

Braving South America's deepest jungles, Wildlife Photographer of the Year Steve Winter comes face to face with the continent's mystical big cat and learns about new plans to safeguard its future in the wild.

JAGUAR



THE PHOTOGRAPHER STEVE WINTER

I have been a contributing photographer for *National Geographic* magazine since 1994. I first visited the Pantanal in 1998 during work on a jaguar story. After six months of searching Central America, I was amazed to see three jaguars in as many days. Travelling the rivers looking for wildlife every day is always breathtaking in the Pantanal, but my latest trip, at the end of 2008, was the most rewarding – this story is the result.

TEXT BY
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FOUR MEN RODE out on horseback through the early morning mist shrouding Fazenda São Bento, a ranch in south-western Brazil. It was April, and the land was still sodden from the months of rain that flood the Pantanal each year, swelling rivers, inundating grasslands and turning swathes of forest into islands here and across the border in Bolivia and Paraguay. These immense wetlands – almost 200,000km², twice the size of Portugal – nurture a vast array of wildlife, including the highest density of jaguars anywhere.

As the men trotted into a clearing, startled vultures swooped into a tree. Rafael Hoogesteijn signaled two cowhands to stay behind while he slowly approached with the ranch foreman. A jaguar sprang from the bushes and bounded into nearby forest, leaving behind a young cow that lay partially eaten on the ground. The men weren't worried about their safety: jaguars avoid people and are the least likely of the big cats to attack humans.

On many farms and ranches, this particular animal would have ►

FLITTING BIRDS, JUMPING fish, crawling lizards – a young male jaguar's attention is drawn to anything that moves. Jaguars are carnivores with a broad palate: though they prefer large prey, these apex predators feast on any of at least 87 species, from deer, tapirs and peccaries to frogs, monkeys, snakes, sea turtles and freshwater dolphins. They have even been known to eat avocados, stone and all. Jaguars kill their prey with a single bite, usually piercing the skull with their extraordinarily powerful jaws.





A JAGUAR LEAPS into Rio Piquiri in the Brazilian Pantanal. Unlike most other cats, jaguars will chase their prey into water, fish for dinner and have been observed stalking nesting sea turtles in the surf. They can swim considerable distances, as they travel across the flooded landscape of the Pantanal and through rivers throughout their range. This spring, for the first time, camera trap photos of a jaguar on Panama's Barro Colorado Island proved that these wide-ranging cats even swim the Panama Canal.

THE JAGUAR CORRIDOR

Alan Rabinowitz, the world's foremost jaguar expert, is pioneering a new conservation plan for jaguars. His cat conservation organisation Panthera is partnering with myriad groups to build a 'genetic corridor' linking jaguar populations scattered across their range: 17 countries spanning the Americas from Mexico to Argentina. The goal is to find plantations, ranches and other areas that allow safe transit for jaguars. Without a new influx of genes, inbred animals – even those living in lush protected areas – won't survive. Models show that for a population of 20 jaguars, just a few new individuals per decade will invigorate the gene pool. For more information visit www.panthera.org



▲ **CATTLE RANCHING** CAME to the Pantanal over 200 years ago. Some 95 per cent of the floodplain is owned by ranchers who graze eight million cattle on its rich grasses. Rains bring seasonal flooding that attracts a profusion of wildlife to this lush mix of forest and grassland. Ranching provides good wildlife habitat, unlike intensive farming of soybeans, rice, sugarcane and other crops.

been shot on sight. It wouldn't have mattered whether it actually killed the cow or was just feeding on an animal felled by disease, a snakebite, quicksand or some other mishap. Jaguars are demonised as dangerous predators and cattle-killers across their range, from Mexico to Argentina, and this attitude threatens their survival.

Though they are shy and elusive, jaguars are forced into conflict with humans as we encroach ever deeper into their territory. Over half of the jaguar's habitat has been razed or developed during the last century. In the Brazilian Pantanal, over 95 per cent of the land is in private hands, with soybean and sugar cane plantations overtaking the more wildlife-friendly cattle ranches. Peccaries and other preferred prey have been heavily hunted by locals and become scarce in some parts of Latin America. This forces the cats to raid pastures and paddocks in order to survive.

