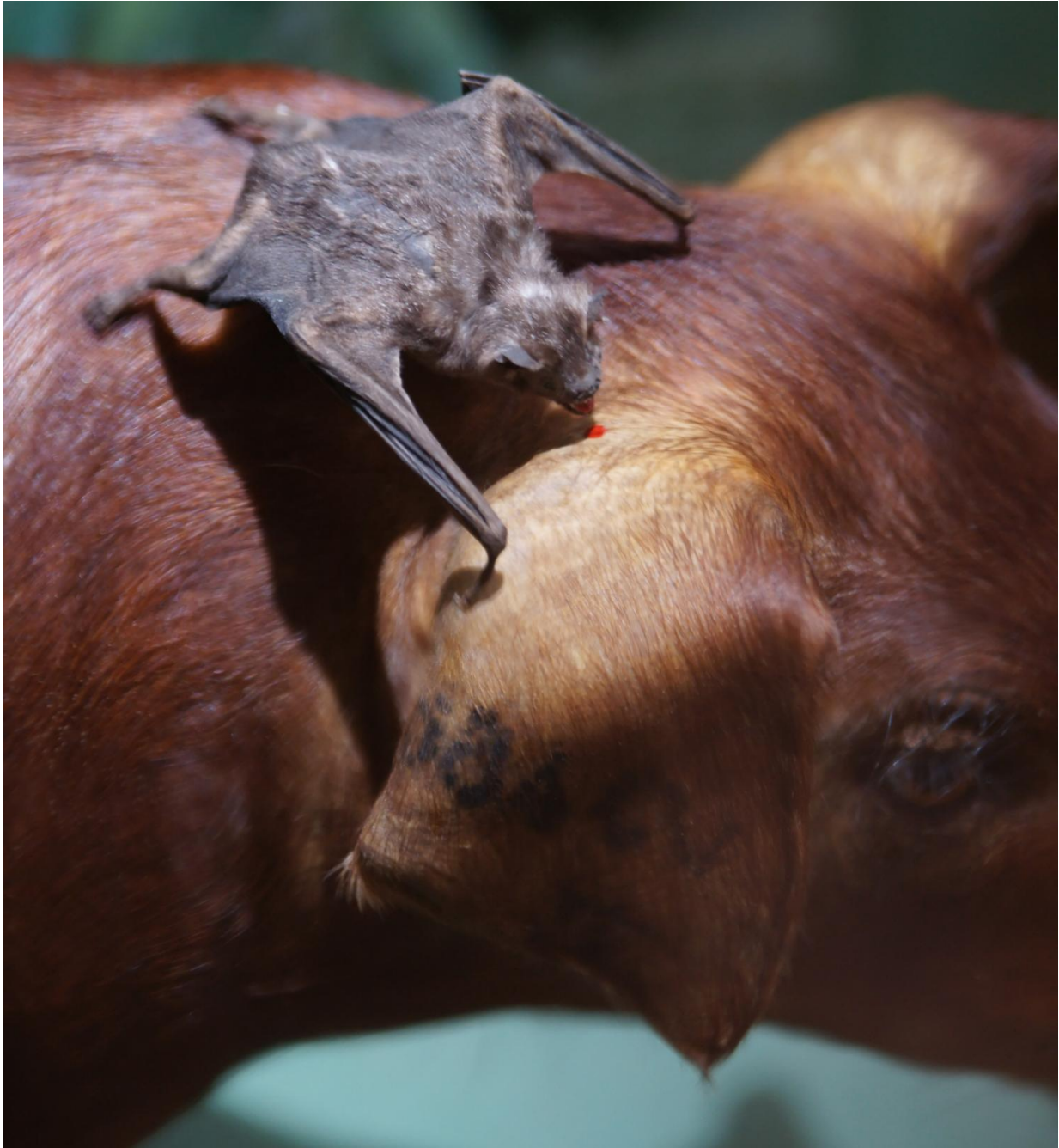


# Like college roommates, vampire bats bond when randomly paired

April 5 2022, by Emily Caldwell

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A Common Vampire Bat, *Desmodus rotundus*, feeding on an animal. Showcase of taxidermied animals, Natural History Museum, Vienna. Credit: Wikipedia/CC BY 3.0

Social bonding between randomly assigned college roommates is not only a human phenomenon, a new study on vampire bats suggests.

