



PRESS RELEASE

17 September 2014

**<<< EMBARGOED UNTIL:
Wednesday, 17 September 2014, 19:00 o'clock CEST >>>**

Chimpanzee males more likely to kill and be killed

Lethal aggression in chimpanzees and bonobos is better explained by adaptive strategies than human impacts.

An international team of researchers from the Max Planck Institute for Evolutionary Anthropology, the University of Minnesota, Harvard University and other contributors has now analyzed the reasons why our closest relatives, chimpanzees and bonobos, sometimes kill conspecifics in a fight. To this aim they compared information they had collected from 18 chimpanzee and four bonobo communities over five decades. The researchers found that bonobos rarely kill conspecifics while chimpanzees do so more frequently. The aggression is directed mainly from males to non-kin males and killings are often committed by a group of males that outnumbers its victims. Surprisingly, the human impact on the habitats of chimpanzees and bonobos did not result in an increase of these killings. The researchers thus conclude that killing conspecifics improves the attacker's fitness through increased access to territory, food and mates.



Rates of conspecific killing vary widely across the different chimpanzee study sites. This variation could be explained by increased aggression rates in animals living in areas that have been impacted by humans, for example through deforestation, hunting or diseases. However, lethal violence could also be a result of adaptive strategies, such that killers gain fitness benefits by increasing their access to resources like food and mating partners.

In order to test these two hypotheses an international team of field work researchers has now combined their data on 18 chimpanzee and four bonobo communities that they had collected in Africa during the past 50 years. This data confirms that bonobos are less violent than chimpanzees with only one observed conspecific killing. In chimpanzees killings had been documented for 15 out of the 18

communities, and the researchers found Eastern chimpanzees to kill conspecifics more often than Western chimpanzees.

Using multivariate analysis, the researchers compared variables like the area size of the habitat, the level of disturbance by humans or the number of adult males per group as well as the population density across study sites. They considered 16 models and found that the number of males and population density were the major factors that led to an increase in conspecific killings.

“We found that males are more likely to kill conspecifics than females while at the same time being more likely to be killed”, says Roman Wittig of the Max Planck Institute for Evolutionary Anthropology. “Most victims were not related to and often outnumbered by their attackers.” Human impact on the habitat, on the other hand, did not have any measurable impact on the number of conspecific killings.

“We conclude that patterns of lethal aggression in chimpanzees are best explained as being an adaptive strategy”, says Roman Wittig. “Conspecific killing likely is a means to eliminate rivals when the costs of the killing are low.”

[SJ, RW]

Original publication:

Michael L. Wilson, Christophe Boesch, Barbara Fruth, Takeshi Furuichi, Ian C. Gilby, Chie Hashimoto, Catherine Hobaiter, Gottfried Hohmann, Noriko Itoh, Kathelijne Koops, Julia N. Lloyd, Tetsuro Matsuzawa, John C. Mitani, Deus C. Mjungu, David Morgan, Martin N. Muller, Roger Mundry, Michio Nakamura, Jill Pruett, Anne E. Pusey, Julia Riedel, Crickette Sanz, Anne M. Schel, Nicole Simmons, Michel Waller, David P. Watts, Frances White, Roman M. Wittig, Klaus Zuberbühler, and Richard W. Wrangham

Lethal aggression in *Pan* is better explained by adaptive strategies than human impacts

Nature, 18 September 2014

Image:

Male chimpanzee is chasing two others who flee and scream (Sonso community, Uganda).
Image: Liran Samuni, Max Planck Institute for Evolutionary Anthropology

Contact:

Dr. Roman Wittig
Max Planck Institute for Evolutionary Anthropology, Leipzig
Department of Primatology
Tel: +49 341 3550-204
Email: wittig@eva.mpg.de

Sandra Jacob
Max Planck Institute for Evolutionary Anthropology, Leipzig
Press and Public Relations
Tel: +49 341 3550-122
Email: jacob@eva.mpg.de