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Mule Deer Constellations

by Jessica A. Moreno



Photos courtesy: Coalition for Sonoran Desert Protection

In winter, a mule deer's antlers are on full display. Mule deer can weigh 130 to 280 pounds, with females smaller than males.

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It is early February, and dawn light highlights the edges of brittlebush and desert marigold leaves before brightening to illuminate the tines of branching antlers. A mule deer is bedded down in a soft depression near a scrubby mesquite, noticeable only because of his slight movements in the morning glow. A cool breeze from the east sweeps softly over the deer's back, carrying the scent of anything approaching from behind while he dozes, one large ear cupped forward, and one back. His warm body is cuddled against the landscape just below the ridgeline, where the hill continues to slope down to the west, providing the deer a clear view as the sun rises. Even at rest and with every semblance of relaxation, he is vigilant and aware of sights, scents, and sounds.

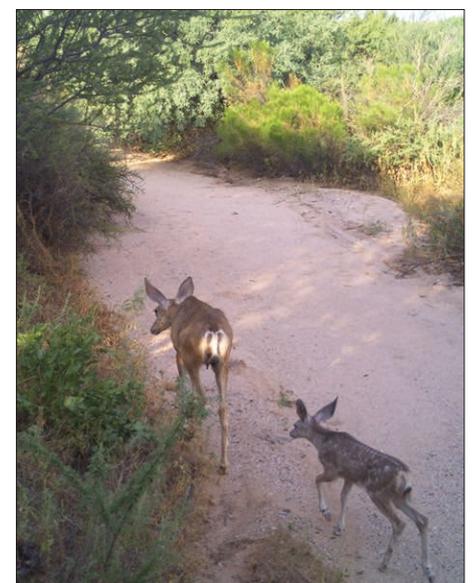
Several hillsides away a volunteer biologist dressed warmly in a camouflage jacket and long pants is lying belly-down near a rock outcropping. Coffee-brown hair frames her binoculars as she focuses northeast, fingers wrapped around the eyepieces, elbows braced in the dirt. She sees the deer. For a moment, the deer seems to stare back. Slowly the biologist releases one hand to bring a walkie-talkie from her belt to her face to whisper with satisfaction: "Got one!"

Teams standing by leap into action. The helicopter pilot, capture crew, and ground teams mobilize. Less than an hour later, the deer has been expertly

caught, tagged, and released, and is now running free with a new accessory: a GPS tracking collar adorning its neck, like a cowbell without a clapper. Three years from now the collar will automatically fall off, after providing thousands of location data points—one every three hours—to help researchers with the Arizona Game and Fish Department map the deer's daily movements.

Mule deer (*Odocoileus hemionus*) are fairly common throughout the western US. They have a white rump with a black-tipped tail, a face mask spanning their forehead, and cloven hooves that leave heart-shaped tracks wherever they tread. Sometimes their tracks will reveal their stotting, or pronging, behavior—jumping with all four feet pushing away from the ground at the same time with the energy of a jackrabbit.

Males have large branching antlers,



In spring, mule deer may give birth to one, two, or as many as three spotted fawns. The fawns will remain with their mothers for about a year.



New antler growth is covered in a fine velvet skin. Unlike horns, which are made of the same keratin as fingernails and grow from the base, a mule deer's antlers are made of bone and grow from the tips.

which fall away or “shed” every spring and are regrown by fall. New antler growth is covered in finely furred, waxy velvet that later dries and is scraped off to reveal the polished bone underneath. Mule deer are both browsers and grazers, eating mainly the leaves, beans, berries, and seeds of shrubs and trees, in addition to available forbs (flowering plants) and grasses.

Here in Arizona, they can be found in many different habitats—from low deserts to mountain forests—overlapping with the smaller, tail-flagging Coues whitetail deer, which are generally more at home in the foothills and higher elevations. The freedom to roam is essential for mule deer, as seasonal migrations between winter and summer home ranges are crucial for their survival.