Vampire bat pairs that were forced to live together for only one week sustained their friendly relationships for more than two months after they were released into a bigger bat community.

The study provides rare findings about [wild animal social behavior](#) that are based on precisely measured effects of relationship manipulation rather than on observation alone.

"The process of how social bonds form is this fundamentally mysterious thing that a lot of people are interested in, but have very different interpretations of how it happens," said Gerald Carter, senior author of the study and assistant professor of evolution, ecology and organismal biology at The Ohio State University.

"We're trying to build [vampire bats](#) as a system where we can directly test these interpretations. In this experiment, we forced them together for a short amount of time and then measured their grooming rates, which increased by a specific amount over a period of time. It just hasn't really been done before."

The study was conducted by Imran Razik with help from Bridget Brown, both Ohio State graduate students in evolution, ecology and organismal biology. Carter and Razik are also affiliates of the Smithsonian Tropical Research Institute in Panama, where the study took place.

The research is published in the journal *Biology Letters*.

The team captured seven adult female vampire bats from each of three distantly located roosts to assemble the colony of 21 bats for the study.

For the first six weeks, the vampire bats mingled together freely among familiar roost mates and strangers from the other roosts. Next, during the treatment phase, researchers split the bats into seven smaller groups. For each group, they selected one bat from each of the three sites and forced them to live together as a trio for seven days.

Pairs of bats that lived together were identified as test pairs whose grooming behavior was compared to two other types of pairs—control pairs that were not forced into proximity, and familiar pairs of bats that were caught from the same roost.

Following the treatment period, all of the bats lived freely together again for nine weeks.

During the three study phases, Razik observed and measured all bat grooming interactions of 5 seconds or longer that were captured by three infrared surveillance cameras operating for six hours each day.

"From early on, they had potential to start grooming relationships, and then we did the forced proximity phase to see if we could increase the rates of grooming in random pairs. We then measured grooming during the post-treatment phase to compare pre- versus post-treatment grooming," Razik said.

Results showed, based on the overall mean change in social grooming rates, that the forced proximity phase increased social grooming in test pairs more than in control and familiar pairs.

"It was a striking pattern," Carter said. "One thing you might imagine is that, after these bats are in their 'college dorm room' together, they stay together for a little while afterward but that quickly goes away—but we didn't see that. The test bats were still grooming each other more than the control bats even at the end of the experiment, nine weeks later."

Razik noted that many of the new test pairs had done some reciprocal [grooming](#) in the first six weeks, but the team focused their analysis on the effect of the randomly assigned forced proximity treatment in shaping lasting social bonds.

"During the forced proximity phase, each bat had two partners with whom they could interact, and in the post-treatment phase they had at least 20 other available partners—even some they knew beforehand that had been captured from the same site," he said. "So the fact that the preference was visible and clear and throughout the entire nine weeks is a meaningful result—and the effect was clear in all the ways we statistically analyzed the data."

This single study does not settle the question of how social bonds form in the wild, which are considered important for animal health, well-being, survival and reproductive success. Scholarly debate continues on the relative importance of potential causal factors: Are animals drawn to others with similar characteristics, or do opposites attract? Is merely living in [close proximity](#) sufficient to become friends, or are bonds formed by giving each other help?

"What this experiment tells us is there is a causal relationship between being forced into the same space and actually having a preference for each other later," Carter said. "Which is why the college dorm room is a perfect example: You get randomly paired with somebody and because of that, you continue to seek that person out later. There's a relationship that formed. It might be really obvious for humans, but we don't know to what extent this is happening in other animals."

**More information:** Forced proximity promotes the formation of enduring cooperative relationships in vampire bats, *Biology Letters* (2022). [DOI: 10.1098/rsbl.2022.0056](https://doi.org/10.1098/rsbl.2022.0056). [royalsocietypublishing.org/doi/10.1098/rsbl.2022.0056](https://royalsocietypublishing.org/doi/10.1098/rsbl.2022.0056)

Provided by The Ohio State University

Citation: Like college roommates, vampire bats bond when randomly paired (2022, April 5)  
retrieved 26 April 2024 from

<https://phys.org/news/2022-04-college-roommates-vampire-bond-randomly.html>

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