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