

Why giant pandas roll around in horse manure

8 December 2020, by Bob Yirka



A wild panda with manure. Credit: Fuwen Wei.

A team of researchers at the Chinese Academy of Sciences working with the Beijing Zoo, has found a possible explanation for horse manure rolling (HMR) by giant pandas. In their paper published in *Proceedings of the National Academy of Sciences*, the group outlines their decade-long study of the odd behavior by the pandas and what they found.

Approximately 10 years ago, members of the research team observed a [giant panda](#) living in the wild pausing to roll itself in a large pile of horse [manure](#). Intrigued, the team began watching for other observations of the strange [behavior](#). Over the past decade, they documented 38 instances of HMR by wild giant pandas. Confused by such strange behavior, the researchers began looking for an explanation.

Over time, they noticed that the pandas were not just rolling in the manure, they were working hard to cover their entire bodies in the feces—and it was not just one or two pandas, it was dozens of them. Eventually, they that the pandas seemed to carry out HMR only in the cold months—specifically, when temperatures dropped below 15° C. That suggested the pandas were using the manure to

somehow ward off the cold.

Giant pandas, like all bears, are covered in fur, and past observations have shown that they are very well suited to living in chilly conditions. Still, the evidence suggested the bears were benefiting from the manure, but only when it was cold. To find out what the incentive might be, the researchers began studying the horse manure. And they also noticed that the pandas only bothered with fresh manure. They isolated two chemicals in horse manure, beta-caryophyllene and caryophyllene oxide—both are aromatic and both dissipate quickly. They tried applying the chemicals to hay in captive panda enclosures and found that that pandas liked it—when it was chilly, they would roll around in it just as the wild pandas did with the manure. They next tested it with mice and found that it made the mice less averse to cold conditions.

The researchers suggest that the chemicals likely give the [pandas](#) (and mice) a feeling of warmth, similar to Vick's VapoRub on human skin. It does not actually help them stay warm—it just takes the sting out of cold air.

More information: Wenliang Zhou et al. Why wild giant pandas frequently roll in horse manure, *Proceedings of the National Academy of Sciences* (2020). [DOI: 10.1073/pnas.2004640117](https://doi.org/10.1073/pnas.2004640117)

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APA citation: Why giant pandas roll around in horse manure (2020, December 8) retrieved 2 March 2021 from <https://phys.org/news/2020-12-giant-pandas-horse-manure.html>

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