



A cactus ferruginous pygmy owl peeks out of a saguaro cactus. The birds raise their chicks in these cactus cavities.

PHOTOGRAPH BY AARON FLESCH

[ANIMALS](#)

Can this tiny owl survive in one of America's fastest-growing states?

Conservationists want the cactus ferruginous pygmy owl back on the endangered species list, but opponents say it's unnecessary.

6 MINUTE READ

BY SHAENA MONTANARI

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PHOENIX, ARIZONA In a desert valley outside Tucson lives a fierce predator that weighs less than a deck of cards. The cactus ferruginous pygmy owl, which nests in the Sonoran Desert's iconic saguaro cactus, routinely takes down prey twice its size. "It's the most ferocious raptor I've ever worked with," says biologist [Michael Ingraldi](#) with the Arizona Game and Fish Department.

But this six-inch-tall bird with its piercing golden stare is no match for threats such as [urban sprawl](#), border wall construction, and [climate change](#) that are closing in from all sides, jeopardizing its existence in the most northern part of its range.

A subspecies of the widespread ferruginous pygmy owl, the cactus ferruginous pygmy owl is limited to [Arizona](#), northern [Mexico](#), and a small portion of southern [Texas](#). At the turn of the 20th century, the bird lived as far north as Phoenix, but now its Arizona range has drastically shrunk to just one area—the 20-mile-wide Altar Valley, which extends to the U.S.-Mexico border. As more people move to Arizona—[one of the fastest-growing states](#)—new housing developments have transformed the [desert](#), clearing out the mesquite trees and cacti that these monogamous owls need to raise their young.

By the early 1990s the bird's population had fallen to a couple dozen individuals, prompting [the U.S. Fish and Wildlife Service to place it on the Endangered Species List in 1997](#). But in 2006, following a lawsuit brought by the [National Association of Home Builders](#), the federal government removed the animal from the list, arguing its protection was unnecessary to saving the subspecies as a whole.

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Once found as far north as Phoenix, the cactus ferruginous pygmy owl's range is now limited to Arizona's Altar Valley, as well as parts of southern Texas and northern Mexico.

The [Center for Biological Diversity](#) and [Defenders of Wildlife](#) sued, and legal battles with the Department of the Interior lasted more than a decade. [In November 2019 the Arizona district court gave the USFWS until August 2021](#) to assess if the reddish brown bird should be put back on the [endangered species](#) list.

Advocates who have fought for the animal over the past decade say it still needs the extra help it will get from federal protection. Listing the subspecies "would have a lot of benefits to the Sonoran Desert and for the pygmy owl," says [Noah Greenwald](#), endangered species director for the Tucson-based Center for Biological Diversity. Those benefits include setting aside habitat and monitoring the bird's population more closely. ([See a different endangered animal in every state.](#))

Left:

Saguaro cactus, which can grow over 40 feet tall, are native to Arizona's Sonoran Desert.

Right:

A young cactus ferruginous pygmy owl is outfitted with a GPS tracking device, which will allow scientists to follow its movements.

PHOTOGRAPH BY TODD GIPSTEIN, NAT GEO IMAGE COLLECTION

(LEFT) AND PHOTOGRAPH BY AARON FLESCH (RIGHT)

Scott Richardson, a supervisory fish and wildlife biologist at USFWS says his agency made the decision to delist the subspecies 14 years ago based on the evidence available at the time. But he says data gathered since then, such as a recent population survey, will factor into the government's decision whether to place the owl back on the list.

Scouring the desert

This spring, Ingraldi and [Aaron Flesch](#), a biologist at the University of Arizona's Desert Lab, conducted a wide search for the owls in their historic and current range within the state. Flesch looked for owls in Pima County, which includes Tucson and Altar Valley, and Ingraldi's team did a more sweeping survey across southern Arizona.

Flesch found at least one or two owls in 28 of their known territories—small areas in which they live and defend from other owls. “The data show populations have been stable on the county lands, Flesch says, “maybe increasing a little bit, and that the county lands really make an important contribution for conservation of the species.” ([Read about efforts to save another endangered bird, the spotted owl, in California.](#))

Ingraldi's team surveyed 52 pygmy owl territories and found that 79 percent of them had one male owl or a nesting pair present, noting 21 of the sites found this year were new.

