

Skin hair skims heat off elephants

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This is skin hair on African and Asian elephants. Credit: Citation: Myhrvold CL, Stone HA, Bou-Zeid E (2012) What Is the Use of Elephant Hair? PLoS ONE 7(10): e47018. doi:10.1371/journal.pone.0047018

Body hair in mammals is typically thought to have evolved to keep us warm in colder prehistoric times, but a new study suggests that it may do the opposite, at least in elephants. Epidermal hair may have evolved to help the animals keep cool in the hot regions they live in, according to new research published Oct 10 in the open access journal *PLOS ONE* by Conor Myhrvold and colleagues at Princeton University.

Though the idea that low surface densities of hair can help dissipate heat is a popular concept in engineering, the biological and evolutionary significance of sparse skin hair is not well known. The authors studied the effects of skin hair densities in Asian and [African elephants](#) on thermoregulation in these animals, and concluded that elephant skin hair significantly enhances their capacity to keep cool under different

scenarios like higher [daytime temperatures](#) or less windy days.

Their research suggests that the dense body hair of furry animals helps with insulation, but as skin hair grows sparser, a tipping point is reached where, for animals such as elephants, skin hair begins to help release heat from the body rather than retain it.

According to the authors, elephants have the greatest need for such heat loss to maintain a constant body temperature, since they are large terrestrial mammals that live in hot climates. Their results are the first to suggest that animal hairs could play a role in heat dissipation that could be beneficial to certain animals, like elephants. Elie Bou-Zeid, corresponding author on the study, says "Sparse hair increases [heat dissipation](#) from the skin of elephants and help the largest terrestrial mammal meet its thermoregulation needs."

More information: Myhrvold CL, Stone HA, Bou-Zeid E (2012) What Is the Use of Elephant Hair? PLoS ONE 7(10): e47018. [doi:10.1371/journal.pone.0047018](https://doi.org/10.1371/journal.pone.0047018)

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