

# Starlight Hunter

by Alexander V. Badyaev  
Alex Badyaev/tenbestphotos.com photos

Gray fox negotiates high canopy over Sonoran Desert under full moon. Having evolved to climb tallest trees in a lush tropical forest that once covered ancient Sonoran Desert, the gray fox had accumulated an impressive array of climbing adaptations.

The grey fox evolved when deciduous forests covered North America — and, as Alexander Badyaev reveals, in the Sonoran Desert this arboreal canid still uses its ancient adaptations.

In the last moments of a glorious winter sunset in the Sonoran Desert — the ‘magic hour’, as it’s dubbed by locals in Southern Arizona — a gilded woodpecker calls persistently, announcing a rare find: an unoccupied cavity. Excavated in the spiny trunk of a giant saguaro cactus, towering 45 feet above the rim of a canyon and overlooking a sheer drop, the hole seems the safest place on Earth in which to roost. Usually, long battles are fought over such prized accommodation, and the bird does not quite settle in until total darkness, fearing eviction. This cavity, though, is vacant.

Shortly after midnight, under the faintly flickering stars of the desert night, a long, blue shadow — the size of a large house cat — trots along the cliff edge, jumping from boulder to boulder until it reaches the roots of the saguaro. It pauses for a moment, then effortlessly and silently scales the trunk of an adjacent ironwood tree, gripping with its forelegs and using its hind limbs to power the ascent, its proportionately enormous tail maintaining balance. It pauses at the level of the junction between cactus arm and trunk, about 30 feet up; for a moment it listens to the sounds of the desert, then, in two quick leaps, dives into the cavity. A few seconds of muffled struggle ensue before it emerges with the unfortunate, still-flapping tenant and hops back to the ironwood tree, settling on the uppermost branch where, after a lengthy plucking session, dinner is served — with probably the best view of the Milky Way anywhere on the planet.

My own view, watching the proceedings on my camera screen while perched on a cliff ledge some distance away, is by no means bad, either — though I am much more nervous about losing my balance in total darkness, high above the cactus-peppered desert floor. The cavity and my observation platform both lie within the territory of that now-sated grey fox — one of the world’s most mysterious and unusual canids. It evolved at least five million years ago, when much of North America — including this desert — was blanketed with lush deciduous forests. It is the oldest and most anatomically distinct species of fox, loaded with quite un-fox like adaptations for life high in the canopy.





A pair of grey foxes inspect one of the 'skeleton trees' in their territory

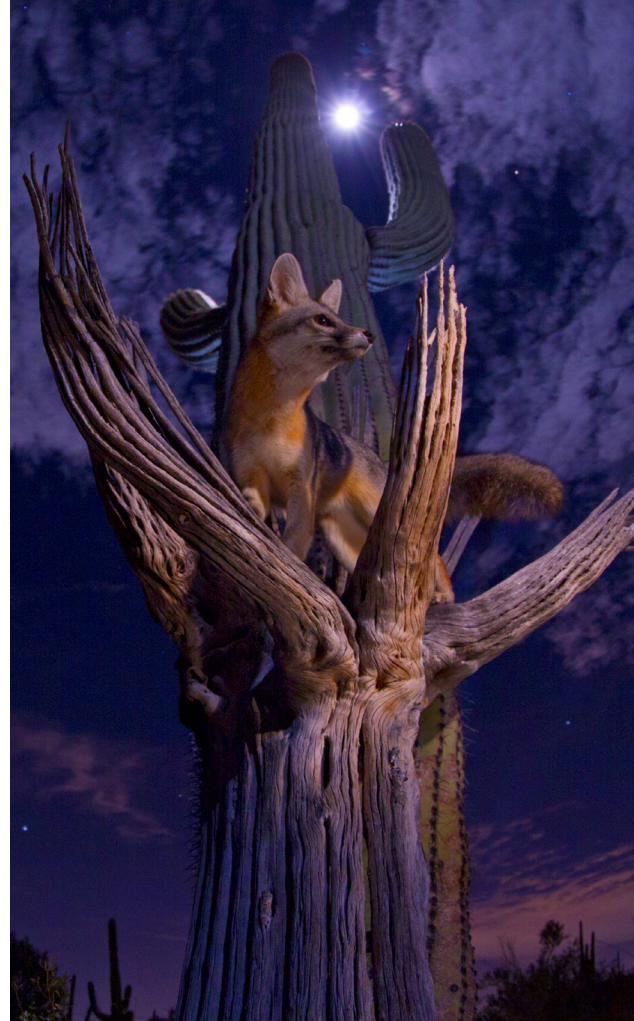
## Composite anatomy

The grey fox's anatomy is notable for features seemingly borrowed from across various mammalian orders. Like primates, it has rotating wrists that enable it to grip the sides of trees to climb branchless trunks. Its long, curved claws and large, spreadable paws resemble those of cats — again, useful for gaining traction on essentially vertical surfaces. A huge, flattened tail, aiding balance during jumps, could have been stolen from a tree squirrel. It hauls itself up branches with short, powerful forearms that would not be out of place on a miniature badger. All this is packaged in the otherwise standard form of a small, large-eared, big-eyed desert fox typical of both Old and New World arid lands.

