

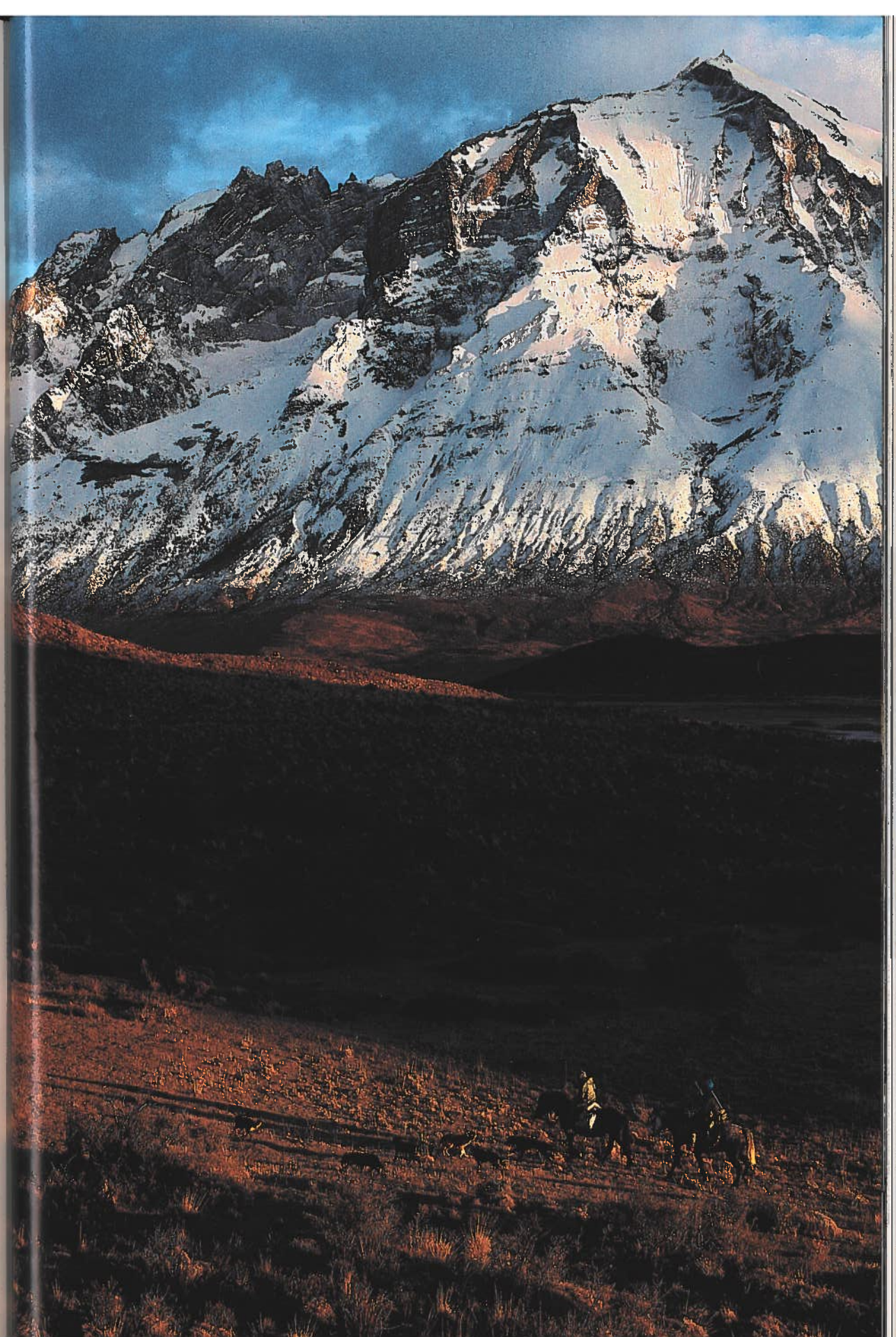
PATAGONIA PUMA
**THE LORD OF
LAND'S END**



WARREN E. JOHNSON

A penetrating stare reflects the power of this magnificent carnivore. Beneath the soaring Andes near the tip of South America, the author's research party tracks these big cats to study their predatory ways.