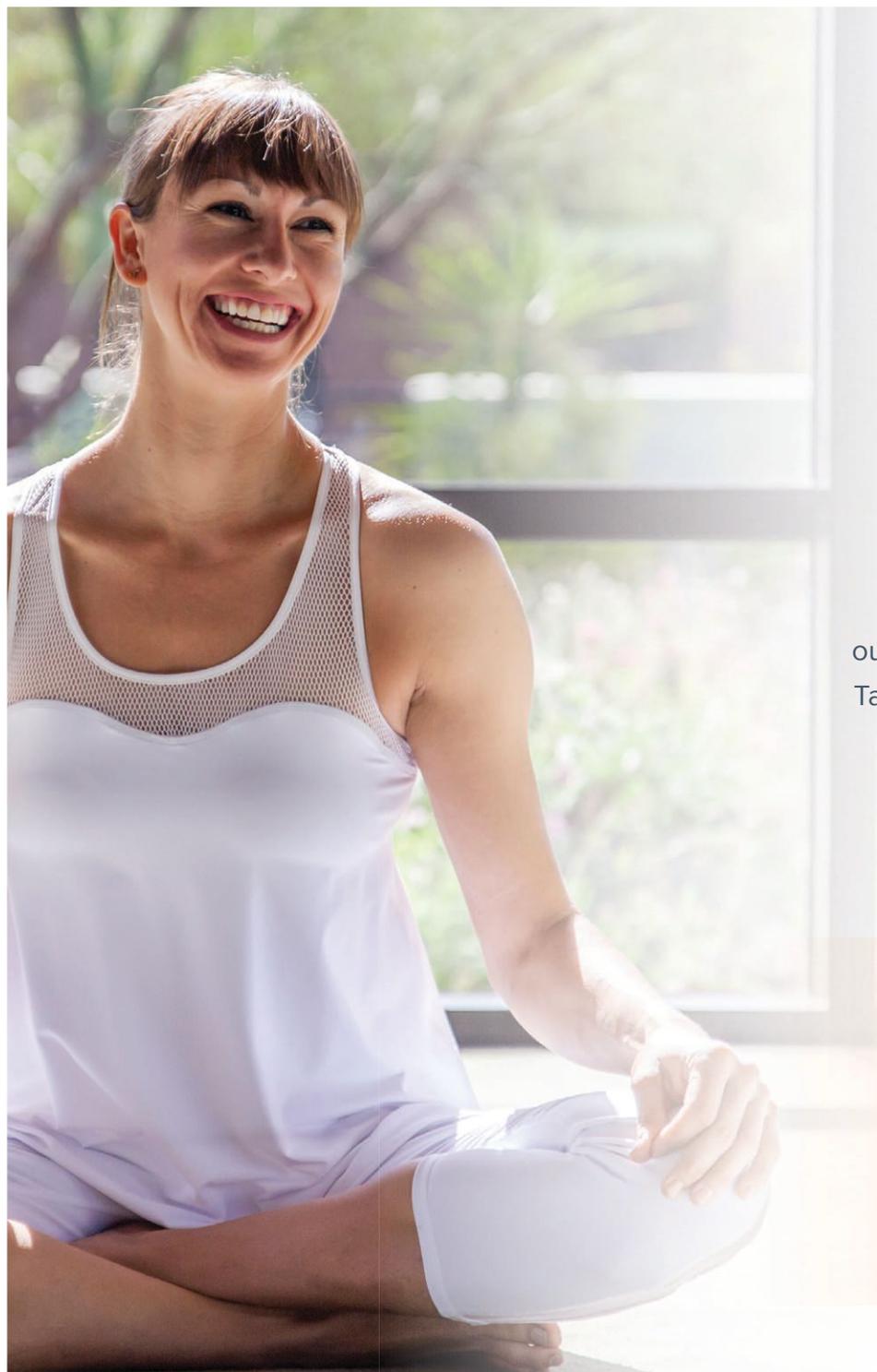
In Wyoming, hundreds of mule deer herds, more than 5,000 animals in total, make the longest known migration of any ungulate (hooved mammal) in the lower 48 states, traveling 150 miles twice a year on the same route between summer and winter grazing grounds. Arizona desert mule deer behave similarly, not unlike human “snowbirds,” but over much shorter distances. Collar data will help map their specific routes and teach us more about their movement behavior.

Just two weeks after his morning disruption, the mule deer's antlers have shed, and his GPS collar has plotted a map of more than 100 points as he traveled north from Tucson's Catalina State Park, over the wildlife bridge on Oracle Road, continuing farther northwest, and then returning southeast again, back over the bridge, exploring and repeating this route several times. The wildlife bridge is a new feature on the landscape that in just three short years has resulted in more than 6,000 animal crossings. Deer, by far, are its most frequent travelers.

When mapped, the data points of the deer's movements look like a constellation, with every point and connecting line fitting snugly in the open spaces between developments and

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to work to keep you balanced. You can build brain cells while working at your desk. A side benefit is that a balance disc forces you to use your core muscles when you're sitting. Strengthening them can help with low-back issues.

Any physical activity you do causes the brain to adapt and change in response, reorganizing pathways and creating new connections, a property of the brain called neuroplasticity. The muscles acting on the movable joints in your body are innervated, and the neurons are the fundamental units of those nerves that send and receive signals from the spinal cord that allow us to move our muscles.

Go for a walk, ride a bike, hike, go dancing—just keep moving—eat well, and exercise. Doing so can increase brain functionality, as well as strength and endurance.

DL

Dr. Michael Buchwald, DC, and Dr. Renee Kishbaugh, DC, Tucson chiropractors, have been practicing together for close to 20 years. Injury prevention and health education are integral elements of their practices. Comments for publication should be addressed to letters@desertleaf.com.

SONORAN SAGE continued

roads. For mule deer to thrive, the effects of roads and other barriers that constrain their habitat, fragmenting it into smaller and smaller chunks, must be addressed: the smaller the constellation of movement data, the greater the deer's struggle to survive.

It is October, and the mule deer has become accustomed to his silent-cowbell bolo necktie. The data he is contributing are being gathered, mapped, and studied. His new antlers, grown larger than the year before, are still sheathed in velvet. He is moving toward his winter grazing grounds, and he'll need the good winter forage to pack on muscle and weight for the coming breeding season.

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Jessica A. Moreno is a biologist and the conservation science director for Coalition for Sonoran Desert Protection. Comments for publication should be addressed to letters@desertleaf.com.

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