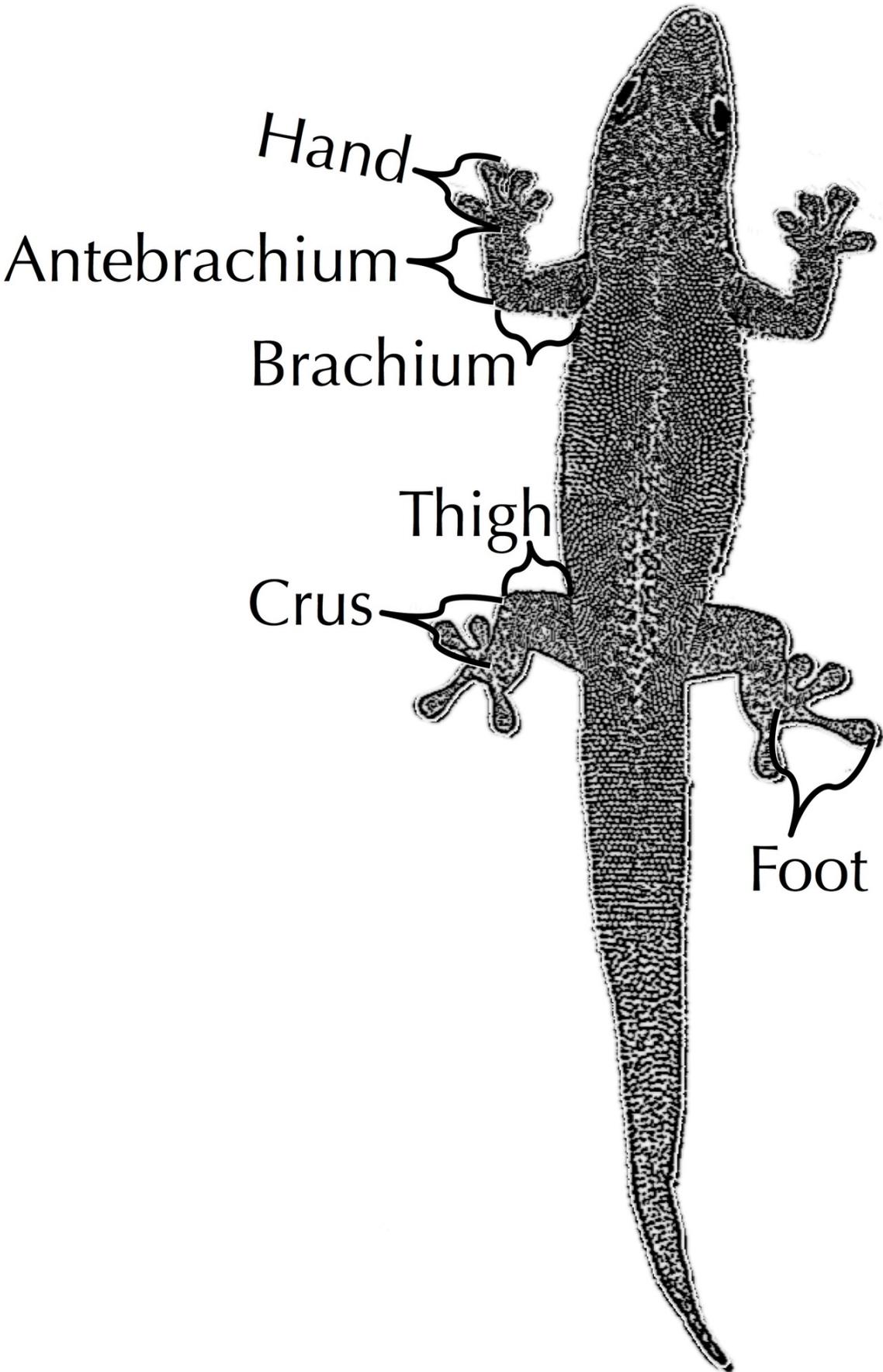


Tree-climbing geckos that use narrower perches have longer limbs than expected

September 27 2017



The limb measurements of the lizard. Credit: Hagey et al (2017)

Tree-climbing geckos that use narrow perches have relatively longer limbs than comparisons with other tree-climbing lizards would suggest, according to a study published September 27, 2017 in the open-access journal *PLOS ONE* by Travis Hagey from Michigan State University, US, and colleagues.

Some lizards, notably anoles, that use narrow perches in trees have evolved shorter limbs. This correlation is likely due to biomechanical trade-offs between sprint speed, balance and limb length, suggesting that relatively short limbs may be a common adaptation to movement on narrow perches. However, it's not clear whether more distantly related lizards evolved and adapted their morphology in the same way for tree climbing.

Hagey and colleagues compared the morphology and microhabitat use of two distantly related [lizards](#): anoles and [geckos](#). Like anoles, geckos have adhesive toe pads and many are arboreal, leading the researchers to hypothesize that geckos with shorter limbs would similarly be associated with narrow perches. The researchers investigated by measuring limbs of 38 species of pad-bearing geckos as well as by observing microhabitat use of 13 pad-bearing geckos in Queensland, Australia; perch diameter was measured for geckos that used vegetation. For comparison, the researchers used existing data on limb length and microhabitat use for 63 species of anoles.

Surprisingly, the researchers found the opposite relationship than expected between gecko [limb](#) length and microhabitat use. Unlike the

anoles, geckos that used narrower perches had limbs that were relatively longer than those using wider perches.

The researchers suggest that geckos may not be subject to same trade-off between speed and balance as anoles, and so may negotiate narrow perches differently. For example, compared to anoles, geckos generally generate greater frictional and adhesive forces, which might let them resist lateral forces more effectively and so cling to narrow perches better. These findings, say the researchers, reinforce the concept that even when species use similar habitats, their separate evolutionary histories can still give them individual characteristics.

More information: Hagey TJ, Harte S, Vickers M, Harmon LJ, Schwarzkopf L (2017) There's more than one way to climb a tree: Limb length and microhabitat use in lizards with toe pads. *PLoS ONE* 12(9): e0184641. doi.org/10.1371/journal.pone.0184641

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