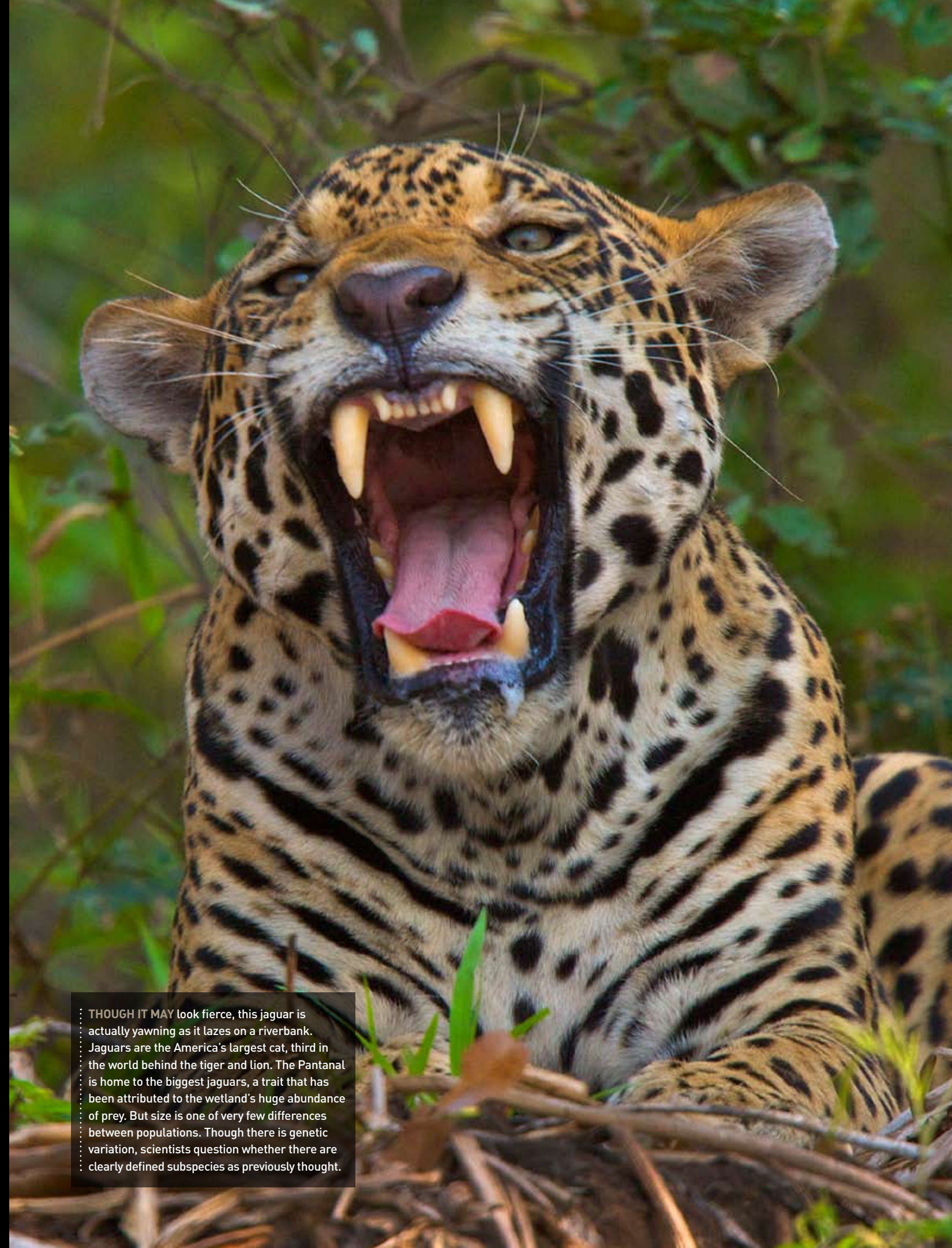
Killing jaguars in Brazil is illegal, but enforcement is virtually nonexistent. Too frequently, they end up in the crosshairs, shot by ranchers, the occasional trophy hunter or a party of pantaneiros out on a traditional jaguar hunt.

