

What is genetic diversity and why does it matter?

Genetic diversity is the collection of different variants of all genes in a population. With more variation, a population has more flexibility to adapt to changing environments. Gene variants (alleles) that confer advantages to individuals increase the likelihood that those individuals will reproduce and pass those alleles on to further generations.

What is cultural diversity and why does it matter?

Cultural diversity describes the variety of socially learned, behavioural traditions special to each chimpanzee society. Cultural behaviours include how chimpanzees process food, collect water to drink and even communicate with one another.

Chimpanzee groups vary in the number and type of cultural behaviours they possess. This suite of behaviours help chimpanzees to be flexible and adapt when faced with changing environmental conditions or disturbances.



Leaf sponging



Nutcracking



Termite fishing



Leaf clipping



Similar to humans, both genetic and cultural variation are important to the health and survival of wild chimpanzee populations. The Western Chimpanzee Action Plan supports combining methods for surveying both genetic and cultural diversity whenever feasible to:

- 01** Bridge knowledge gaps using targeted research,
- 02** Establish baseline measures,
- 03** Support capacity development for policy makers, and
- 04** Conduct awareness, outreach and advocacy campaigns regarding chimpanzee cultural and genetic diversity

More Information

For more information on how to collect and transfer data, protocols for data collection, and more, please contact us! More rigorous and formal surveys can also be undertaken when possible, contact us for additional support if interested!

For details and support with genetic surveys, including obtaining access to collection materials, please contact Dr. Sery Gonedelé (sgonedele@gmail.com) and Dr. Mimi Arandjelovic (arandjel@eva.mpg.de).

For details and support with cultural behaviour surveys, including camera-trapping, please contact Dr. Serge Soiret (soiret_serger@yahoo.fr) and Dr. Ammie Kalan (ammiek07@gmail.com).

For more information on the western chimpanzee action plan visit westernchimp.org or write to westernchimp@gmail.com.

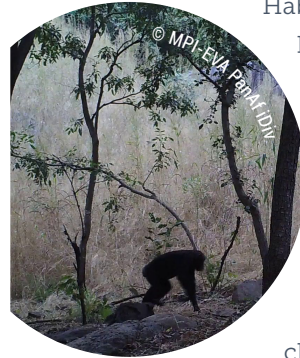
Conserving Chimpanzee Diversity in all its Forms

Data collection for assessing and preserving genetic and cultural diversity of wild chimpanzees



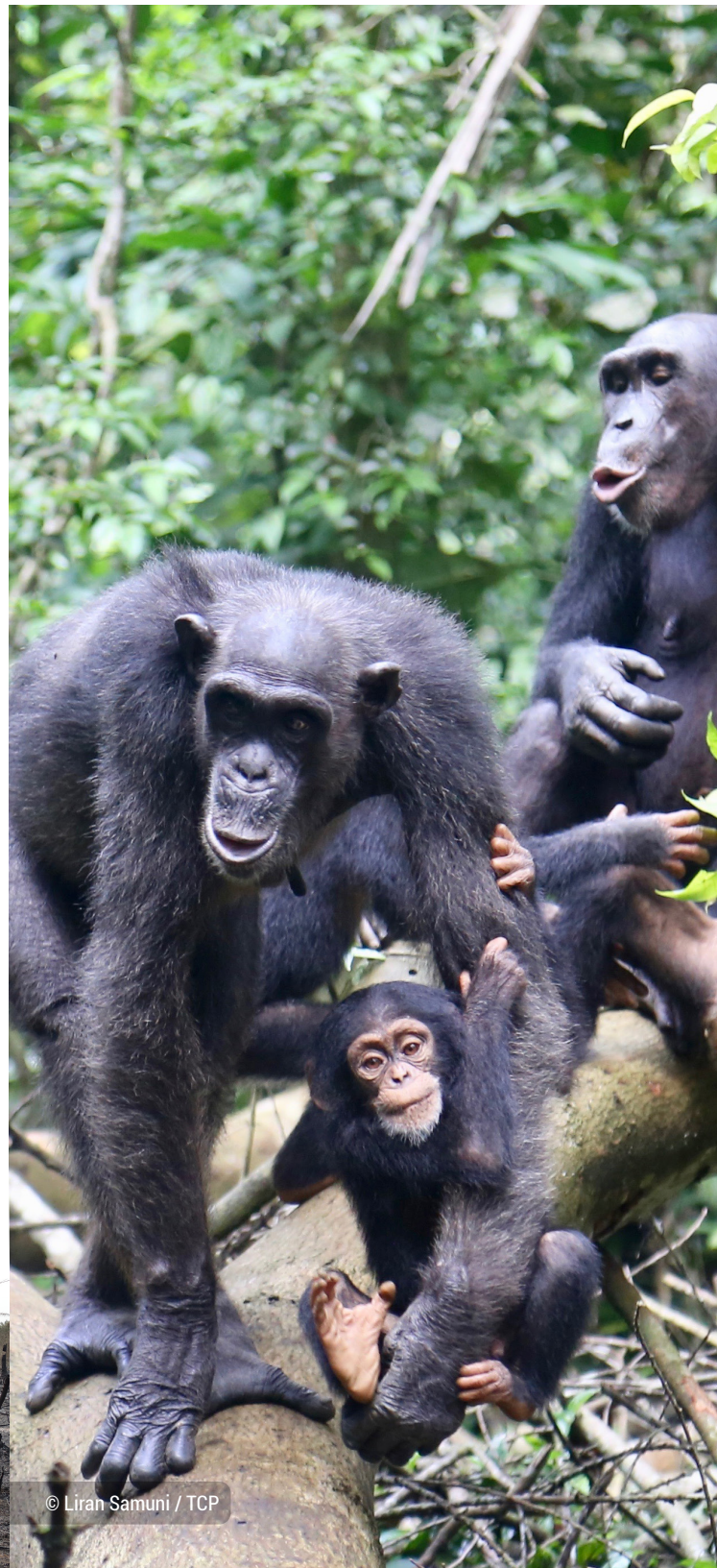
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Threats affecting the cultural and genetic diversity of chimpanzees



