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 zoos and aquariums are doing in the fields of genetics and biobanking.

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 zoonomics@zoonewengland.org.

Please feel free to share this newsletter with colleagues and friends who may be interested. They can join the listserv here.

UPCOMING EVENTS

3rd Annual Species360 Conservation Science Alliance Research Symposium

This free, online event on July 29, 2026, from 10-12 pm ET will showcase the latest research using data from the Species360 Zoological Information Management System (ZIMS). Learn how researchers are leveraging ZIMS data to unlock new insights about the animal kingdom. Visit the Species360 website for additional information and to register.

3rd International Symposium on Reproductive Biotechnologies for Wildlife Conservation

The 3rd International Symposium on Reproductive Biotechnologies Applied to Wildlife Conservation will be held in Brazil on August 20–21, 2026, bringing together experts from across the globe to strengthen conservation genetics networks and scientific collaboration in Latin America. The symposium will feature presentations from several Animal Biobanking for Conservation Specialist Group (ABCSG) leaders and members, including Co-Chairs Dr. Boripat Siriaroonrat and Dr. Oliver Ryder, as well as Task Force Leads Dr. Gabriela Mastromonaco and Dr. Pierre Comizzoli. Registration and the agenda can be found here.

41st SPNHC Annual Meeting

The Society for the Preservation of Natural History Collections (SPNHC) will host its 41st Annual Meeting, titled “Bridging Hemispheres: Collaborating for a Unified Natural Heritage” September 7–11, 2026, in Cape Town, South Africa. The meeting has virtual attendance options and will bring together collections and biobanking professionals from around the world for plenary sessions, workshops, field trips, and networking. Visit the SPNHC website for more information.

ABCSG at the 2026 Conservation Planning Specialist Group (CPSG) Annual Conference

The IUCN ABCSG will convene a workshop at the Conservation Planning Specialist Group (CPSG) Annual Conference, hosted by Cologne Zoo, from October 22–25, 2026. The session will explore opportunities and challenges for expanding regional biobanking capacity, building on recent workshops in Vietnam and Kenya and emerging initiatives in Latin America. Discussions will focus on how biobanking can support global genomics efforts and biodiversity conservation goals, while highlighting the unique role of zoos and aquariums in advancing this work. More information can be found on the CPSG conference website here.

ISBER 2026 International Biospecimen Leadership Summit

The International Society for Biological and Environmental Repositories (ISBER) will host the 2026 International Biospecimen Leadership Summit October 28–30, 2026, in Toronto, Canada. This new Biospecimen leadership-focused meeting will bring together professionals from across North America and beyond to explore the future of biobanking, biospecimen science, and translational research. More info can be found on the ISBER website.

UPDATES

San Diego Zoo Wildlife Alliance and Scripps Institution of Oceanography Partner for Innovative Conservation Efforts

In April 2026, the San Diego Zoo Wildlife Alliance and Scripps Institution of Oceanography announced a new partnership through the Agile Restoration & Conservation Hubs (ARCH) initiative to advance conservation technologies, including cryopreservation, live cell culture, and biodiversity banking for marine organisms such as fish, invertebrates, microbes, and seaweeds. The collaboration also aims to develop new digital conservation tools and expand training opportunities, highlighting the growing role of biobanking as an active strategy for preserving genetic diversity and supporting long-term ecosystem resilience. Read the full announcement here.

Illumina and the San Diego Zoo Wildlife Alliance partner to sequence the Frozen Zoo®

Illumina and San Diego Zoo Wildlife Alliance have announced plans to sequence up to 4,000 samples representing 1,300 species from the Frozen Zoo®, one of the world's largest wildlife biobanks. The project will generate whole-genome and multiomic data from cryopreserved samples collected over the past 50 years, with the goal of advancing conservation genetics, wildlife health research, and biodiversity preservation. The collaboration highlights the growing role of biobanked zoo and aquarium samples as active resources for species management and conservation innovation. Read more here.

