

Power Play

Humans are hardly the only animals in which males use aggression—or its threat—to intimidate females.



ALICE BANIEL

Just before sunset, chacma baboons (above) rest in Namibia's Tsaobis Nature Park. While these animals' lives can appear peaceful, males frequently attack females (right), a behavior scientists suspect is a strategy to coerce the females into mating with them later.



ALECIA CARTER

On the surface, female chacma baboons at Namibia's Tsaobis Nature Park seem to have it pretty easy. Amidst the rocky hills that flank a dry river bed, the primates live in large, coed troops that appear to be peaceably promiscuous. A female, when she becomes fertile, will approach several different partners and present them with her hindquarters, which have swollen to mark her receptivity. Tsaobis males have never been observed forcing themselves on females. "It's often seen that females are quite free to choose their mates," says evolutionary biologist Alice Baniel, who has studied the desert baboons for six years.

But when Baniel, a research fellow at the Institute for Advanced Study in Toulouse, France, was doing her Ph.D. research a few years ago, she wondered if that freedom might be illusory—if something more complex was going on. The males, after all, can be aggressive. They chase females, trap them in trees, even physically attack them, though the belligerence doesn't end in mating attempts. So Baniel and her team collected data on female behavior, choosing one animal at a time and recording her activities for an hour. She combined that information with earlier data her Ph.D. advisor, Elise Huchard, had collected.

Examining more than 3,400 hours of observations of 53 females, Baniel noticed a pattern, which she published last year in the journal *Current Biology*: When a male chased and attacked a particular female in the weeks preceding her ovulation, he was more likely to monopolize her sexually later, during her most fertile days.

Why would a baboon choose to mate with her tormentor? Baniel rejected one idea: that females preferred the most-aggressive males because they produced healthier offspring. If that were the case, she says, the females would have chosen partners who menaced everyone rather than the ones who had singled them out. Rather, it appeared to the biologist that male baboons employ a long-term strategy of sexual intimidation. "By threatening females

and inducing fear in them over prolonged periods," Baniel hypothesizes, males not only coerce the females to mate with them later on, but also "discourage them from leaving their proximity or from trying to mate with rivals."

Baniel's paper adds to a growing body of research suggesting that sexual harassment, at least as nonscientists define the term, is hardly limited to humans. Males of numerous species, from mammals to birds, fish and even insects, can be sexual menaces—and females have developed ingenious strategies to avoid unwanted attention.

Some scientists suggest this research may yield clues about human sexual coercion, including extreme workplace harassment. "Many aspects of this behavior are directly comparable to what we see in nonhuman primates, with aggression—violence or the threat of violence—being used to intimidate women into unwanted sexual behavior," says University of New Mexico anthropologist Martin Muller.



ANDREW PARKINSON (NPL/MINDEN PICTURES)

Baniel, too, says human sexual misconduct might have evolutionary roots. But she is quick to add that this doesn't make it inevitable. "Even if a behavior is grounded in evolution," she says, "this never means that we can justify it."

Instilling fear in females

As far back as the 1970s, behavioral biologist Barbara Smuts was observing a young female chimpanzee in Tanzania's Gombe National Park, where the well-known primatologist Jane Goodall had started researching chimp behavior the previous decade. The female was several days shy of ovulation and had begun the sexual swell-

ing that would culminate when she was fertile. As Smuts later recounted, the chimp presented herself to a group of males, who "examined her perfunctorily and resumed grooming one another." Smuts wondered why the males seemed so indifferent.

Then came an attack—"without warning," she later wrote. "One of the males charged toward us, hair on end, looking twice as large as my small female and enraged. As he rushed by he picked her up, hurled her to the ground, and pummeled her." To explain this violent behavior, Smuts cited a hypothesis credited to Goodall: that males use aggression to instill fear in females, so they'll submit to sexual advances later. "These attacks," Goodall wrote in her book *The Chimpanzees of Gombe: Patterns of Behavior*, "certainly function to increase the fearful respect of the females for the males concerned; they learn that they must either totally avoid a particular male, or quickly respond in a positive way to his requests."

Smuts, now retired from the University of Michigan, wrote several papers during the 1990s. She argued that

studies of primate sexual coercion could help us understand our own species and lamented that few colleagues had given the subject much attention.

One exception was British behavioral ecologist Tim Clutton-Brock, who cataloged the ways nonhuman males across species—orangutans, otters, deer, ducks, butterflies—tried to force themselves on females. He referred to sexual harassment as "asymmetric wars of attrition." Imagine, he says, a conflict between a male who wants to mate and a female who doesn't. "Whoever wins that contest is the individual who's prepared to go on for longest," he explains. "There's not necessarily a great deal of violent aggression involved. It's just continual persistence. Rebutting persistent courtship has costs—less time for feeding, for example—and females finally give up and acquiesce."

Clutton-Brock divided sexual coercion into three categories, a taxonomy many scientists still use. "Harassment" is persistent behavior aimed at getting immediate results. "Intimidation" is punishment of noncompliant females (others define it as long-term aggression to assure future



NIAL BENVIE (NPL/MINDEN PICTURES)

In Lincolnshire, England, a female grey seal fends off a male's attempt to mate (left). To protect themselves from such unwanted attention, which decreases the time available to nurse pups, females (in Scotland, above) may synchronize when they give birth.

mating). Then there's "forced copulation," in which males rely on speed or brute strength to overpower females.