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The sky is full of mountains in this country. I often get a sore neck from admiring these Andean peaks as we trek on foot and horseback over the plains and hills. The wind is our constant companion; locals advise that if you want to see Patagonia, just stand still and it will all blow past you. Often our trail is cloaked by the snows of winter. It is then that we can best track our stealthy and elusive quarry—the Patagonia puma.

For six years we have studied these wonderful cats in breathtaking Torres del Paine National Park (right), a United Nations biosphere reserve in southern Chile's portion of Patagonia. Within the park's 935 square miles, ecosystems converge. Beneath towering peaks lie a huge ice field and glaciers, which melt to feed iceberg-strewn lakes. The high country drops down to the plains of the Patagonian steppe. The result: a remarkable diversity of wildlife. While South America is conspicuous for its paucity of large mammals, in Torres del Paine we have identified more than 40 mammalian species, including two types of foxes, Geoffroy's cats, European hares, and guanacos,* the wild progenitors of domestic llamas. The guanacos and the hares are the major prey of the pumas, which patrol a zone along the foot of the mountains and the edge of the steppe.

The puma ranges more widely than any other terrestrial mammal in the Americas, from the Canadian Yukon south to the Strait of Magellan (map, left). This predator is highly adaptable and occupies a variety of habitats. A puma prefers dense cover or rocky and rugged terrain, but as pioneering North American puma biologist Maurice Hornocker has noted, it

is at home "from deserts to swamps, from tropical jungles to subalpine forests." The puma has become the cat of many names: mountain lion, cougar, panther, painter, catamount. The Patagonia puma, *Felis concolor patagonica*, is one of 27 subspecies now recognized, based upon size, color, and cranial-dental characteristics. It also is the southernmost subspecies and one of the largest.

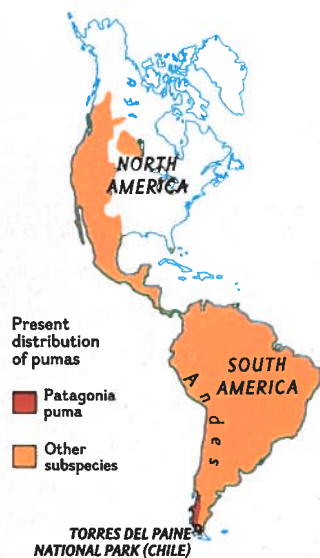
We concentrated on a 40-square-mile finger of land flanked by lakes, which we dubbed the "peninsula" and which has large numbers of guanacos that attract many pumas. Primarily by tracking the cats on horseback with dogs, tranquilizing them, and attaching radio collars, we estimate the peninsula's puma population to be between 13 and 18, one of the highest densities documented. Occasionally a puma will wander onto adjacent ranches and kill sheep. In general, though, we found a tenuous balance between the needs of this wild predator and local ranchers' livelihoods.

Funded by the Organization of American States, Patagonia Research Expeditions, the National Wildlife Federation, and the National Geographic Society, our project has not collected data easily.

Tracking a fleet, 150-pound bundle of muscle, claws, and teeth can be a hair-raising experience, especially when it holes up in a cave, which pumas often do. Such are the hazards we have encountered to better know one of the most persecuted, yet least understood, large predators in the Americas.

*See the author's article on guanacos in the July 1981 GEOGRAPHIC.

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LANDSAT IMAGE (OPPOSITE) PRODUCED BY NASA'S JOHN C. STENNIS SPACE CENTER FOR A GLOBAL AIR-POLLUTION STUDY; THE PARK HAS ONE OF THE WORLD'S CLEANEST ENVIRONMENTS.





OSCAR GUINEO

Eye to eye with a cat trapped on a ledge, graduate student Warren Johnson, in charge of the fieldwork, contemplates

firing a second tranquilizing dart after the first had little effect. Before he could shoot, the puma, named Margarita,

lost her balance and rolled 20 feet. She appeared unconscious when Warren reached her. As he began examining her tongue

to check blood circulation, "She jerked her head and snarled! I felt fear both for myself and for the situation," Warren says.

