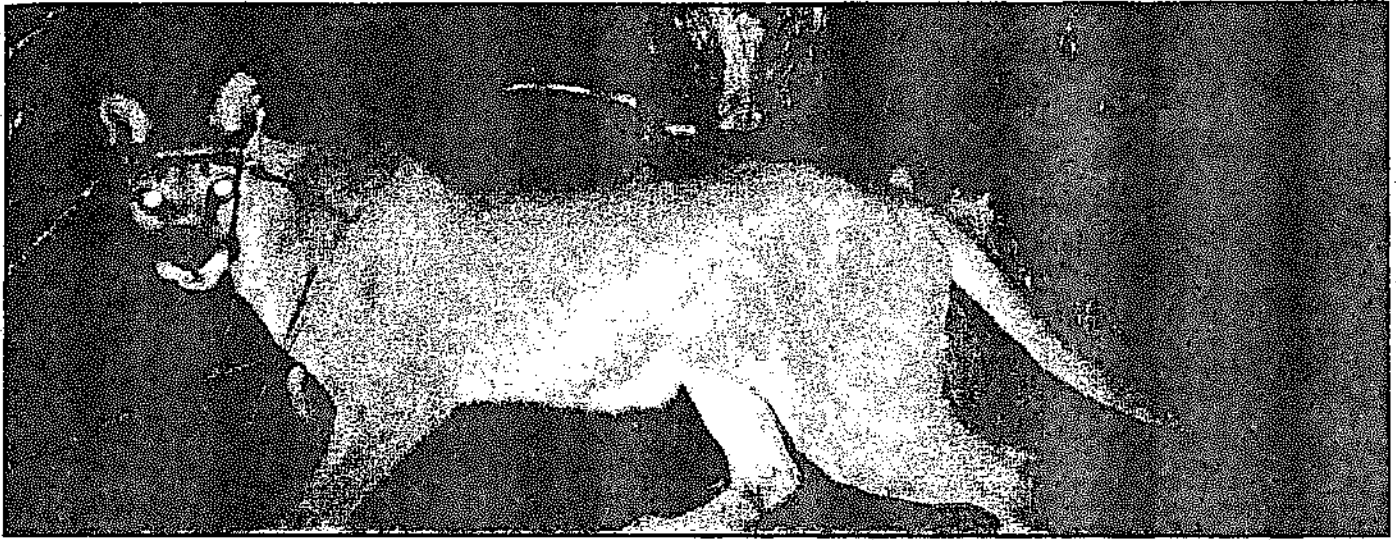


Mountain lions squeezed



Saguaro National Park

There's at least one: An infrared camera caught this mountain lion on the prowl in Saguaro National Park, in mountains west of downtown Tucson.

Scientists fear they're losing habitat in Tucson Mountains

By Mitch Tobin
ARIZONA DAILY STAR

SAGUARO NATIONAL PARK WEST — At least one mountain lion still roams the Tucson Mountains, ambushing mule deer several times its size with a brute force honed by eons of evolution.

Precious little is known about the lion's status in the mountains just west of downtown.

But biologists say this much is clear: if the Tucson Mountains become an island of wilderness completely surrounded by a sea of suburbia, lions probably will disappear from the range, as has already happened with desert bighorn sheep.

To learn more about the lions, volunteers from around the country have been fanning out across Saguaro National Park's west unit this week. They're searching for — and have found — the scat and paw prints of a shy, solitary creature that's also called cougar, puma or panther.

The effort, now in its third year, relies on both high-tech gadgets and the ancient skills of wildlife tracking. The method is somewhat crude — it can't, for instance, peg the exact size or demographics of the lion population. But organizers hope it will provide crucial baseline data that reveals long-term trends.



Aaron J. Latham / Staff

Researchers on the trail: Biologist Harley Shaw, left, an experienced cat tracker, and Sierra Club member and volunteer tracker Anne Cross take a close look at tracks in Saguaro National Park West.