Like other desert fox species, the grey's senses amaze, especially hearing: When my fox paused during its climb, it was probably listening for the heartbeat of the woodpecker sheltering in the saguaro cavity. In dark desert nights this creature confidently negotiates narrow, high tree branches in faint moonlight, though in total blackness it often loses its grip, especially

during jumps. But when a grey fox does slip, it invariably catches itself and regains its lofty position in a remarkably primate-like fashion — clawing at the bark with widely spread digits and pulling itself up on a branch.

At first glance, the grey fox is a species most unlikely to need such acrobatic skills for high-canopy killings, not least because it is the most frugivorous of all North American canids. In early summer, when cactus flowers and fruits are abundant, these delicacies make up most of the fox's diet. Then, during the monsoon months of July to early September, when the Sonoran Desert again becomes lush and green, its diet is augmented with plenty of migratory grasshoppers, crickets, and large nocturnal moths ambushed around dusk-blooming flowers. And this usually nocturnal species becomes crepuscular. Encountering a grey fox in the dusk, balancing on its hindlegs in a thicket of prickly-pear cacti, muzzle smeared with red fruit juice, it is hard to imagine this animal as the ferocious and efficient predator it will become in a couple



On a moonlight Arizona night, a gray fox surveys the desert from the highest perch it can find.

of months. Then the fox will terrorize high-roosting birds, chase cottontail rabbits and pull them from their burrows, search for and destroy bird nests, and trail herds of collared peccaries in the hope of stealing newborn piglets.

I had always assumed that the rabbit and mule deer fawn skeletons I spotted high in the canopy of ironwood trees were the work of Harris hawks or pumas, though I did wonder how such a large cat could negotiate the thin upper branches where the bones usually hang. To my surprise, infrared video I filmed near one such 'skeleton tree' revealed it to be a social center for a pair of local grey foxes that visit it nightly; they bring food, chase each other, nap, rearrange their macabre collection, and generally make themselves at home. They are exceptionally strong, routinely dragging the remnants of coyote kills high into the canopy.

These dried-out bones seem to be used mostly for marking spots and resting as, effectively, high-elevation fold-out beds.

## Perils of pack predators

There is a good reason why foxes go to so much trouble to carry their prey high into the canopy: They are not only preserving it from a variety of desert-floor marauders, but also protecting themselves from attack. Though their tree climbing and high-level jumping abilities might suggest invincibility, the foxes are frequently killed by local coyotes and, occasionally, bobcats. A shocking 90 percent of all grey fox mortalities in this desert are the work of coyotes, which routinely ambush the foxes, pin them to the ground, and dispatch them with bites to their necks. Interestingly, the coyotes don't eat the foxes, but cache their carcasses — presumably killing them to reduce predatory competition, much like dogs harassing cats. With such assassins on the loose, a fox needs to know its territory like the back of its paw.

Though each can cover more than 3 miles in one night, often trotting around in the dark for hours, a fox will rarely venture farther than a short sprint away from its favorite escape tree. When suitably large trees are available, a mother will prefer to whelp her cubs in a tree cavity. In the overwhelmingly subterranean world of foxes, the grey is a committed arboreal outlier. There is, however, one time of the year when foxes eagerly risk extended journeys away from their established safe territories. During the mating season of late winter, males significantly expand their nightly ranges in search of receptive females. The journeys are often worthwhile: Though foxes are socially monogamous, and pairs often share a common territory, almost every fourth cub — about one per typical brood of four — can result from extra-pair mating forays.

I live in a small adobe cabin in the foothills of a desert canyon. In late January, one particularly adventurous male decided to incorporate my lair into his nightly female-scouting itinerary. Elevated marking platforms are a great rarity in the desert,

and my cabin's flat, low roof and wide windowsill must have been highly desirable — certainly, in a matter of days both had been methodically covered with markings. The windowsill seemed to be particularly attractive — perhaps because the reflections in the window, lit from outside by a small porch light and the moon, conjured up a large displaying rival for my visiting male. Working late for several nights on a grant proposal, I was mesmerized by the sight — on the other side of the glass — of this beautiful animal who would repeatedly jump on and off the windowsill, prowling back and forth while defiantly staring down his own reflection. No infrared camera, no hide, no special equipment — just a comfortable chair, a desk with lamp and computer, and a gorgeous and rarely observed wild mammal only a few feet away. It was a surreal encounter, an extraordinary privilege, offering an intimate insight into the behavior of one of the mostly poorly known North American species. The proposal took forever to finish.

A few days later, realizing that my remote cabin was not the place to find females, the male moved on. I haven't seen him since. But, every now and then, in the middle of the night, the mountain cliff above my cabin erupts with an explosion of quails fleeing their roosts in panicked flocks. And I know that the grey foxes are out there.

The full version of *The Starlight Hunter* appeared in the January 2013 issue of *BBC Wildlife*.

This male was  
keened on seeing  
off a 'rival'  
— his own  
reflection in  
the window.



Highly territorial gray fox male patrols and marks all horizontal areas in his desert neighborhood nightly. Windowsill of a solitary adobe house proves to be particularly attractive because of its elevated position — a rarity in a desert and a reflection of potential rival in the window pane.