

COLUMNISTS

Defying gravity with geckos

Jan Carrington Special to the Reporter-News

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I met my first gecko in the 1970's on the island of Guam, where it was customary to give a gecko as a house-warming gift.

Why? To control the insect population inside the tropical home. It didn't take long for me to appreciate how remarkable they were at keeping roaches and spiders and other tiny critters from taking over our house. I have loved geckos ever since!

Geckos thrive in jungles and deserts, mountains and plains, cities and towns on all continents except Antarctica. The Mediterranean gecko is an introduced/invasive species that is ubiquitous in Texas and the southern United States. Geckos in Texas are usually greyish or cream-colored with darker brown mottling.

They prefer temperatures above 50 degrees but they can survive cold snaps. I know this because our resident population of geckos survived the Big Freeze.

Mammals hibernate. Reptiles brumate. Brumation is a state of torpor that reptiles enter when it's cold and fewer bugs are available to eat. Geckos hunker down under piles of leaves and in small spaces until the cold passes.

Geckos, males especially, click and chirp to advertise for a mate. Male and female geckos also vocalize to settle territorial disputes, warn off other geckos and deter predators. Their vocalization sounds have been described as "mouse-like squeaking."

Females will lay multiple clutches of eggs from March to July, two hard-shelled eggs in each clutch, in building nooks and crannies, tree trunk crevices, under rocks, or in the soil. Eggs will incubate for up to three months.

Geckos have several superpowers that enable them to be successful at catching insects while evading capture themselves.

Their superpower nocturnal vision is estimated to be 350 times more sensitive to low light conditions than human eyes.

Geckos can see colors in the moonlight. All animal eyes have light sensitive cells called rods and cones. Rods detect light. Cones recognize colors. Millions of years ago, geckos were diurnal, with cones for color but fewer rods, since they didn't hunt at night. As they evolved into nocturnal creatures, their cones became more rod-like (better able to see in the dark) but maintained the ability to detect colors.

Geckos dilate their pupils very wide to let in maximum light, like having our eyes dilated at the optometrist, but this normally causes blurry vision. Geckos counteract this by having evolved "multifocal lenses" that bend light to slightly different degrees, allowing them to bring things into focus, even with dilated eyes.

Geckos are also famous for their gravity-defying maneuvers. They cling to walls and ceilings, but they also can unstick themselves quickly when needed to catch a bug or escape a predator.

Geckos grip vertical surfaces with bulbous toepads covered in hundreds of tiny microscopic hairs, called setae. Each seta is made up of hundreds of even smaller hairs called spatulae. These tiny tufts of hair get so close to the contours in walls and ceilings that electrons from gecko hair molecules and those from the wall molecules interact with each other, creating an electromagnetic attraction.

Scientists have discovered that the angle of gecko toe hairs also contributes to this stickiness, making it possible for them to stick and unstick their feet and sprint 20 body lengths per second.

Lastly, geckos can drop their tails if attacked. The tail wiggles and squirms, distracting predators, while the gecko escapes. Tails have a "pre-formed score line," which explains how they easily detach and also offers a location for regeneration. Gecko tails contain genes for wound healing, cell growth and tissue regeneration, and scientists are studying these phenomena for human medical purposes.

My geckos will be on the porch tonight, defying gravity, and I will be watching them. I encourage you to check out your porch or outside area and look for these amazing lizards.

Jan Carrington is a volunteer Texas master naturalist in our local Big Country chapter. They are proudly sponsored by Texas Parks & Wildlife and Texas A&M AgriLife Extension.

For more information about Texas master naturalists go to txmn.tamu.edu or on Facebook at BCTXMN.