But his team found that the birds no longer live north of I-10, a major highway that spans Arizona and acts as a sort of invisible barrier the owls can't cross. That's because the birds do not migrate or fly long distances—the males disperse around the desert on moonlit nights by flying low to the ground and hopping from tree to tree or cactus to cactus.

“Pygmy owls don't like to leave areas of good vegetation cover,” Flesch says, “because they're sitting ducks when they do.” Tough as the owls are, a much-larger hawk will snatch up the pint-size owls if given the chance.

Cactus ferruginous pygmy owls (photographed south of Three Forks, Arizona) also nest in mesquite trees.

PHOTOGRAPH BY GEORGE ANDREJKO

The scientists also found no owls in a limited survey of [Organ Pipe National Monument](#), a place the raptors have inhabited in the past. Owls may also live on the nearby [Tohono O'odham Nation Reservation](#), but the exact number is not known.

Overall, this spring's survey identified about a hundred more owls than in past studies in the 1990s and 2000s, but the birds are squeezed into a smaller habitat than before.

Ingraldi and the game and fish department are writing a new report about Arizona's cactus ferruginous pygmy owl in Arizona for the USFWS, which Richardson says will factor into the 2021 decision.

A controversial bird

Within two years of the owl's being added to the ESL in 1997, the federal government imposed land use restrictions—including no new housing development—on more than 730,000 acres of critical habitat in four Arizona counties.

The National Association of Home Builders, which represents land developers nationwide, has long argued that the Arizona population is not critical to the subspecies' survival across its range in Texas and Mexico. (The main species, the ferruginous pygmy owl, lives throughout Central and South America and is not in danger of extinction.)

“Unfortunately, in 1997, the FWS ignored the large number of pygmy owls in Mexico and focused on the much smaller Arizona population,” [Norman James](#), a Phoenix-based attorney who has represented the National Association of Home Builders in owl-related litigation since 1999, said by email.

The land use restrictions applied to any disturbance of land and imposed other rules for infrastructure, such as limits on outdoor lighting. “These restrictions dramatically affected Home Builders' members' development activities,” James said.

The builders' association filed a suit in 2001 that successfully challenged the endangered species listing. In 2006, the Ninth Circuit Court of Appeals determined that the USFWS [did not provide evidence citing why the Arizona owl population is crucial to the survival of the whole subspecies](#), a requirement for the listing.

Greenwald, with the Center for Biological Diversity in Tucson, disagrees with that decision, arguing that the Arizona population is ecologically significant because the birds have evolved to handle the region's extreme heat and frequent droughts. Such genetic adaptations, he says, are important to preserve as temperatures warm:

Arizona's temperatures have increased by an average of 3.2 degrees Fahrenheit since 1970, making it one of the [fastest-warming states](#) in the country.

Walled in

The University of Arizona's Flesch, who has spent two decades studying the owls, says the science is clear that they're "extremely sensitive to landscape disturbances." What's more, his research has [concluded that the combination of habitat loss and higher temperatures](#) in the region could create a "double whammy" for the subspecies' long-term survival.

Besides habitat disturbance and climate change, new sections of the 20-foot-high border wall on the Arizona-Mexico border could also curtail the owl's ability to expand its population, Flesch adds. But [preserving the owl's preferred habitat and increasing connectivity across its range could help the species recover](#).

Meanwhile, efforts are underway to boost the subspecies' chances of making it in Arizona.

The [Phoenix Zoo](#), in partnership with Wild At Heart Raptor Rescue, USFWS, and the Arizona Game and Fish Department, is breeding pygmy owls in captivity. Nine owlets hatched this year, and zoo scientists even started testing a new type of nest box that mimics the shape, size, and humidity of the inside of a saguaro cactus. ([Read why birds matter, and are worth protecting.](#))

"We're hoping that in the future we can breed enough animals that we can start repatriating them back into the wild," Ingraldi says. And while he understands that decisions surrounding endangered species, and the regulations that follow federal listing, can stir up controversy from many sides, he tries to "focus on the science" and conserving the species.

"That's my goal," he says. "It's my passion."