Genetic isolation a risk

In coming decades, there is little chance Saguaro National Park and Pima County's adjoining Tucson

Mountain Park will lose their protected status. But even if those preserves remain intact, experts say lions may ultimately disappear from the Tucson Mountains if their

routes to other mountain ranges are cut off by human development.

"The survival of this population

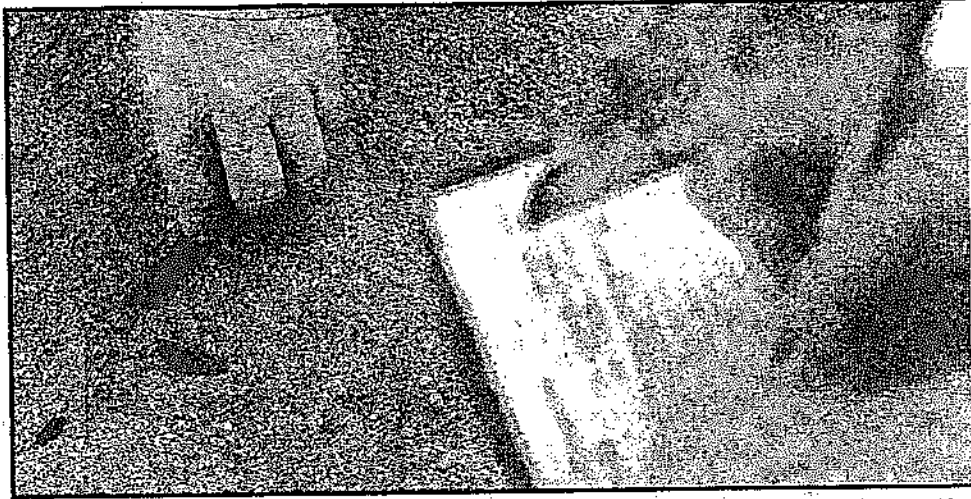
LIONS

Shrinking habitat for big cats raises fears for gene pool

Continued from Page A1

is in some doubt because of their increasing isolation," said Don Swann, a National Park Service biologist who helps organize the lion tracking.

Without links to other mountain ranges, lions in the Tucson Mountains won't be able to mix their genes with other populations and will be susceptible to severe inbreeding. That's already happened to the endangered Florida panther, with mutations causing some cats to have holes in their hearts and undescended testicles.



Aaron J. Latham / Staff

Sign of the cat: Researchers examine lion scat in the Tucson Mountains. A team has spent the last week looking for evidence of mountain lions in the area, and says at least one big cat calls the area home.

Wildcat needs wild lands

Mountain lions may disappear from the Tucson Mountains, biologists say, if urbanization surrounds the range and cuts off travel routes to other mountains.

Researchers think the Tucson Mountains can support a maximum of five lions. But even that may not be enough if the lions can't exchange DNA with other groups of cats.

"If there's only five animals, that's too small," said Melanie Culver, an expert on lion genetics at the University of Arizona. "They absolutely have to have connectivity to some other mountain range to be viable. A lot of species can be protected just by having this park, but not something like a puma."

Biologists are also somewhat concerned that no evidence of a male lion has been found in the park in recent years, raising the prospect that lions in the Tucson Mountains aren't breeding there at all.

Fiercely territorial male lions may stalk a home range of more than 300 square miles in desert environments — an area 50 percent bigger than Tucson's city limits. Because the Tucson Mountains only have about 210 square miles of suitable lion habitat, biologists think any male puma living there might need to travel to other ranges, perhaps the nearby Silver Bells, Sierritas or Baboquivaris.

Young lions, especially males, also typically travel long distances from their birthplace to establish their own territories.

Before Tucson became a city, lions probably moved freely across the valley, between the Tucson, Rincon, Catalina and Santa Rita mountains. But now, the Tucson Mountains are nearly surrounded by highways, railroad tracks, subdivisions and the Central Arizona Project aqueduct.

While lions may be able to snake through sparsely settled suburbs, biologists say busy roads present a potentially lethal obstacle.