But this pales in comparison to the carnage spurred by the post-Second World War fashion

craze for fur in Europe and North America. Nearly 10,000 tawny, rosette-spotted jaguar pelts were imported into the US in 1969 alone, valued at \$1.5 million. Whole jaguar populations were wiped out. Some have recovered since the trade was outlawed internationally in 1973, while others continue to dwindle or have disappeared. In general, biologists simply don't know the trends or how many jaguars are out there. They are currently classified as near-threatened by the IUCN, with loss of habitat, disappearing prey and retaliation killings looming as the greatest threats to the cats' long-term survival.

SIGN OF THE JAGUAR

On close inspection of the cow carcass, Hoogesteijn, a veterinarian and predation expert, noted signs of the jaguar's signature kill. This burly, muscular feline relies on stealth rather than speed to hunt, silently tracking and ambushing its prey, administering a crushing bite to the skull or spine. Though the exact origin of the cat's name is unclear, it may have derived from the native Guarani *yaguareté*, translated as "a beast that kills its prey with a single bound." The jaguar possesses an exceptionally powerful bite, strong enough to crack open turtle shells to feast on



THOUGH IT MAY look fierce, this jaguar is actually yawning as it lazes on a riverbank. Jaguars are the America's largest cat, third in the world behind the tiger and lion. The Pantanal is home to the biggest jaguars, a trait that has been attributed to the wetland's huge abundance of prey. But size is one of very few differences between populations. Though there is genetic variation, scientists question whether there are clearly defined subspecies as previously thought.

the meat within, and has a varied palate. Though the cats are mostly nocturnal, they are also frequently active during the daytime.

There will be no retaliation for this kill at São Bento. It is one of two 'conservation' ranches purchased to protect jaguars by Thomas Kaplan, executive chairman of Panthera, a New York-based big cat conservation organisation. These are working ranches, running 8,000 head of cattle. Under Hoogesteijn's supervision, they are incorporating methods to minimise losses, erecting protective electric fences and vaccinating livestock against diseases such as leptospirosis and brucellosis. They are also integrating ill-tempered water buffalo into cattle herds and

The fazendas provide safe passage between a web of five wildlife reserves, protecting almost 4,000km².

trying to re-establish the area's original Creole Tucura cattle: both are breeds that protect calves and chase off predators. It's a teach-by-example strategy to show neighbouring ranchers that you don't have to kill jaguars to run a profitable outfit.

But the ranches also add a pearl to an imaginary necklace that will someday string together a usable land corridor for jaguars across their entire range. The fazendas, run by Panthera, span 690km² and provide safe passage between a web of five wildlife reserves, protecting almost 4,000km². It's part of the organisation's radical strategy to build a 'genetic corridor' linking up even small, isolated jaguar populations by giving them pathways to safely roam and breed range-wide.

The initiative is the brainchild of Alan Rabinowitz, the world's foremost jaguar expert and Panthera's president and CEO. "To me, the science of wildlife in today's world without conservation is absurd. Otherwise, you're just fiddling while Rome burns," he said. ▶



DRAWN BY THE scent of a cattle carcass, a jaguar is captured by a remote camera, one of three individuals that came by within a 12-hour period. Many ranchers still blame all livestock deaths on jaguars and shoot the cats on sight. Recent studies in Brazil showed that, on average, 1 to 2 cows are lost to jaguars out of a herd of 100.

▶ BOTH SCIENTISTS AND landowners have wondered how jaguars move through human-dominated landscapes such as ranches. When photographer Steve Winter discovered uninterrupted jaguar tracks on both sides of a cattle fence, he placed a camera trap beneath a gate. He captured images of a cat slipping beneath the lowest strand of fence wire and into pastureland.