"How was I going to react so this cat didn't get away?" Another dart, and Margarita took a siesta.



A guanaco comes feetfirst into the world in early summer after a gestation of nearly a year. Guanacos make up 55 percent of the diet of pumas, which tend to go after young guanacos, known as *chulengos*, and also hunt European hares and flightless rheas. Prior to ear-tagging a *chulengo* as part of our mortality study, a student assistant keeps the animal's mother away by returning her threat display (top right). Near our research station, Warren, at left, and I examine part of our collection of more than a thousand guanaco skulls. They help us determine cause of death, as well as age. Puncture wounds from pumas' canine teeth mark a third of the skulls; of those, 60 percent came from animals less than two years old.

Male and female guanacos bunch up in winter, when grazing is patchy (below). For pumas, pickings are abundant.



After a harrowing chase an old friend, a puma named Commando, lies safely tranquilized (below). Warren records the cat's weight and other data, while park superintendent Guillermo Santana, at right, checks his heart rate. This was our second capture of Commando; our main task was to replace the radio collar we had attached two years earlier. We also collected blood and semen samples for an ongoing genetic study of puma subspecies.

A dental examination highlights the puma's killing tools—four daggerlike canines. We had just seen what such teeth can do. Our tracking dogs had brought Commando to bay in a narrow cave at the foot of a cliff. Scrambling down it, I nearly jumped into a pool of steaming blood. Crimson dog tracks led to the mouth of the cave. There, Chilindrina, one of our best dogs, staggered out. Her chest was covered with blood, wounded by Commando's powerful jaws. Our field veterinarian stitched her



GAIL BLUNDELL

up (happily, she survived) as Warren and I entered the pitch blackness that vibrated with the steady, strangely purrlike growl of a furious puma. Once Commando had been successfully darted, we carefully dragged him out into the sunlight.

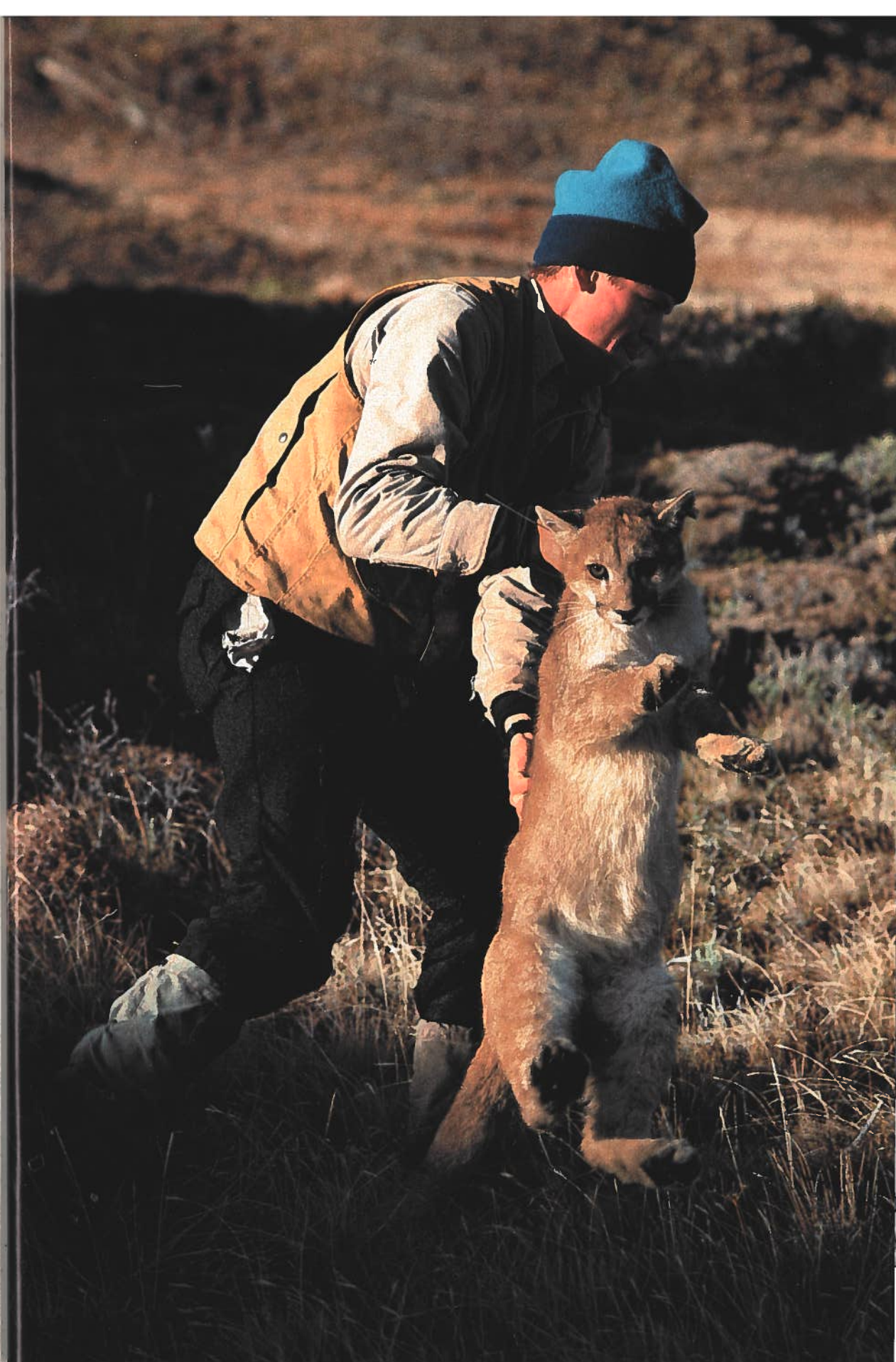
A few days earlier Commando had played a part in our capture of a little female, four or five months old, that we named Melody. We caught her during a

