WELCOME TO ZOONOMICS NEWS!

This newsletter, compiled by the Center for Zoonomics based at Zoo New England, is your place to share and learn about the exciting work accredited zoos and aquariums are doing in genetics.

To keep this newsletter as dynamic and relevant as possible, **we'd love to hear from you!** Whether you're working on a new project, have a recent publication to share, or want to highlight upcoming events or activities, let us know. We're here to celebrate and share your contributions with the community.

Send your updates and questions to us at zoonomics@zoonewengland.org. We can't wait to hear from you!

NEWS AND UPDATES

Successful Molecular SAG Workshop at SPMAG Meeting

Members of the AZA's Molecular Data for Population Management Scientific Advisory Group (MSAG) conducted a training workshop on June 3, 2025 during the Small Population Management Scientific Advisory Group (SPMAG) meeting, hosted by Lincoln Park Zoo. The workshop brought together a diverse group of participants, including population biologists, experts in reproductive management and wildlife genomics, and representatives from the Association of Zoos and Aquariums (AZA) and the Population Management Center (PMC). Attendees explored their important role in bridging the gap between academic researchers and cooperative breeding program leaders. The focus was on applying molecular data to improve kinship estimates in breeding programs (like SSPs) that have incomplete pedigree records. The training also covered the integration of molecularly-derived kinship data into PMx—the primary software used for pedigree-based management in zoos and aquariums. As interest grows in leveraging molecular data to improve

management strategies, this workshop aimed to equip Population Biologists to serve as effective facilitators in integrating the genetic data into better breeding and transfer decisions.

Zoonomics Working Group

We are excited to share that the Zoonomics Working Group was launched and has been meeting monthly since April. This group brings together more than 30 people affiliated with over 20 organizations, including 10 AZA-accredited institutions, the AZA Biobanking SAG, Molecular SAG, Institutional Data Management SAG, Zoological Registrars Association Standards Committee, EAZA Biobank, SANBI, Species360, Great Ape Heart Project, ZooMu, IUCN Center for Species Survival Biodiversity Banking, the ABC Specialist Group of the SSC-IUCN, the AZA Population Management Center, and more. The group aims to collaboratively develop a coordinated, multi-institutional AZA biobank network.

Meet our New Conservation Genomics Intern

The Center for Zoonomics is excited to expand our team with the addition of Jimmy Erkens, our new Conservation Genomics Intern. Jimmy is assisting in genomics research to better understand the health of gorillas maintained in human care. Outside the internship, Jimmy is a Ph.D. Student in Biological Anthropology at Boston University and is using phylogenetic methods to elucidate savanna monkey evolution.

UPCOMING EVENTS AND WEBINARS

Species360 Conservation Science Alliance Research Symposium: July 16th, 2025

This free, online event will showcase the latest research using data from the Species360 Zoological Information Management System (ZIMS). Learn more about some of the many wonderful ways researchers are leveraging aggregated and anonymized ZIMS data to unlock new insights about the animal kingdom. Website for more information: https://conservation.species360.org/species360-conservation-science-alliance-research-symposium/

PUBLICATIONS

Accredited zoos and aquariums are making great contributions to genetics research, and we're eager to keep you informed about this progress. If you have a recent publication, please e-mail us at zoonomics@zoonewengland.org so we can include it in our next newsletter.

Genomic insights into honeycreeper decline

Christopher Kyriazis, Aryn Wilder, Michael G. Campana, and others analyzed the genomes of three Hawaiian honeycreeper species to understand the impacts of recent population collapses. They found surprisingly high genetic diversity—even in the extinct poʻouli—but also evidence that this may worsen inbreeding depression, especially in the critically endangered ʻakikiki. Their population models predict imminent extinction for the ʻakekeʻe unless mosquito control efforts succeed, highlighting both the severity of the crisis and the potential for recovery through targeted conservation. Read the full story in Current Biology.

Morphological change in a conservation breeding program

In a study by Drew Sauve, Hana Thompson, Amy Chabot, and others, researchers examined morphological changes in Eastern loggerhead shrikes within a long-running conservation breeding program across Canada and the U.S. They found dynamic shifts in body mass and other traits over generations, with some evidence of evolutionary change, though not clearly driven by selection in captivity. Their analysis suggests that gene flow from wild populations and phenotypic plasticity both play important roles in shaping trait variation, offering key insights for improving breeding practices and reintroduction success of managed populations. Read more in Animal Conservation.

Fitness surfaces in conservation planning

Fitness surfaces, as explored by Drew Sauve, Hana Thompson, Amy A. Chabot, and Denis Réale, are valuable for linking captive breeding programs to wild population dynamics. By quantifying how phenotypic traits relate to reproductive success in both environments, fitness surfaces can guide the selection of individuals most likely to thrive after reintroduction. In this review, the authors argue that incorporating these estimates into conservation planning can improve reintroduction outcomes and deepen our understanding of evolutionary processes in human-managed and wild contexts. Read more in Molecular Ecology.

Note: Hana Thompson, MsC, will be giving a presentation on work related to this paper at the Species360 Conservation Science Alliance Research Symposium (see Events section)

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