Male antelopes trick females into extra sex opportunities

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Wiline Pangle

Scientists have caught male topi antelopes in the act of faking fear in front of females in heat as a way to improve their chances of having sex.

The male antelopes, observed in southwest Kenya, send a false signal that a predator is nearby only when females in heat are in their territories. When the females react to the signal, they remain in the territory long enough for some males to fit in a quick mating opportunity.

The signal in this case, an alarm snort, is not a warning to other antelopes to beware, but instead tells a predator that it has been seen and lost its

element of surprise, the researchers found.

So when the scientists observed the animals misusing the snort in the presence of sexually receptive females, they knew they were witnessing the practice of intentional deception - a trait typically attributed only to humans and a select few other animal species.

"There is very little evidence that animals use deception, and to make that link that the deception is intentional is very difficult," said Wiline Pangle, co-author of the study and a visiting scholar in evolution, ecology and organismal biology at Ohio State University. "It's almost amusing to us. The female hears the snort and thinks, 'oops, there is a lion.' She steps back, and the male comes around and mates. It's striking."

Pangle conducted the research with Jakob Bro-Jørgensen of the University of Liverpool. The paper appears online and is scheduled for print publication in the July issue of the journal *The American Naturalist*.

Pangle and Bro-Jørgensen, a longtime expert in topi behavior, met while they were conducting separate field work in the Masai Mara National Reserve in Kenya, where Pangle studies the survival strategies of the antelopes' carnivorous predators. Over dinner, they discussed Bro-Jørgensen's observation that he had witnessed this sexual deception, and they teamed to conduct a rare controlled study of this type of animal behavior.

The two logged a total of 274 hours of observation of 73 female topi during mating seasons between 2005 and 2009. Females are in heat for one day per year sometime in February or March. During this time, they visit multiple male territories and mate repeatedly - on average, 11 times with four different males.

Both sexes of topi emit alarm snorts when they detect stalking predators - typically lions, cheetahs, leopards, humans and hyenas. During the observation periods, the researchers recorded these snorts made by males. They then scanned the area for predators and coded the snorts as either "true" or "false" alarms.

It turns out that the males uttered their false alarms only when one of the females wandering their territory was in estrus - or in heat. The researchers noted that the males made these false alarms when females were trying to leave their territories - and the males even looked in the direction the females were going, suggesting that the predator was straight ahead.

To test whether these false alarms could be mistakes, the researchers observed male topi when they were alone, and saw that the males emitted these snorts only when a predator was stalking - a sign that the purpose of the snort is to tell the predator to go away rather than to warn fellow topi that a predator is in their midst.

"We did this to reject the hypothesis that topi use the snort to alert others around them. This snort is clearly an alert to a predator. The females snort, the males snort, they all snort when they see a predator," Pangle said. "That's why the male does it when a female is in estrus. Then she thinks it's just like the other snorts. And that is deception."

The scientists recorded three different sounds: true and false alarm snorts as well as a separate grunt sound. Acoustic analyses showed that the true and false snorts were identical in duration and frequency.

In a playback experiment, they broadcast the sounds 20 times each to a total of 60 randomly selected females and recorded their reactions. No matter which type of snort the animals heard, their response was the same - they walked away from the likely location of the predator.

By comparison, these females had very little reaction to the control sound - a miscellaneous grunt.

According to the recorded observations, the males achieved almost three additional mating opportunities per false snort - an obvious benefit in the animal world, where reproducing offspring is the principal sign of fitness.

And the females benefit, as well, Pangle noted. If they ignore the false snort, they could die - or so they believe. And they are not subject to the deception often enough to become jaded about their sexual partners.

"They don't hear this false alarm very often - only when they are in estrus, and not by all males. So for them to catch on would require a fairly high frequency of that behavior," Pangle said. "And second, even if they caught on, it's still better to be safe than sorry. The cost of missing that cue, if it is accurate, is so high."

More information: www.journals.uchicago.edu/toc/an/current

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