

# The Hare and the Tortoise, Reptile Style

By Jean Mason

**Petroglyph National Monument.** *A slender form glistens sparkle-white in the morning sun, perched to warm up on a rising rock ledge of black lava basalt. From time to time, a long rounded tail flicks restlessly, like a bridled stallion straining to break free. Suddenly, a large yellow head pops up; standing ten inches tall on hind legs, tail held to the sky, a collared lizard is off. He scrambles nimbly over and through the lava field, then to the scrubland below. Grasshoppers are in sight. He's wheels up, tail swinging as his center of gravity shifts, front legs still and flexed, hind legs running at 16 miles an hour with strides equaling three of his body lengths. Closing in, he slows to a stalk. Prey captured, large muscles in his head operate a strong jaw that crunches down hard.*

**A Stony Hillside in Central New Mexico.** *Parked flat by an acacia bush is a plump wide body colored grey with pale pink spots. Unmoving, the body is perfectly matched and nearly invisible against the shrubby, sandy, rock-strewn background. Back to the sun, the lizard waits patiently for honey pot ants, his morning meal, to descend from the leaves above. This nearly three-inch shrinking violet is a member of the genus *Phrynosoma*, or horned lizards - dagger-armed, blood squirting, scale-fringed analogues of cactus plants, the most bizarre of North American lizards. Like his better-known relative, the Texas horned lizard, the round-tailed horned lizard, too, is a misnamed horny toad.*

New Mexico's collared lizard *Crotaphytus collaris* and round-tailed horned lizard *Phrynosoma modestum* are both carnivores, making a living on similar rocky scrubland. But they are one-eighty opposites in form and behavior when managing the challenges of survival. Yet they can and do come in contact with each other, contact that can turn deadly.

Known to many as an iconic Chihuahuan reptile, collared lizards are equally at home at altitudes up to 9,000 feet in piñon-juniper woodlands as well as down on desert shrublands, riverside grasslands, and lava fields. Collared lizards range west from the Mississippi River, through Texas and Oklahoma, into southern Colorado and Utah, on to the Arizona-California border, then south through the Mexico's Chihuahuan Desert to San Luis Potosí. New Mexico offers habitats to four *collaris* subspecies throughout the state where body color can vary from light to dark green and brown; in the Rio Grande Valley, collared lizards tend to be green with yellowish heads. Females are paler except in breeding season when flanks and heads display stripes of orange-red, brightening as ovulation nears. Two incomplete black and white neck bands give the lizards a tailored look.

## This Land is My Land

Wherever he rock-climbs, a collard lizard male stakes out a territorial claim to the land and to the females he intends to protect within it. Some claims may be just 4.78 square yards (measured in Kansas) or stretch to 1.87 square miles (in Oklahoma). Collards enter a six-month under-rock hibernation in the fall when ambient air and their body temperatures drop below 100°. Warming up in April, a male reigns on top on his sun rock domain, an eye in the sky for spiders, insects, and small



snakes, and always a watchful scan for predatory hawks, coyotes, and large colubrids.

Unfamiliar intruders to his territory (resident males can recognize individual lizards regardless of context) will soon find that a collard's land title is non-negotiable. Approaching at a distance, a claim jumper provokes head bob displays, pushups, a lifted and side-flattened torso, and broad extensions of a male's colorful dewlap. Closing in, a stranger incites a super chase, run at near maximum collard speed, followed by an all-out attack with painful deep bites.

Although sexually mature in their first activity season,

collard males rarely try to acquire a territory till age two. Some may live to age five or more, but survival remains rare beyond age three, resulting in death over winter of 40-50% of territorial proprietors. Openings are all around for those eager two-year-olds - but they'll have to work for it. The remaining three-year-old males are experienced landlords: They'll expand into larger territories with more females to mate, and being land-savvy, they're somewhat relieved of constant, stressful territorial duty along with required

close attention to ownership advertisement. Aggression against competitors eases, too. The average territory of three-year-old males has been measured at 1.4 times larger than that of two-year-old collared lizards.