wild chase that became more like a wrong-way posse going in circles than a puma hunt.

It began when we picked up Commando's radio signal. The dogs started tracking a scent that we assumed was his. Suddenly half the dogs went one way, half went another. So did we. As the dust settled, someone spotted an adult puma wearing a radio collar that wasn't transmitting—Margarita, we thought. Then the dogs followed a scent to some rocks. This, we figured, had to be Commando. Instead, we found a small surprise—Melody! We had blundered into a three-cornered cat circus of Melody, Commando, and Margarita, who we believe is Melody's mother.

Finally radio collared, Melody began to regain consciousness (right) as Warren carried her away from a nearby lake. In her disoriented state, she could easily have drowned.

The first 1991 National Geographic Television Special, "Cats: Caressing the Tiger," airs Wednesday, January 9, at 8 p.m. eastern time on PBS.



With a final glare at his captors, Commando is free. His new radio collar will allow us to stay in touch. By taking readings from two different points along a puma's journey and triangulating, we can fix its location almost precisely. Our studies show that both males and females stake out large, overlapping home ranges, often as much as 40 square miles. We have tracked cats that move ten miles across rivers and rough terrain in a few hours.

Sometimes our collared animals wander beyond park boundaries onto a nearby ranch, and sometimes that means trouble. Pumas have been making easy meals of sheep since the latter were introduced here in the late 1800s. By the early 20th century most of far southern Chile was covered by huge ranches, including what is now Torres del Paine National Park. Each ranch employed one or two *leoneros*, or lion hunters, to keep the puma population in check. By the 1970s these large ranches had been broken up into much smaller ones that could not each afford its own *leonero*. And with park protection, puma numbers rose.

In 1980 the killing of pumas in Chile was prohibited by law. More than 50 sheep ranchers in our study region, hard hit by puma depredations, have switched to cattle. And occasionally ranchers take the law into their own hands. Several of our pumas have disappeared; they doubtless had become problem animals. While it's regrettable, the situation has more than one side. What's important is that Torres del Paine and its park personnel have enabled the magnificent cats and their natural prey, guanacos, to recover and thrive—a shining example of how Chile is a pacesetter for South American wildlife conservation. □



WARREN E. JOHNSON