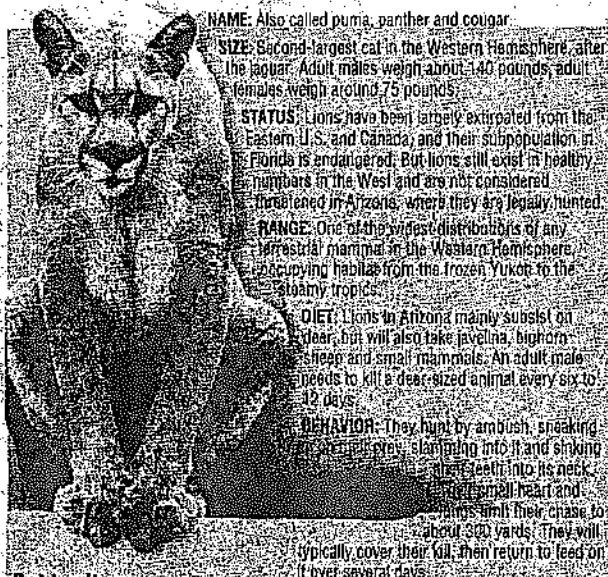
Two weeks ago, Kinney Road actually helped feed a lion. Security guards at Old Tucson Studios saw a lion chase a mule deer through the park at about 1 a.m., forcing the deer onto Kinney Road, where it was hit by a car, said Bob Lemons, wildlife manager at the Arizona Game and Fish Department. The lion then dragged its prey 50 feet into the brush and devoured it.

On Tuesday, longtime Tucson Mountains resident Debbie Hecht and Star editorial writer Sam Negri reported seeing a mountain lion cross a wash near West Sweetwater Drive.

"It's a jolt and you're sort of hyper-alert," said Hecht, who was sure the creature wasn't a bobcat since it was bigger than her 100-pound dog. "My guess is there's no water in the Tucson Mountains; the deer herds are moving down and the cats are following their dinner."

Less invasive research

Elsewhere, researchers have intensively studied mountain lions by trapping the cats, fitting them with radio collars and monitoring their movements. Such procedures can offer a



NAME: Also called puma, panther and cougar

SIZE: Second-largest cat in the Western Hemisphere, after the jaguar. Adult males weigh about 140 pounds; adult females weigh around 75 pounds.

STATUS: Lions have been largely extirpated from the Eastern U.S. and Canada, and their subpopulation in Florida is endangered. But lions still exist in healthy numbers in the West and are not considered threatened in Arizona, where they are legally hunted.

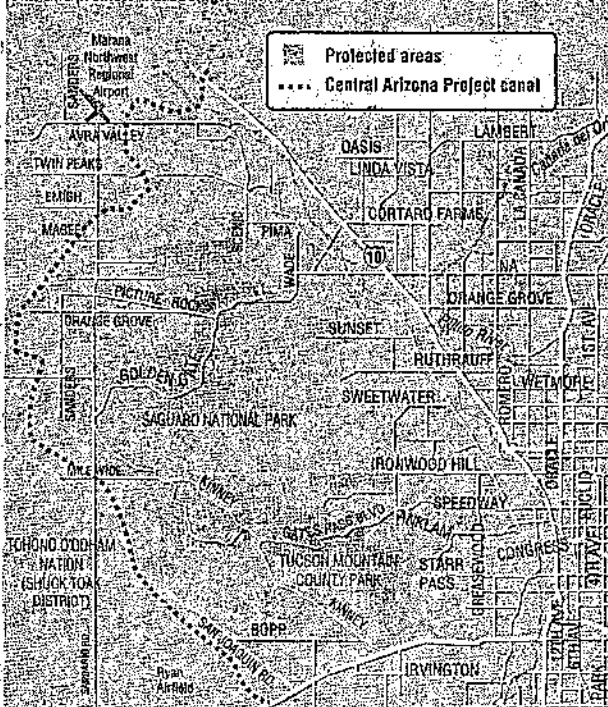
RANGE: One of the widest distributors of any terrestrial mammal in the Western Hemisphere, occupying habitats from the frozen Yukon to the steamy tropics.