Habitat connectivity between populations is important for maintaining the genetic diversity of species. Habitat destruction leading to population isolation, and hunting, which reduces population size, are both threats to chimpanzee genetic diversity. Populations that are isolated may lose variation due to chance or due to inbreeding (mating between relatives). Because only female chimpanzees disperse from groups, the movement of genes (gene flow) between groups primarily happens via female dispersal, another reason why habitat connectivity is so important!

Similarly, cultural diversity is threatened as wild populations become more fragmented and less socially cohesive. In areas where human destruction to chimpanzee habitats is high, we find lower behavioural and cultural diversity. To aid conservation efforts, the preservation of cultural diversity can ensure chimpanzees have a flexible tool-box of behaviours to adapt to changing environmental conditions.



Collecting Data on Genetic and Cultural Diversity

While undertaking other activities in chimpanzee habitat (biomonitoring, research, patrols) samples and data can be easily collected to assess chimpanzee genetic and cultural diversity.

Use a GPS to collect data on locations for all samples, observations and survey effort, as well as in situ photographs of tools and interesting behaviours whenever possible. Make sure to take all necessary health precautions and do not take any chimpanzee tools with you out of the forest:

- Chimpanzee fecal samples should be collected opportunistically whenever one or more are found. Collection tubes and simple protocols can be requested at the contact information provided on the back cover
- Record the presence of termite, bee, palm tree caterpillar and ant nests; note the presence of stick or herbaceous tools at nests. Inspect water sources for the presence of algae and/or stick tools, and check water holes (including in trees) for any discarded leaf sponges or stick tools
- Record the presence or absence of nut bearing trees whose nuts are cracked by chimpanzees for a better understanding of this cultural behaviour
- Inspect below the tree for evidence of nut cracking on anvils and check for residue of nut cracking on discarded stones or wooden hammers.
- Check for evidence of percussive sites where chimpanzees may be smashing open fruits, snails, crabs, turtles, or other things on rocks or hard surfaces. These data can also help to compare availability of raw tool material across sites.
- Record the presence of large trees with buttress roots or large hollows, and inspect the base of the tree for any collection of stones. Check both the tree and the stones (if present) for impact marks from repeated throws.
- If camera-traps are available, install camera-traps along any of the following: a well tread animal trail or natural bridge, a chimpanzee feeding site, water source, or potential tool use site. Give each camera-trap a unique ID and record its location with GPS, along with the date and time of the camera set-up. Create a camera-trapping schedule that balances your budget, field team availability, and access to batteries and memory cards.
- Engage with people living in or around the area and ask them about their knowledge of chimpanzees. Make sure to record information on the knowledge provider and their village. Traditional knowledge of chimpanzees is immensely rich and can provide important perspectives into chimpanzee behaviour.

