ID: 248

Primary Contact:
Kassandra Lee Ford, George Washington University
Washington, United States

All Authors:
Kassandra Lee Ford, George Washington University **(Primary Presenter)**
L Patricia Hernandez, George Washington University
Pooja Singh, University of Bern
Mikki Law
David Haberthur, Institute of Anatomy, Unversity of Bern, Switzerland
Ruslan Hlushchuk
Kory Evans, Rice University
Ole Seehausen

Session Type:
Contributed Poster Presentations

Select the best topics for this abstract (select up to 3 topics):
General Functional Morphology/Biomechanics, Evolutionary/Comparative Morphology

Title:
What's diet got to do with it? Analysis ofcraniofacial evolution in Lake Victoria cichlids

Abstract:

African cichlids have many examples of repeated evolution of trophic adaptations. However, most of the better-documented cases illustrate these instances between lakes and radiations. Here we study trophic adaptations within the Lake Victoria radiation that emerged over the last 15,000 years. Previous work primarily focused on oral and pharyngeal jaw morphology, but there has yet to be a comprehensive study on Lake Victoria species using the whole skull. This study examined 131 species (n=301) using CT-scanning and geometric morphometrics. We estimated a phylogenetic tree using whole-genome sequencing, assessed levels of convergence with R to assess repeated evolution, and compared these data to dietary guilds. Our results show certain specialized phenotypes evolved multiple times within this clade, with significant levels of similarity. We also found that craniofacial morphology is most closely tied to diet, particularly in species with specialized diets (i.e., algae scraping, mollusk crushing, and piscivory). Shape changes across this lineage fall into two major patterns: heterocephaly (relative braincase and snout size) and the proportion of head depth and head width. Both trends appear closely linked with diet, with discernable patterns correlating diet to head shape. Additional examination is imperative to understanding how such a large diversity of craniofacial morphologies evolved in such a short period of time.

Are you a student?:
No

Sign up to be a session chair:

Yes

Visa Letter Request (Presenter):
No

Visa Letter Request (Submitter):
No