



Sugar glider. © Barritt

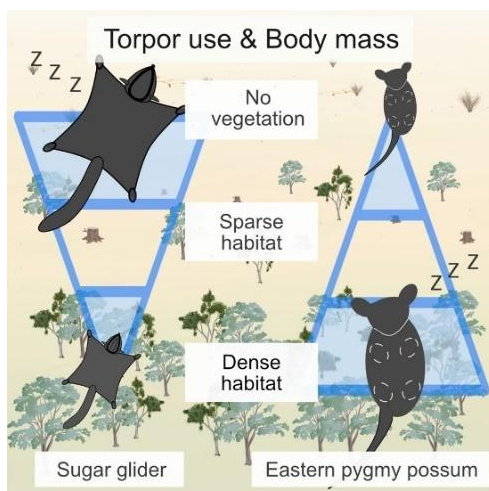


Eastern pygmy possum. © Jackson

Diversity at its finest! How mammals respond to a changing environment

Habitat degradation, temperature, group dynamics, and the list goes on. The diverse mammals of our world are constantly being exposed to different changes. So how do they react? The answer: differently!

[Our study](#) highlighted this diversity in relation to eastern pygmy possums and sugar gliders. We recorded body temperatures, body masses and torpor use to contrast their responses to habitat degradation. ([Torpor](#) is a state of dramatically lowered physical activity and body temperature.)



Sugar glider and eastern pygmy possum contrasting responses. © Stawski and Simmonds

Similar or opposite

Eastern pygmy possums and sugar gliders are nocturnal Australian marsupials with similar habitats and diets. However, their responses to changing vegetation density could not be more opposite.

[Our observations](#) of these mammals investigated this contrast. Increased vegetation cover caused sugar gliders to reduce torpor use, so their body mass [decreased by about 0.38g](#). Whereas eastern pygmy possums increased torpor use, so their body mass [increased by approximately 0.22g](#). Sugar gliders

appeared to view dense vegetation as an indication of improved food availability and protection. Therefore, they increased physical activity. Whereas eastern pygmy possums seemed to proactively build up fat reserves in anticipation of future shortages.

Despite significant similarities, these marsupials respond to certain habitat changes completely differently. Such diverse responses to environmental changes are not only limited to these mammals.

Here, we check out a few more!

Pink dolphins are real!

They might sound like mythical creatures, but they do actually exist! [Indo-Pacific humpback dolphins](#) are a species of dolphin found in coastal areas near China, Southeast Asia and India. These dolphins are under serious threat from habitat degradation, pollution and fishing accidents.



© Wesley Overman

Temporary pink colour of Indo-Pacific humpback dolphins. © Overman

They can be coloured black, grey and white at different ages during their lives. The [pink colouring](#) only occurs in dolphins in certain geographic locations, and is actually a temporary characteristic. They have “blood vessels located just under the surface of the dolphin’s skin, which dilate when it’s exerting itself”. When they become very active or hot, blood moving through these vessels allows internal heat to be lost. This cools them down. This unique response to physical exertion or [warm tropical waters](#) causes them to appear flushed!



Mountain gorillas live in very close family groups. © Gorilla Doctors (UC Davis)

Gorilla support groups

Maternal loss can have a severe impact, not only on us, but also on other mammals. However, the negative effects can sometimes be alleviated or overcome with supportive social networks. This is the case for mountain gorillas. [Gorillas](#) have family units “of usually five to 10, but sometimes two to more than 50”.

Typically, maternal loss causes social challenges for many mammals. However, for [mountain gorillas](#), this loss strengthens relationships with other group members. Gorillas can remain with their mothers long after they become independent. Therefore, maternal loss would be expected to have a debilitating impact. However, instead, their strong group relationships can reduce social difficulties and prevent decreased health.

Democracy vs ‘Simon Says’

‘Where to next?’ sounds like a very simple question. But for some mammals, answering it is an interesting process. African buffalo and domestic free-ranging goats each have a very different approach.

[African buffalo](#) herds stand in a particular direction to indicate their “travel preferences”. This democratic process is much like voting and exclusively involves adult females.

In contrast, [domestic free-ranging goats](#) make travel decisions by simply following one another. Rather than rely on an organised process, they copy one another’s physical movement to determine ‘where to next’.



Only adult female buffalo participate in voting. © Nobby’s Photography



Domestic free-ranging goats make travel decisions by following. © fir0002

Both these mammals live in herds that move depending on factors such as food availability. They must make collective decisions in order to maintain a cohesive group. However, their responses to this need are vastly different!

The natural world is constantly changing. And mammals must respond to such changes in order to survive. Additionally, their unique responses are essential for their survival in different habitats. And it makes our world a beautifully diverse place!

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