

ZSL Biobank launches biological library for conservation researchers and educators

To address pressing issues in biodiversity conservation, researchers may require access to biological samples that are difficult to collect because of the invasive nature of particular sampling techniques, the threatened or protected status of target species, the difficulty of obtaining relevant permits, or other logistical, financial or ethical concerns. Biobanks and zoological collections may provide a useful alternative source of sample materials.

In January 2025, the world's oldest scientific zoological society, the Zoological Society of London (ZSL), launched a biological library, making its biological collections accessible to the wider conservation community. The ZSL Biobank currently holds > 1,200 dry and > 50,000 frozen specimens, which will be made available to conservation researchers and educators through ongoing digitization efforts. Dry collections include taxidermy, skins, furs, skulls, shells, accessories and traditional medicines, predominantly acquired through private donations and wildlife crime seizures in the UK. Frozen collections include swabs, bodily fluids, postmortem tissues and entire carcasses, and originate predominantly from routine veterinary collections at British zoos and ZSL Institute of Zoology research projects. Specimens cover a wide range of British (native and non-native) and international species, including both captive and wild individuals.

These collections are managed in accordance with the Nagoya Protocol (Access and Benefits Sharing), to ensure fair and equitable sharing of benefits arising from the utilization of genetic resources. Dry and frozen specimens have now been made available for destructive and non-destructive sampling by researchers, as well as the loaning of some items for educational use. A further wet collection will be made available in due course.

The collections in the ZSL Biobank have previously supported a range of research activities, including comparative neuroimaging of carnivore brains (Boch et al., 2024, *eLife*, 13, RP100851), providing insights on cancer and ageing through analysis of somatic mutation rates (Cagan et al., 2022, *Nature*, 604, 517–524), and addressing questions in species taxonomy (Marr et al., 2024, *Evolutionary Journal of the Linnean Society*, 3, kzae007). The collections would also be suitable for supporting research in wildlife genetics, animal health, wildlife crime and forensics, and historical ecology.

Applications for destructive or non-destructive samples for research purposes, and loans for educational purposes, are now being accepted. Expressions of interest should be submitted to biobank@zsl.org. If the ZSL Biobank is able to help with a request, an application form will be provided and should be completed and returned. The ZSL Biobank is also accepting sample donations from legacy collections.

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Discovery of a previously unknown population of the Critically Endangered grey-shanked douc langur in Quang Nam Province, Vietnam

The grey-shanked douc langur *Pygathrix cinerea* is a Critically Endangered primate primarily occurring in Vietnam and adjacent areas of Cambodia. Hunting and trapping are driving population declines, and road construction and forest conversion are further fragmenting the species' already limited habitat. Nearly 2,000 individuals have been recorded in protected and unprotected forest across six provinces in Vietnam (Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Gia Lai and Kon Tum), 50% of which occur in unprotected areas with limited habitat and few recent records.

In June 2024, we discovered a new population of the grey-shanked douc langur in Khe Lim Forest, Dai Loc District, Quang Nam Province. Our short survey confirmed the presence of a group consisting of one adult male, two adult females, two subadults and two juveniles. The group was located in a 17 ha forest patch characterized by mountainous terrain, at an altitude of 600–1,100 m. During subsequent fieldwork in August 2024, including interviews with local communities, we identified two additional sites occupied by the grey-shanked douc langur in Khe Lim Forest. These areas are significantly affected by ongoing road construction and daily resource collection by local



Grey-shanked douc langur *Pygathrix cinerea* population recorded in the Khe Lim Forest in June 2024. Photo: Tai Anh Nguyen.

communities in the buffer zone, highlighting the urgent need for conservation interventions to protect the remaining langur populations.

The discovery of a new population in Khe Lim Forest suggests that additional populations of grey-shanked douc langur may still exist in other unsurveyed forest areas. We recommend a comprehensive survey of the entire Khe Lim Forest, and enhanced outreach efforts with local communities in the buffer zones. This approach will help establish conservation measures to protect other unknown, isolated populations of the grey-shanked douc langur.

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Building bridges for threatened primates in the Arc of Deforestation

The municipality of Alta Floresta in the state of Mato Grosso in the Brazilian Amazon is home to > 600 bird and 98 mammal species, including the rare Grove's titi monkey *Plecturocebus grovesi*, also known as the Alta Floresta titi. The municipality lies within the Arc of Deforestation, where urban expansion and road construction have resulted in the isolation of forest in patches.

Of the 12 primate species in Alta Floresta, six are common in urban areas (the Critically Endangered *P. grovesi*, Endangered *Ateles chamek* and *Mico schneideri*, Vulnerable *Alouatta puruensis* and *Alouatta discolor* and Least Concern *Sapajus apella*), where they face habitat fragmentation, collisions with vehicles and electrocution from power grid lines, with disproportional effects on strictly arboreal species such as *P. grovesi*, *A. puruensis*, *A. discolor* and *A. chamek*. In October 2024, our Reconecta Project, in partnership with Alta Floresta's city hall, local universities, NGOs, private companies and landowners, launched the Alta Floresta Não Atropela (Alta Floresta Without Roadkill) programme. We installed seven artificial canopy bridges to provide safe road crossings for arboreal species, and monitored the bridges with camera traps. To increase driver awareness, we placed a wildlife crossing sign next to each bridge, and we carried out school-led education campaigns engaging > 1,200 children and the wider community.

During October 2024–January 2025, our camera traps captured 540 bridge crossings by arboreal mammals. The



Top: an artificial canopy bridge under construction in Alta Floresta. Bottom: a black-capped capuchin *Sapajus apella* female with her juvenile crossing the completed canopy bridge. Photos: National Zoo Conservation Biology Institute.

black-capped capuchin *S. apella* was the first species to use a bridge, crossing just 2 days after installation. Other species included *M. schneideri* and various rodent and marsupial species. The canopy bridges are designed to be sturdy and safe, constructed from durable, readily available materials such as concrete poles, steel cables, ropes and nylon mesh. We are developing a guidance document, based on our design, for DNIT (Departamento Nacional de Infraestrutura de Transportes), Brazil's Federal Transportation Agency, to support implementation on federal highways.

The second phase will begin in June 2025, with six additional canopy bridges planned in areas near power lines. The local power company will insulate the lines to mitigate risk of electrocution, and wildlife underpasses, complete with fencing and signage, will be installed to reduce vehicle collisions with terrestrial species.

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