Re: Lizard engines and rat engines

Source: http://sci.tech−archive.net/Archive/sci.bio.evolution/2005−07/msg00215.html

- *From*: dkomo <dkomo871@xxxxxxxxxxx>
- *Date*: Sun, 10 Jul 2005 20:28:11 −0400 (EDT)

g wrote:

> "dkomo" <dkomo871@xxxxxxxxxxx> wrote in message
> news:dak4steco1@xxxxxxxxxxxxxxxxxxxxxx
>
>>g wrote:
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>
>>And it jars me to see someone make a statement like this, which to me is
>>akin to ignorance. Elephants have big ears for very *specific* reasons.
>
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> ???
>
>> Being so large and living under the blistering sun of the African
>>savannah, African elephants have severe problems with potential
>>overheating. Their ears are an important way of dissipating much of
>>this body heat.
>>
>
> Let me see if I'm getting this right. If the why of it is that larger
> animals
> have big ears because of their size and the temperature of the climate
> where they live, then giraffes and ostriches have ears that are not as large
> because they are smaller and live in a cooler climate. And Indian elephants
> are smaller and live in a cooler climate, which explains why theirs are
> much smaller. And jackals have larger ears for their body size than
> rinoceroses because they are larger than rinos and live in a hotter climate.
>
> Now that's ...
>
> Uh oh, wait...
>
> No that's not right...
>
> Dang ! For a minute there I almost thought I got it.
>
> (:>)

>
> g
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>

There's nothing that says evolution has to converge on the same solution to a problem (big ears for big mammals in a hot climate). As far as other large bodied African mammals, Lavers has this to say:

"We are now, at last, in a position to answer the title question of this book: Why do elephants have big ears? Or, to put it in its comparative form for those who already know the answer but not the reason, why do elephants have big ears when rhinos, giraffes, and all the other warm−blooded mammals toiling under the African sun do not? The crucial difference between elephants and all other land animals is probably size: the mismatch between the amount of metabolic heat produced and the amount of skin through which it can escape tends to increase as animals get bigger, and elephants are fully twice as heavy as any of their savanna neighbors. So being bald like a rhino is not enough. Elephants need some additional way of ridding themselves of excess heat, and large flat ears densely packed with tubes through which hot blood can be pumped are a rather neat solution."

Why Elephants have Big Ears, p. 18

If we look at closely related animals we may detect a pattern that wouldn't be present by looking at disparate animals. The African elephant actually has two species: the savannah or bush elephant, and the little−known forest elephant from the equatorial woodlands of central and western Africa. In addition to the African varieties, there is also the Indian elephant. The Indian and forest elephants inhabit shaded woodland where temperatures are much lower than on the savannas. Though Indian and African forest elephants have ears that are huge by normal mammal standards, they are considerably smaller than the enormous flaps that grace the heads of their bush−dwelling cousins. Also, there is the extinct woolly mammoth. It was as huge as the African bush elephant but lived in the very cold climate of Siberia. Though mammoths of Siberia were majestic beasts in many ways, there is one anatomic department in which they were distinctly lacking compared with their living relatives: they had tiny furry ears.

Another comparison of ears is between the fennec fox of the Sahara desert and its cousin Arctic fox. The fennec fox has huge erect ears −− 6 inches long for a body size of about 2 feet. They are cooling radiators. The Arctic fox has tiny pinned−back ears covered by thick fur.

Finally, I found the presence of the ostrich in the comparisons above a bit hilarious. The ostrich is a bird and one of the main characteristics of birds is that they don't external ears for aerodynamic reasons. In fact, I thought that *no* birds had external

ears until I did some checking and found an illustration of a great horned owl which shows it with what appear to be ears (or they could be tufts of feathers −− hard to tell). The other species of owls, including the barnyard owl and snowy owl are quite "bald" when it comes to ears.

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- ***References***:
  - ♦ ***Re: Lizard engines and rat engines***
    - ◊ *From:* g
  - ♦ ***Re: Lizard engines and rat engines***
    - ◊ *From:* dkomo
  - ♦ ***Re: Lizard engines and rat engines***
    - ◊ *From:* g

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