DIET: Lions in Arizona mainly subsist on deer, but will also take javelina, bighorn sheep and small mammals. An adult male needs to kill a deer-sized animal every six to 12 days.

BEHAVIOR: They hunt by ambush, sneaking up on prey, slinking into it and sinking their teeth into its neck. They kill with a single bite to the heart and then limit their chase to about 300 yards. They typically cover their kill, then return to feed on it over several days.

Cat territory

Scientists believe the Tucson Mountains can support up to five mountain lions, but roads, subdivisions and the Central Arizona Project threaten to isolate the cats and promote inbreeding.



SOURCES: Arizona Game and Fish Department, Arizona-Sonoran Desert Museum, University of Michigan Museum of Zoology.

Mitch Tobin, Guillermo Munio / Staff

treasure trove of scientific data, but the capture can be stressful, even fatal, for the cats.

"You're dealing with a tiny population here, so trapping one lion and having it kick off on you is a pretty major effect on the population," said biologist Harley Shaw, one of the experienced cat trackers leading volunteers this week.

To supplement the tracking, biologists have also set up remote cameras in the park that are activated by passing animals. A lion has shown up in several shots. But while individual jaguars and leopards can be identified by their unique spots, lions' solid coats make them tough to tell apart.

Researchers are also using "hair snares" — pieces of carpet

doused with catnip to attract lions and embedded with nails to pull off hair samples as the cats rub against them. The hair's DNA can then be analyzed to learn more about the local lion population.

The three dozen volunteers helping out this week, many of them Sierra Club members on a service trip, are focusing on the subtle signs lions leave behind as they move through the park. In small groups they carefully inspect the ground along 30 "transects" — 1-kilometer lines that typically run along sandy washes, where tracks are easier to spot.

Cat tracks are photographed and traced. Scat from lions and bobcats gets collected for analysis in a lab. Data are mapped

with help from the satellite-based Global Positioning System.

Walking around the desert looking for lion prints and scat has been a fun, stress-free vacation for volunteer Anne Cross, a 26-year-old Sierra Club member and systems administrator at Tufts University near Boston.

"I sit at a desk all day," said Cross, who is spending her afternoons pulling up invasive buffel grass in the park. "This is completely different. I like being outdoors. And in Boston it was snowing when I left."

In the past two years, only about one-fifth of the transects have yielded any sign of lions. But even those that come up empty still reveal abundant signs of other wildlife that hint at a busy nocturnal world beyond the ken of most humans.

Scat and tracks from foxes, bobcats, javelina, coyotes and rabbits — not to mention dogs, horses and hikers — were all in evidence Tuesday as five volunteers walked down a sandy drainage north of Wasson Peak.

"We're not just interested in lions," said Swann, the park biologist. "Everything here is part of what we care about."

Although national parks are the jewels of America's public lands, managers say they often know little about what species they're protecting, or how the wildlife is doing.

"Animals move around, they hide, they come out at night, they go underground," Swann said. "I think the public is always astonished at how little basic information we have about wildlife. ... I can't say for sure what species we have in the park, but we're learning."

Biologists are certain that some species in Saguaro National Park have been pushed out as Tucson has grown.

In the Rincon Mountains, wolves, jaguars and grizzly bears once roamed, but those creatures were extirpated with the help of government-sanctioned predator control programs. The Tucson Mountains once had bighorn sheep and white-tailed deer, but those species have retreated to more remote wilderness areas.

There is some hope among organizers of the lion tracking that Pima County's Sonoran Desert Conservation Plan will help preserve the corridors that are essential to the lions' survival in the Tucson Mountains.

Protecting linkages between the region's mountain ranges — most of which are already protected by the federal government — is one of the guiding principles behind the plan, which seeks to preserve habitat for 55 species, although not the mountain lion in particular.

"I think we still have time here to keep this connectivity intact," said biologist Lisa Haynes, an organizer of the lion survey, "if we can make that effort now."

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