Biobank Alliance Working Group

The Biobank Alliance Working Group, facilitated by Zoo New England, continues to meet monthly to develop a framework for voluntary, coordinated biobanking across AZA-accredited institutions. The group recently prioritized key barriers to scalable biobanking, helping to inform future goals and strategic planning efforts. The top barriers included limited discoverability of samples and associated data, lack of standardized practices and training, unclear governance and responsibility for coordinated biobanking, and concerns around ownership and future use of samples and data. Contact Danica Wolfe at zoonomics@zewnewengland.org with any questions.

PUBLICATIONS

Zoos and aquariums are making great contributions to genetics research and biobanking. If you have or know of a recent publication in this area, please e-mail us at zoonomics@zoonewengland.org so we can include it in our next newsletter.

Lifestyle change accelerates epigenetic ageing in King penguins
Environmental and husbandry conditions can have important effects on the long-term health and survival of animals managed in both wild and ex situ populations. In a recent study on king penguins, researchers used epigenetic biomarkers to examine how major changes in environment and lifestyle influence rates of biological aging. The study, which included contributions from Zoo Zurich and Loro

Parque, found evidence of accelerated aging associated with altered living conditions, highlighting how molecular tools combined with zoo and aquarium samples and data can provide new insights into animal health, welfare, and conservation management. You can read the full publication in *Nature Communications.*

Microbiome as a tool to monitor aquarium systems

This study, involving contributions from Zoo Leipzig, examines how microbiome analyses can monitor the health and stability of aquarium systems. Using environmental samples collected from aquarium tanks, the authors applied DNA sequencing to characterize microbial communities. They found that certain microbial taxa show potential as indicators of system health. Overall, the study concludes that microbiome profiling is a promising, non-invasive approach for monitoring aquarium ecosystems and could complement traditional water-quality assessments in zoos and public aquariums. The team published their findings in *Veterinary Sciences.*

Museums and zoos: a formula for rapid genetic identification of elusive species and practical applications for conservation and systematics in the Global South

In a recent study, researchers demonstrated how integrating zoo collections, museum specimens, and genomic tools can improve the identification of elusive or understudied species, particularly in biodiversity-rich regions of the Global South. With contributions from both the Smithsonian's National Zoo and Conservation Biology Institute and the Zoological Foundation of Ecuador, the authors highlight how genetic reference databases and collaborative collection networks can strengthen conservation planning, taxonomy, and wildlife management while expanding the scientific value of ex situ biological archives. Read more in *Biological Journal of the Linnean Society.*

Unfolding admixed ancestry and genomic diversity in zoo giraffes

Zoos and other ex situ conservation programs increasingly rely on genomic tools to better understand the ancestry and genetic diversity of managed populations. In a recent study on zoo giraffes including contributions from Copenhagen Zoo and Aalborg Zoo, researchers used genome-wide analyses to investigate patterns of admixture (mixing of genetic ancestry from previously separate populations, resulting in individuals with DNA from more than one source population) and relatedness across individuals. The authors identified previously unrecognized hybrid ancestry and variation in genomic diversity, demonstrating how genomics can improve breeding recommendations and long-term population management in ex situ conservation programs. You can read the full publication in *Conservation Genetics.*

Viral metagenomics reveals host and virus diversity in Madagascar wildlife

Over 60% of known human pathogens are zoonotic, meaning they can be transmitted from animals to people. Despite this, relatively little is known about the viruses circulating in wildlife that may pose a risk of zoonotic spillover. A research team that includes members of Zoo New England is leading a One Health research program in Madagascar, using viral metagenomics to discover and characterize the full diversity of viruses present in wildlife samples. This work has rapidly generated

new discoveries about Madagascar's biodiversity, including striking differences in viruses between native and invasive wildlife species *(Microbial Genomics) and new insights into virus evolution on the island (Microbial Genomics). Because viral metagenomics also captures non-viral DNA, the team has also generated the first complete mitochondrial genomes for two endemic rodent species (Mitochondrial DNA Part B) and documented a high prevalence of rat lungworm, a zoonotic nematode of public health concern (Emerging Infectious Disease).*

Danica Wolfe, Project Coordinator

zoonomics@zoonewengland.org

Sent to: zoonomics@zoonewengland.org