The corridor idea stemmed from the 1990s revolution in genomic technology. DNA studies revealed that though there are genetic differences between jaguar groups, it seems that none had isolated into a true subspecies. There weren't eight distinct races of jaguar as previously believed. Though the adults are typically solitary animals with broad territories (delineated with scent, scrape marks or scats), young jaguars must roam from their natal territories and thus spread their genes.

Armed with this new knowledge, Rabinowitz dreamed up a plan that stepped outside the standard field biologist's 'triage' approach to conservation, one that historically targeted only robust populations

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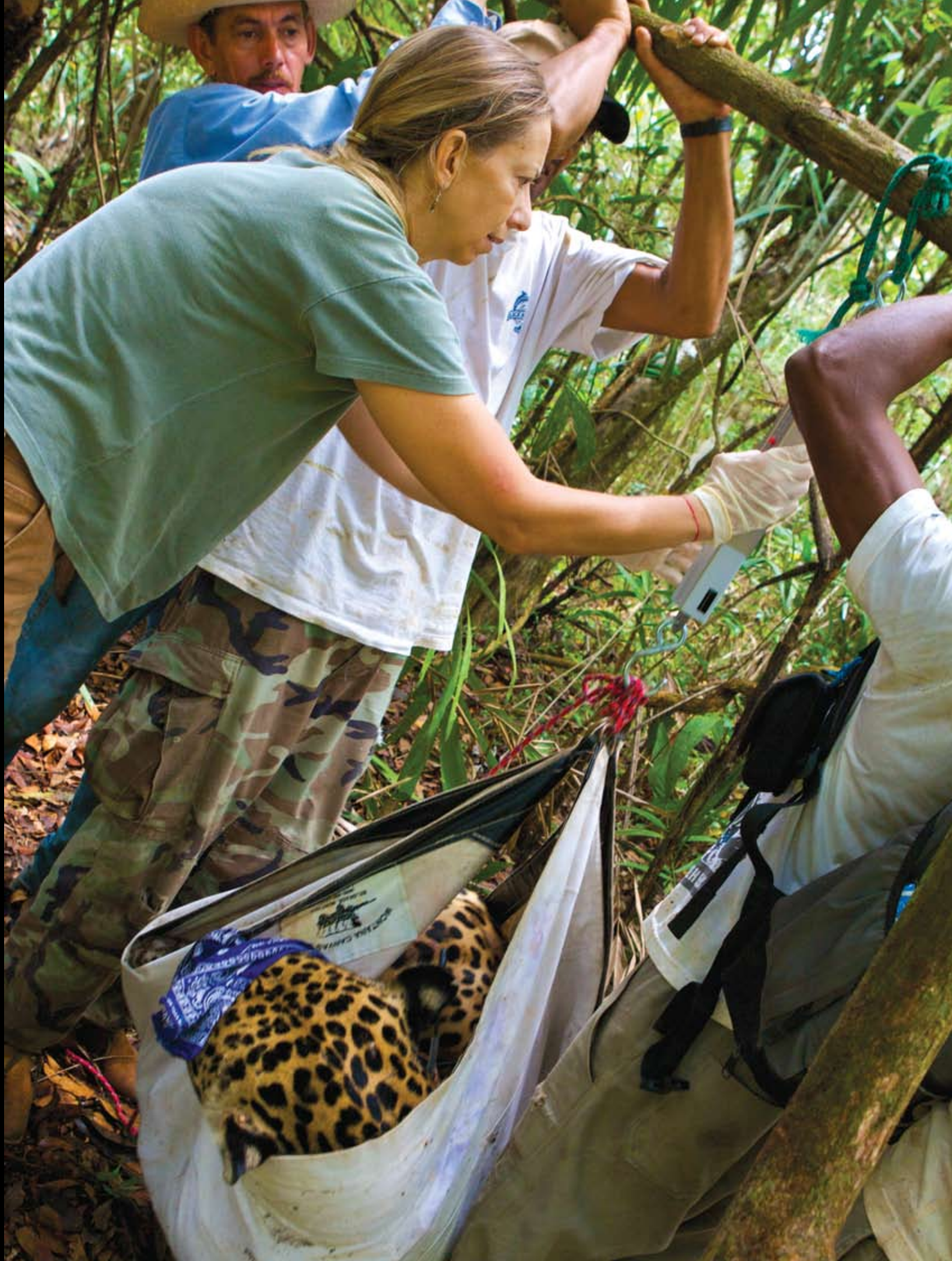
living within preserved forests. He wanted to save all jaguars and allow dispersing young animals to invigorate the gene pools of isolated, inbred populations. This genetic highway would greatly improve the cat's chances of survival at a time when establishing long-term protection is critical.

