

Weird & Wild



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[Bacteria Power Social Lives of Hyenas](#)

News Watch

Posted by [Guest Blogger](#) in [Weird & Wild](#) on November 11, 2013

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A spotted hyena in the Maasai Mara, Kenya. Photograph by Frans Lanting, Corbis.

It turns out that fermenting bacteria help power the social lives of [hyenas](#). A kind of scent-based Facebook, if you will.

Bacteria residing in the scent glands of spotted and striped hyenas appear to play a crucial role in producing the smelly chemicals the animals use to communicate, according to a new study.

The finding is the strongest evidence yet for the so-called fermentation hypothesis, scientists say. It states that some of the key chemical components mammals use to communicate their sex, age, reproductive status, and other key traits are the fermentation products of symbiotic bacteria living in their scent glands.

Furthermore, according to this idea, the smells used by different social groups, and even individuals within a species, boil down to differences in their odor-producing bacterial communities.

“Most mammals have scent glands somewhere on their bodies—it can be on their head, shoulder, feet, flanks, or back,” said study co-author [Kevin Theis](#), a postdoctoral student at Michigan State University in East Lansing.

“Hyenas use scent to demarcate and defend their territories,” he said. And within groups, they use it during social interactions and to cement group cohesion, especially among females, Theis added. “Males seem to be using it to maintain their dominance hierarchies without having to resort to aggression.”

A Smell of Their Own

In the new study, published this week in the journal of the [Proceedings of the National Academy of Sciences](#), Theis and colleagues used DNA sequencing techniques to analyze the sour-smelling paste that hyenas secrete onto grass stalks from scent pouches located between their anus and their tail.

“When they paste, they’ll extrude their scent pouches and drag it along the grass stalks that they’ve straddled,” Theis explained.

The study results confirmed that fermentative bacteria live in the hyenas’ scent pouches, and that the makeup of these microbial communities, and the smells they produced, were different for spotted and striped hyenas. The scientists also found that the genetic profiles of the bacteria for hyenas also varied depending on an animal’s age, sex, and reproductive state.

While studying hyenas in the wild, Theis noticed that the animals will often paste in the same spots.

“One hyena will paste and another hyena will often walk over and paste right over on top of it,” he said.

Theis thinks that hyenas use this behavior to “cross infect” each other with their bacteria and as a way of creating and spreading a group scent.

Sharing a common scent would not only help hyenas recognize members of their own group, it would also allow different members of the clan to mark their territory with the same smell, making the process more efficient.

By walking over the paste left by adults, hyena cubs might also be picking up the bacteria that they'll need to produce their own paste later, Theis said.

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Keywords: [animal](#), [bacteria](#), [behavior](#), [communication](#), [hyenas](#), [scent](#), [science](#)

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1. Ima Ryma
3:06 am

We hyenas communicate
By bacteria in scent glands,
Letting others sniff each best trait
That a hyena understands.
We pick and choose a grassy site
To leave a personal detail,
Dragging scent pouches day and night
To paste a message in peemail.
Others then can paste in reply,
So all will get to know who's who,
And form communities thereby.
So cool, what hyenas can do!

Our Twitter is by excrete.
We use bacteria to tweet.

2. Mojaki Teleki
Lesotho
November 11, 8:06 pm

cool. also hyena's eyes are very expensive here in my country, u knw y? Mutiwise

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