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## Elephants 'don't do hills' scientists reveal

Hannibal must have had a hard job crossing the Alps, according to new research which shows that elephants hate climbing hills.

Scientists used global positioning system (GPS) satellite tracking to follow elephants across the African savannah.

They found that the animals studiously try to avoid sloped terrain, and hills were a key influence on elephant movement and land use. Even minor hills represent a major energy barrier for animals as big as elephants, the researchers discovered.

An elephant needed to boost its calorie consumption dramatically to climb a hill - which meant finding a lot more to eat.

The researchers, led by Professor Fritz Vollrath from Oxford University, focused on the Samburu/Isiolo/Laikipia districts of northern Kenya which cover 32,000 square kilometres and are home to around 5,400 elephants.

They found that elephant population density dropped significantly with increasing hill slopes. Calculations showed that the energy cost of trudging up hills was a likely explanation.

A 4,000 kilogram elephant would need an extra 100 kilojoules, or 25 calories, of energy for every vertical metre climbed - around 2,500 per cent of the cost of level walking.

"Climbing 100 metres would 'burn' 10,000 kilojoules which would have to be either replenished by an extra half hour of foraging or paid for by using up body reserves," the researchers wrote in the journal *Current Biology*.

"Clearly, climbing is something that an elephant should not do lightly, but should weigh very carefully."

Megafauna such as elephants probably took a "rather different view of their surroundings" than more lightweight animals, the scientists concluded.

"This is especially true of the heavyweights, like elephants, are herbivores for which energy replenishment is so much more time consuming than it is for carnivores," they added.

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