### Change Partners and Dance

Their first full year after hatching, spring-warmed collard females signal receptivity with their new orange-to-red spots and bars, joining in courtship with their male partners. Both are of one mind, mushrooming to mate. Mutuality includes snout to snout nudges, neck grabs, push-up displays, and prancing in circles around one another.

*Collard lizards can muster up different colors – green, blue, olive, brown, or yellowish – to suit age, sex, and local environment. In the disguise game, however, they are edged out by a fellow New Mexican found throughout most of the state, including the Albuquerque area: The round-tailed horned lizard, Phrynosoma modestum.*

### Vanishing Acts

One of eight horned lizard species in the continental U.S., roundtails also range through southeast Colorado, west Texas, and southeast Arizona, and through the Chihuahuan desert to Zacatecas and Nuevo Leon in Mexico.

In their desert grasslands, stony shrubland habitats, and even in juniper woodlands at 7,200 feet, changes in the micro-climate and intrusive activity in their habitat will urge roundtails to undergo profound and subtle changes in the hues and intensities of their body color patterns, always staying close to the colors of their substrate and employed for both thermo-regulation and predator avoidance. As warm mornings become hot afternoons, or when a stalking patch-nose snake slinks by, heat (or self-defense) will blanch out greys, browns, and pinks for the diurnal lizard, keeping him hidden under his pale wraps (also, light colors reflect heat). At the opposite end, cool-to-cold nights will deepen his colors, retaining heat. Two chromatophore cell types in his skin work together to mediate the changes. Roundtails can exhibit different color shapes within a single, local population.

With his small body, few back spines, and four modest head horns but no spines on his sides that other horned lizard species have, a roundtail can also mimic small stones. Standing stock still, he tucks legs close in, holds his head down, and arches his body up high. Dark shadow markings on his lower back add to the disguise, making a roundtail disappear into the semblance of a stone pile.

### An Ant Buffet

Although they'll take bugs, beetles, spiders, and other small insects, roundtails are specialists: Ants – particularly harvester, honeypot, and big-headed species – make up at least 85% of their diet in New Mexico. Standing poised over ant hills, they wait for action; carefully, they lick the runaways up with a sticky tongue. Since ants contain a lot of indigestible chitin, roundtails must eat many, at least 100 a day. Digesting is the job of a stomach that's big for the lizard's small size. A large gut dictates a tank-like body form, which, in turn, reduces running speed and the option of escape from predators by flight. To cope, nature has favored a horned lizard's stocky body, his stand-still

A female will lay five to nine white, leathery eggs beneath a rock excavated for their protection; she'll also add a dirt plug to foil predators. That's that and that's enough for female collard care. She's off to breed and bear another clutch.

After two to three months, tiny hatchlings appear; in their early weeks, many assume the orange-red spots that their mother wore, perhaps preventing attacks (and predation) by the resident male. Feeding furiously on insects, hatchlings triple in size and develop large fat bodies that prepare them for winter. Each will pick a rock, likely facing south, then dig down eight or ten inches for a six-month, long winter's nap.



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armored predator response, color change capability, and hide-away, cryptic behavior.

Roundtails and other horned lizards of the New World share lifestyle traits with just one other desert-dwelling lizard in all the world's deserts: The agamid *Moloch horridus* of Australia. These two and no others share cryptic coloration, a heavy preference for antfood, and spiky body armament. They are ecological equivalents, the result of convergent evolution.

### Bloody Minded

Confronted with a predator, a roundtail may deploy his stand-still disappearing act but also may puff up, show his headgear, and, *in extremis*, run fast for a short distance. In addition, they, and some other horned lizard species, have a special ability: Shooting blood from sinuses at the corner of their eyes, they can strike up to five feet away. In control of the blood pressure in their heads, threatened roundtails will increase it, rupturing eye vessels. The blood contains a chemical, thought to be derived from the roundtail ant diet that binds to receptors in the mouths of canids – dogs, swift foxes, and coyotes, all roundtail predators, who hate the taste.

One predator finds it easy to breach the roundtail's defenses, however. In reverse of how Aesop's tortoise and hare tale ends, common collared lizards can and do capture and eat round-tailed horned lizards.

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