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Pimu, an alpha male chimp at Mahale Mountains National Park in Tanzania, being killed by fellow chimps in 2011.

Why do chimps kill each other?

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By [Michael Balter \(/author/michael-balter\)](#) | 17 September 2014 1:00 pm | [2 Comments \(/plants-animals/2014/09/why-do-chimps-kill-each-other#disqus_thread\)](#)

War—what is it good for? “Absolutely nothing” according to the refrain of a 1970 hit song. Many humans would agree with this sentiment. But a major new study of warfare in chimpanzees finds that lethal aggression can be evolutionarily beneficial in that species, rewarding the winners with food, mates, and the opportunity to pass along their genes. The findings run contrary to recent claims that chimps fight only if they are stressed by the impact of nearby human activity—and could help explain the origins of human conflict as well.

Ever since primatologist Jane Goodall’s pioneering work at Gombe Stream National Park in Tanzania in the 1970s, researchers have been aware that male chimps often organize themselves into warring gangs that raid each

other's territory, [sometimes leaving mutilated dead bodies on the battlefield](http://www.sciencemag.org/content/304/5672/818.1.summary) (<http://www.sciencemag.org/content/304/5672/818.1.summary>).

Primatologists have concluded that their territorial battles are evolutionarily adaptive.

But some anthropologists have resisted this interpretation, insisting instead that today's chimps are aggressive only because they are endangered by human impact on their natural environment. For example, when humans cut down forests for farming or other uses, the loss of habitat forces chimps to live in close proximity to one another and to other groups. Feeding chimps can also increase their population density by causing them to cluster around human camps, thus causing more competition between them.

To test between the two hypotheses, a large team of primatologists led by Michael Wilson of the University of Minnesota, Twin Cities, analyzed data from 18 chimpanzee communities, along with four bonobo communities, from well-studied sites across Africa. The sites included famous chimp and bonobo hangouts such as the Gombe and Mahale national parks in Tanzania, Kibale in Uganda, Fongoli in Senegal, and Lomako in the Democratic Republic of the Congo. The data covered a total of 426 researcher years spent watching chimps and 96 years of bonobo observation. All told, the scientists tallied 152 chimp killings, of which 58 were directly observed, 41 inferred from evidence such as mutilated bodies on the ground, and 53 suspected either because the animals had disappeared or had injuries consistent with fighting.

The researchers created a series of computer models to test whether the observed killings could be better explained by adaptive strategies or human impacts. The models incorporated variables such as whether the animals had been fed by humans, the size of their territory (smaller territories presumably corresponding to greater human encroachment), and other indicators of human disturbance, all of which were assumed to be related to human impacts; and variables such as the geographic location of the animals, the number of adult males, and the population density of the animals, which the team considered more likely to be related to adaptive strategies.

Online today in *Nature*, the team reports that [the models that best explained the data were those that assumed the killings were related to adaptive strategies](http://dx.doi.org/10.1038/nature13727) (<http://dx.doi.org/10.1038/nature13727>), which in statistical terms were nearly seven times as strongly supported as models that assumed human impacts were mostly responsible. For example, 63% of the fallen warriors were attacked by animals from outside their own in-group, supporting, the authors say, previous evidence that chimps in

particular band together to fight other groups for territory, food, and mates. Moreover, males were responsible for 92% of all attacks, confirming earlier hypotheses that warfare is a way for males to spread their genes. In contrast, the team concludes, none of the factors related to human impacts correlated with the amount of warfare observed.

The study also confirmed earlier evidence that bonobos are, relatively speaking, more peaceful than their chimpanzee cousins. Although fewer bonobo groups were included in the study, the researchers observed only one suspected killing among that species, at Lomako—a site where animals have not been fed by humans and disturbance by human activity has been judged to be low.

“The contrast could not be more stark” between how the two hypotheses fared, says William McGrew, a primatologist at the University of Cambridge in the United Kingdom, who praises the study as a “monumental collaborative effort.” Joan Silk, an anthropologist at Arizona State University, Tempe, agrees. The study “weighs competing hypotheses systematically,” she says. “Advocates of the human impact hypothesis ... must challenge [the study’s] empirical findings, or modify their position.”

But leading advocates of the human impacts hypothesis are not giving ground. “I am surprised that [the study] was accepted for publication,” says Robert Sussman, an anthropologist at Washington University in St. Louis, who questions the criteria the team used to distinguish between the two hypotheses. For example, he says, a higher number of males in a group and greater population density—which the researchers used as indicators of adaptive strategies—could equally be the result of human disturbances. Sussman also criticizes the team for mixing observed, inferred, and suspected cases of killings, which he calls “extremely unscientific.”

R. Brian Ferguson, an anthropologist at Rutgers University, Newark, in New Jersey, agrees, adding that other assumptions the team made—such as using larger chimp territories as a proxy for more minimal human disturbances—could be wrong, because “some populations within large protected areas have been heavily impacted.”

As for understanding the roots of human warfare, Wilson says that chimpanzee data alone can’t settle the debate about why we fight: Is it an intrinsic part of our nature or driven more by cultural and political factors? Still, he says, “if chimpanzees kill for adaptive reasons, then perhaps other species do, too, including humans.”

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**James C. Pierce, Jr.** · 16 hours ago

While I think the conclusions are probably valid, the fact that they used computer models to arrive at them is a negative. Models are only as good as the parameters used in building them. Too often those reflect the biases of the modelers.

For many computer models appear to have become the 'argument from authority' to lend weight to what is actually a conclusion based on the author's analysis of his data.

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**Hans-Ragnar Skogli** · 17 hours ago

Well surprise, surprise. The old and rather cozy idea about human nature is going out of fashion.

A really interesting study would be to see if, given the same data material, different cultures would arrive at the same conclusions when it comes to evolution and human. This could have been different cultures, but also cultures within cultures (like biologists vs psychologists and so on). I am afraid the outcome would favor confirmation bias and romanticism.

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