

# Lethal aggression, territorial expansion in wild chimpanzees lead to more births, better infant survival

By Nicole Pomerantz, ASU News  
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The Ngogo chimpanzees of Uganda's Kibale National Park have long been known for violent clashes with neighboring groups, often resulting in deaths — a phenomenon sometimes described as “chimpanzee warfare.”

Now, a [new study](#) provides the clearest evidence yet that territorial expansion after lethal conflict can directly boost reproductive success.

Following a series of coordinated attacks where 21 chimpanzees were killed, the Ngogo group's territory grew by 22%. In the years that followed, females gave birth more often, and their infants were far more likely to survive.

The study was led by Associate Professor [Brian Wood](#) at the University of California, Los Angeles, in collaboration with Professor Emeritus [John Mitani](#) of the University of Michigan. The research included [Kevin Langergraber](#), research scientist at the Institute of Human Origins and professor at the School of Human Evolution and Social Change at Arizona State University, and [David P. Watts](#), professor at Yale.

“Our findings provide the first direct evidence linking coalitionary killing between groups to territorial gain and enhanced reproductive success in chimpanzees,” Wood said.

The numbers tell a striking story. In the three years preceding the territorial expansion, Ngogo females gave birth to 15 offspring. In the three years after, they gave birth to 37 — more than doubling their fertility rate. Infant survival also improved dramatically: from a 41% chance of death before age 3 to just 8% afterward.

“Along with humans, chimpanzees are one of a handful of species where individuals routinely cooperate to kill members of other groups,” Langergraber said. “This study shows that chimpanzee groups who successfully cooperate to kill neighbors and expand their territory gain fitness benefits from doing so. These fitness benefits suggest that this is an evolved, adaptive behavior.”

About 15 years ago, the researchers witnessed the chimps overtake the territory of neighboring chimps they killed. The question remained as to what evolutionary advantage this behavior might provide, which the team has now shown to be these reproductive benefits.

After ruling out other explanations, the research team concluded that territorial expansion improved female nutrition and overall health, leading to higher fertility and survival rates among their young.

“This was a long-term study,” Langergraber said. “We had long noticed that it seemed that the females were reproducing quicker and the infants surviving better after the expansion. But it was nice to see the formal quantitative statistical analysis turned out like we thought it would.”

The team also tested alternative hypotheses. One possibility was that females reproduced more frequently because infant mortality was high — a pattern sometimes seen in primates — but the data showed the opposite: both fertility and infant survival improved. Another possibility was that changes in food availability might explain the results, but fruit abundance in Ngogo’s core (pre-expansion) territory remained stable or even declined slightly after the expansion.

“These findings help us understand why chimpanzees, and perhaps our own early ancestors, evolved a capacity for coordinated violence,” Wood said.

“Humans have, thankfully, evolved an extraordinary capacity to resolve and avoid such conflicts, offering a way to escape cycles of food scarcity, territorial violence and zero-sum competition among neighboring groups.”

“Female fertility and infant survivorship increase following lethal intergroup aggression and territorial expansion in wild chimpanzees” was published in *Proceedings of the National Academy of Sciences*.

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*Article adapted from the University of California, Los Angeles.*

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## Main image



Chimpanzees from the Ngogo community in Kibale National Park, Uganda. Photo by Kevin Langergraber/ASU

**Text image(s)**



Jolie, a chimpanzee of the Ngogo community in Kibale National Park, Uganda, holds her sleeping baby. Photo by Kevin Langergraber/ASU