

Elephants avoid costly mountaineering

July 24 2006

Using global-positioning system data corresponding to the movements of elephants across the African savannah, researchers have found that elephants exhibit strong tendencies to avoid significantly sloped terrain, and that such land features likely represent a key influence on elephant movements and land use.

On the basis of calculations of energy use associated with traversing sloped terrain by such large animals, the researchers found that this behavior is likely related to the fact that even minor hills represent a considerable energy barrier for elephants because of the added calorie consumption required for such movements. The findings are reported by Fritz Vollrath of the University of Oxford and elephant experts Jake Wall and Iain Douglas-Hamilton of Save the Elephants, and appear in the July 25th issue of *Current Biology*, published by Cell Press.

Understanding the factors that determine locations of elephant density hot-spots and use corridors is critical in helping to secure safe niches for elephants in the face of growing human encroachment on elephants' native habitat. In their study of elephant movements, the authors focused on the Samburu/Isiolo/Laikipia districts in northern Kenya, which represent an area of about 32,000 square kilometers of mostly unprotected habitat. This range is home to about 5,400 elephants.

In the course of studying the influences of a range of environmental factors on elephant movement, the authors found that elephant density dropped off significantly with increasing hill slopes. While this effect may well involve such factors as risks of injury and overheating, or lack

of water, the authors' calculations of the energy required for elephants to traverse sloped terrain indicate that the energetic costs of such movement could be a main factor influencing this behavioral tendency. For example, the authors calculate that climbing 100 meters would "burn" energy that would take an extra half hour of foraging to replace--or would need to be paid for by expenditure of body reserves. In light of their calculations, the authors point out in the paper that "clearly, climbing is something that an elephant should not do lightly, but should weigh very carefully."

On the basis of their findings, the authors suggest that large animals probably take a rather different view of their surroundings than do lightweight animals, and that this is probably especially true of heavyweight animals, like elephants, that are herbivores, for whom energy replenishment can be especially time consuming.

Source: Cell Press

Citation: Elephants avoid costly mountaineering (2006, July 24) retrieved 17 April 2024 from <https://phys.org/news/2006-07-elephants-costly-mountaineering.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.