

DATA SCIENCE SYMPOSIUM

September 5th
6:00-7:00 pm PST

JOIN ZOOM MEETING

JOIN ONLINE: <https://us02web.zoom.us/j/89875507863?pwd=RG1VR01HM3hIN1hEQWJiVEpzNkxnQT09>
DIAL-IN: 1(669) 900-6833 Meeting ID: 898 7550 7863 Password: 20200426

FEATURED SPEAKER



ASHWIN SIVAKUMAR is a junior at Flintridge Preparatory School (La Cañada Flintridge, California). He conducts research on climate change and avian conservation. He has presented his research at multiple science fairs and ecology conferences, including the International Science and Engineering Fair (2019, 2020) and the Google Science Fair (2020).

Abstract

Climate change threatens to significantly alter the distribution of a large number of North American bird species. Predicting future distributional changes is thus critical for prioritizing habitat conservation efforts. However, since the present-day relationship between avian distributions and climatic variables has been skewed by prehistoric and historic anthropogenic influences, using solely present-day data will result in incorrect assessments of the species' climatic envelopes. In order to assess the effect of anthropogenic factors, we used fossil records in species distribution modeling to make predictions for present-day climatic scenarios for a conservation counterfactual and compare this counterfactual with the actual present-day distribution. In this way, we could quantify the shifted baseline and see how anthropogenic impacts affected birds prior to the present. This model could then be used to predict how species' ranges are likely to shift in future. Fossil records for the California condor (*Gymnogyps californianus*) were used as an example to demonstrate this technique. The newly developed Pleistocene model was verified to predict current condor presence in Big Sur and Southern California to a high degree of accuracy. The model was then used to identify and map potential future areas of colonization and extinction and detect areas of habitat fragmentation. The results will be of great interest to ecologists and conservation biologists working on endangered species restoration. High school students may find interesting the way fossils can be used creatively to help more effectively conserve an endangered species in the future.

DISTINGUISHED COMMENTATORS



DR. MICHAEL EICHHOLZ is director of the Avian Ecology Lab and Associate Professor of Zoology at the Southern Illinois University-Carbondale. His research on the influence of biotic and abiotic factors on multi-scale avian community structure is dedicated to improving both ecological theory and environmental practices. Dr. Eichholz is the recipient of more than 30 research grants, author of more than 25 peer-reviewed research articles and mentor of more than 75 undergraduate, master's and doctoral students on their environmental research.



DANIEL S. COOPER, PhDc, (UCLA, Ecology and Evolutionary Biology) studies the impacts of urbanization on bird distribution. He has run an ecological consulting business for the past 15 years, specializing in plant and wildlife surveys in the Los Angeles area. Dan formerly worked as the Bird Conservation Director for Audubon California. A link to his work is here: https://www.researchgate.net/profile/Daniel_Cooper16.