There are many variations. Male Grevy's zebras chase lactating females for up to one-third of a mile at a time, making it harder to attend to foals. Male spotted hyenas rush at females with ears cocked forward, trying to sniff or bite them. Female Trinidadian guppies often endure one mating attempt per minute involving high-speed chases. Male grey seals try to mount lactating mothers, reducing time they can spend nursing and therefore threatening the health of their young.

Some of the most innovative harassment research comes out of Gombe, where wild chimpanzees have been studied extensively for more than a half-century. There, scientists are piecing together the genetics of sexual coercion. Males in Gombe assert themselves, in part, by symbolic violence: charging and chasing females and puffing up their fur to look bigger. They also resort to actual violence like biting and kicking prospective mates. "Life is not easy for a female chimpanzee," says Joseph Feldblum, an anthropologist at the University of Michigan.

Feldblum and his colleagues analyzed 17 years' worth of Gombe data, including genetic material from fecal samples, to establish paternity. They looked at markers at specific locations in the DNA of offspring and their mothers, then compared them to the same locations in the DNA of potential fathers. Reporting in 2014 in *Current Biology*, the scientists found that when males chased or attacked sexually receptive females, they were more likely to mate with them, but not necessarily to impregnate them. By contrast, males that showed aggression toward nonreceptive females were more successful at siring their young. This suggests that intimidation can be a truly long game.

Females fight back

The number of ways females ward off harassers is mind-boggling. Some seek the friendship of protective males. Others form all-female alliances. On Nova Scotia's Sable Island, female grey seals synchronize when they give birth. Mothers who pup during that peak period spend one-seventeenth as much time fending off males as do those who pup later, a study found.

Nonmammals, too, have evolved creative defenses. African swallowtail butterflies, which, when they are try-

ing to feed, are chased relentlessly by would-be mates, disguise themselves as males by taking on yellow or orange wing coloration. Female Trinidadian guppies segregate themselves in deep water where the colorful males, if they followed, would attract large predators. The most-harassed guppies also become the most-efficient swimmers. They use their pectoral fins more and consume less oxygen, according to a 2015 study published in *Functional Ecology*.



MICHAEL NICHOLS (NATIONAL GEOGRAPHIC CREATIVE)

Suzanne Alonzo, an evolutionary biologist at the University of California–Santa Cruz, suggests another possible protection: the drab physical appearance of females in species with flamboyant males. "There's a huge literature on why males do have these ornaments," she says. One explanation is that flashiness signals a healthier mate who will invest more energy in caring for offspring. "So why don't we see the same pattern in females?" Males might be less discerning than females, but they still look for quality mates. "You would expect to see some female ornamentation—maybe not the huge, beautiful tail of the male peacock, but *something*."

Puzzling over the mystery with evolutionary biologists David Hosken and Nina Wedell at England's University of Exeter, she recalls Hosken asking: "What about the fact that another cost to females is that, if they signal how fecund they are, males then would harass them?" This made "perfect sense," Alonzo says, and in 2016 the trio published their hypothesis in the journal *Animal Behaviour*.

Does human sexual harassment have roots in other species? This remains as touchy a subject as it was when Smuts first wrote about it. In a 1995 article, "The Evolutionary Origins of Patriarchy," she argued that the structures of certain primate societies—for example, the strong male-male alliances among chimpanzees—helped males control



ANUP SHAH

In Tanzania's Gombe National Park, a male chimpanzee (left) puffs up his fur as part of a dominance display, and a mother chimp calmly tends to her infant (above). The park has yielded some of the most innovative research on sexual dynamics in primates.

reproduction and female sexuality. Humans, she argued, inherited these structures from other primates and added new tools, like language, to tighten that control. "If male chimpanzees could talk," she wrote, "they would probably develop rudimentary myths and rituals that increased male political solidarity and control over females."

Culture tempers behavior

Many scientists share Smuts' view that other animals can help us understand human sexual aggression. "It's all a continuum," says Muller, who has done pioneering fieldwork on chimpanzees. "At the one extreme, you have coercion backed up by threats of violence. But humans are clever, and they can come up with nonviolent means of coercion, like threatening your job or career."

Scientists do worry that human predators and their apologists will point to baboons and chimpanzees and insist that harassment is biologically inescapable. "We need to be very careful that we don't make the 'naturalistic fallacy': that because something is found in the natural world, we are saying something about it morally," Alonzo says.

Feldblum agrees and argues that studying sexual coercion among animals could help us curb the mistreatment of women. "The important thing about this research is not to legitimize but to try and get a clear-eyed view of the evolutionary origins of human behavior so that we can mitigate some of the behaviors that we find undesirable," he says. "Ultimately, we're going to probably be able to say that sexual aggression has deep evolutionary roots," he adds. "What is unique about humans is that we can rely on cultural evolution to occur much more quickly than biological evolution."

The role of culture in shaping human behavior is fundamental, says Clutton-Brock. And though humans still have much work to do to address sexual violence, he emphasizes "how important social norms are in helping us get along with each other quite happily. Human society is, in many ways, a great success. And human society saves us from the sorts of things that animals regularly inflict on one another."

Barry Yeoman wrote about animal mourning in the February–March 2018 issue.