A genetic corridor is a strategy that gains importance for a wide-ranging predator facing the spectre of climate change and the ecosystem shifts it will bring. Lone males have been tracked wandering hundreds of kilometres. “Instead of just protecting the strongest jaguars living in the last, best habit – pretty animals in pretty places – we need to protect the cats that are roaming through palm plantations, citrus groves, ranches and through people’s backyards,” says Rabinowitz.

Building such a corridor is no small task – crossing international borders and continents and linking protected areas is an effort requiring wide collaborations. So far, every Central American country has

▲ **SURPRISINGLY LITTLE IS** known about the natural history and behaviour of jaguars, so animals are tranquillised and fitted with GPS satellite collars. By downloading tracking data to a computer, researchers can follow the cats' daily movements. The team can learn more about where the animals go, how long they feed on a kill and other valuable behavioural information that can help to alleviate conflict with ranchers. Later this night, *Panthera* researchers captured the largest jaguar on record: over 148kg.

► **AFTER CAPTURING** and collaring a jaguar, taking blood samples and body measurements, Dr Sandra Cavalcanti weighs the cat. All the time, it was closely monitored by a local vet until it woke and walked off unharmed into the forest.



AS EVER-MORE tourists flock to the Pantanal to view its wildlife, some tour operators guarantee jaguar sightings. Their guides mimic jaguar calls to bring the cats to riverbanks where travellers watch them from small boats. Here, a boatman casts a fish on a line over a branch to play with the cat and extend tourists' viewing time. Scientists are concerned that by habituating the jaguars to humans in this way, and associating them with a tasty handout, the tour guides are encouraging the cats to swim after and even climb into tourist boats or fishermen's dugout canoes. If people are harmed by jaguars, it will spark retaliatory killings, which could damage the tourist industry that is making local landowners value and protect these cats.



signed up. South America is next and Columbia has already expressed willingness to cooperate.

Though pristine habitat has shrunk dramatically, the area the cats could travel through and use at least temporarily has only receded by 16 per cent. Jaguars are adaptable, thriving in landscapes from dense rainforest and scrubby mountains to swampland or savannah. Their only key requirement seems to be the proximity of water. Such versatility is encouraging for conservationists.

In some places, such as the Pantanal and Belize's Cockscomb Basin Preserve, income from ecotourists who come to see jaguars is transforming the cats from predator pests into cash cows. In the Pantanal, Panthera is constructing a clinic (in collaboration with New York City's Mount Sinai Medical School) and a school, hoping that free medical care and education will help to make the cats more valuable alive than dead, as they once were.

The Olmec people deformed their skulls to resemble those of these formidable cats.

These elegant, mysterious cats were revered by cultures throughout Central and South America. The Mayans considered them the gatekeepers of the underworld who facilitated communication with the dead and protected royalty, Montezuma was draped in jaguar skins when he greeted the conquistadors, the Olmecs deformed the shape of their skulls to resemble this formidable cat, and shamans morph into the form of a jaguar to journey to other worlds.

"This cat was a god," says Rabinowitz. "The jaguar is the thread binding different cultures and ethnicities throughout much of the Americas. We know how to save the jaguar, and if we act decisively, we can ensure the survival of the species throughout its existing range. In my mind, a world without jaguars is not an option."