

Small male chimps use politics, rather than aggression, to lead the pack

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With most mammals, the biggest and most aggressive male claims the alpha male role and gets his choice of food and females. But a new study from the University of Minnesota suggests that at least among chimpanzees, smaller, more mild-mannered males can also use political behavior to secure the top position.

The finding was gleaned from 10 years of observing dominant male chimpanzees in Gombe National Park, Tanzania, looking at behaviors they used to compete for alpha male status relative to their size. Analysis showed that larger males relied more on physical attacks to dominate while smaller, gentler males groomed other chimpanzees, both male and female, to gain broad support.

The study focused on three alpha males who reigned between 1989 and 2003. Frodo, one of the largest and most aggressive male chimpanzees ever observed at Gombe, weighed 51.2 kg (112.6 lbs.) at his peak. He relied on his size and aggression to rule. While he allowed other chimpanzees to groom him, he seldom returned the favor. At the other end of the spectrum, Wilkie, who weighed only 37 kg (81.4 lbs.), obsessively groomed both male and female chimpanzees to maintain his top position. And Freud, who weighed 44.8 kg (98.6 lbs.), used a combination of the two strategies. (The average male chimp in Gombe weighs about 39 kg (85.8 lbs.).

The findings are reported in the February issue of the *American Journal of Primatology*. While it's widely known that grooming plays an important role in chimpanzee social interaction, this study is the first to show that it can be a strategy for achieving dominance.

Mark Foster, who was an undergraduate pursuing a bachelor of arts degree in anthropology and a B.F.A. in acting when the research was conducted, was the study's lead author of the study. As a recipient of a Katherine E. Sullivan Fellowship he later spent six months in Tanzania and Gombe and then became an educational assistant at the Lincoln Park Zoo in Chicago.

"Mark showed extraordinary creativity and tenacity in pulling together this study while still an undergraduate and then seeing it through to publication," said Anne Pusey, who was senior author. Pusey is director of the Jane Goodall Institute's Center for Primate Studies at the University of Minnesota and a University McKnight Distinguished Professor in the College of Biological Sciences' department of ecology, evolution and behavior (EEB).

Other collaborators included EEB graduate students Ian Gilby, who guided Foster in the initial outline of the question and in data extraction;

Carson Murray, who guided data analysis; and Emily Wroblewski, who analyzed data on male dominance hierarchies. Statistics graduate student Alicia Johnson of the U of M Statistics Clinic guided the statistical analysis. Gilby is now a post-doctoral fellow at Harvard, and Murray a post-doctoral fellow at Lincoln Park Zoo.

"We were aware that Frodo was a bully and a stingy groomer, but we did not know how closely grooming patterns would correlate with body size," Pusey said. "We plan to study more alpha males to determine if grooming is a common strategy that small-bodied males use to placate rivals or cultivate cooperative alliances."

Source: University of Minnesota

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