
# Beyond Man vs. Nature

## The Case for Reconciliation

PART ONE

The Heretic: Whether people consider his behavior endearing or odd, by virtue of his powerhouse résumé, people pay attention to what Peter Kareiva, the Conservancy's chief scientist, has to say. These days he spends most of his time talking, writing and thinking about human well-being.

PART TWO

The Pragmatist: Kareiva brings a mathematician's logic to the debate: "There is no pristine nature left," he says. "Once you understand that, you frame conservation differently." But that's not a toss-in-the-towel concession. "We're in nature. The deal is how to work with it and help it work for us."

PROFILE / PART ONE

# A Man of the People

## Why Is The Nature Conservancy's Ecologist in Chief So Concerned About Humanity?

BY TOM DUNKEL

Photographs by DAVE LAURIDSEN

PETER KAREIVA, The Nature Conservancy's chief scientist and resident straight-talker, admits he's "not a biodiversity guy."

That's right. The ecologist who leads some 500 scientists at the worldwide organization whose mission statement extols safeguarding "the diversity of life on Earth" does not believe species preservation should be Job One.

What deserves higher billing?

"The ultimate goal," Kareiva says, "is better management of nature for human benefit."

That people-centric message—heretical in some environmental circles—is at the core of Kareiva's worldview and implicit in just about everything the man writes, says or does. Now that includes a new college textbook, published in October, with the crystal-clear title *Conservation Science: Balancing the Needs of People and Nature* (Roberts & Co., 2010). With it, Kareiva and frequent collaborator Michelle Marvier aim to shake up the teaching of environmental science by making people an integral part of the conservation calculus.

The way Kareiva does the math, it's possible—no, make that imperative—to meet mankind's basic needs (food, clothing, water, shelter) without hopelessly trashing the planet, which may bend but won't break. Call it realpolitik environmentalism.

Whatever you call it, here's the beauty of that new approach: Ultimately you advance the cause for conservation if you make the case that nature is relevant to human lives. In blunt Kareiva-speak: It's the people, stupid.

That kind of thinking is catching on. As one of the most provocative voices in biological science and a trusted advisor to the Conservancy's CEO, Kareiva is helping to usher in a new era of conservation—one that takes people into account from the get-go.

### All Science, All the Time

It's no surprise that Kareiva is regarded as a dissident by some. Yet he can't be easily dismissed. At 59, he's a contrarian who boasts a powerhouse résumé: A member of the elite American Academy of Arts and Sciences, a former Guggenheim fellow and Oxford visiting fellow, he pioneered the use of math modeling to analyze conservation data. He has authored or coauthored more than a hundred papers and has mentored scores of doctoral students. His byline frequently

**LIFE OF THE MIND:** Kareiva runs on little sleep, his brain whirring in perpetual overdrive. "On the intellectual level, he's insatiable," says Gretchen Daily of Stanford, where he's on sabbatical. There he'll focus on the Three R's: restore, recover and reconnect people to nature.





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Peter Kareiva thinks conservation is "all about us"—people. Do you agree? Should we protect nature for nature's sake or the benefits it provides humans? Speak now at nature.org/human.

graces the pages of *Nature*, *Science* and *Scientific American*.

In short, he's a scientist's scientist. "One of the sharpest, most incisive scientific minds," says Kent Redford of the Wildlife Conservation Society Institute. "He's intolerant of bad science."

"All science, all the time," agrees Gretchen Daily, a biology professor at Stanford University and a Conservancy board member. "He's insatiable."

And influential: Kareiva draws a crowd at the Department of Defense when he talks about biodiversity on military bases, he sits on a panel that advises the U.S. President's Council of Advisors on Science and Technology, and he gives counsel to the Conservancy's top brass. "For every big decision that faces the Conservancy," says Mark Tercek, the Conservancy's president and CEO, "I want Peter to weigh in."

Yet Kareiva refuses to don the mantle of wise ecostatesman. He almost pathologically avoids anything that could be seen as elitist. His customary work clothes—worn whether conducting a writers workshop for scientists or attending a Conservancy board meeting—are denim shirt, basketball shorts and sneakers. The concept of dressing for success has never registered. In fact, years ago Kareiva was invited to address a meeting convened by the prestigious Royal Society in London, the world's oldest scientific body, founded in 1660. He arrived in sweatpants. To hell with those stuffy Brits.

More than dancing to the beat of a different drummer, Kareiva seems to move to a whole marching band banging away inside his head. He's reluctant to shake hands and eschews small talk. He sleeps only a few hours a night, never uses an alarm clock and, when he's under the weather, consumes his own breakfast of champions: oranges, beer and herring from a jar. He travels frequently on Conservancy business, carrying a duffel bag instead of a suitcase. Last summer, Kareiva broke his eyeglasses playing one-on-one basketball at home in Seattle with his 19-year-old son, Isaac. Five months later, he was still navigating the world with a replacement pair borrowed from his wife, Hania Surowiec. Her prescription *almost* matches his.

Is the man shy, rude, oblivious?

"I don't think Peter's interested in social gamesmanship," observes Redford of the Wildlife Conservation Society Institute.

"There are consistencies in Peter's personality and his way of approaching science," says Steve McCormick, president of the Gordon and Betty Moore Foundation, who hired Kareiva in 2002 when McCormick was president and CEO of the Conservancy. "He doesn't lapse into orthodox ways of thinking. He's an iconoclast. The best scientists constantly question."

### Doing Things His Way

Questioning has always come naturally to Kareiva, who grew up blue-collar and independent minded. His father, Valentine Kareiva, was a foreman for a landscape company who later started his own business, which went bankrupt. There was only one edict in the Kareiva household: Peter had to be out of bed every day by 5 a.m. No slacking allowed. He still adheres to that early-bird routine. It may be the only rule he has ever followed.

The priests at his Jesuit high school in Rochester, New York, get credit for lighting an intellectual fire under him. "I've never had it that tough since," Kareiva says. "You had to write and reason and do analysis and defend your arguments."

Rejecting his father's argument that college was a waste of time, Kareiva moved from a world of blue collars to blue bloods. He went to Duke University, majoring in zoology, then on to the University of California at Irvine, earning a master's degree in environmental biology. Next stop, the Ivy League: Cornell University for a doctorate in ecology and evolutionary biology. While there, he also took graduate-level courses in stochastic processes, partial differential equations and game theory, thus becoming one of the few ecology/biology Ph.D.s at the time with a grounding in applied mathematics.

He taught briefly at Brown University, garnering attention and publishing his first peer-reviewed papers. Then he moved to the University of Washington, where he became a full professor. He stayed 15 years, developing his specialty in agricultural biology, doing things his way. He avoided most committee work by volunteering to teach courses nobody else wanted to touch. Eventually, Kareiva began teaching environmental biology courses because his students were clamoring for them.

Despite his career path, Kareiva never took the ivory tower too seriously. At the University of Washington, he once forged the signature of his colleague, Robert Paine, on a prank letter he mailed to the university's vice-president for research. As Paine recalls it, the prank letter had him requesting that the sea palm—a strain of kelp he was researching—be given its due and designated as UW's research logo. (Administrators were not amused. But Paine has a sense of humor; he and Kareiva still meet regularly for dinner—"blood and bourbon," as they call it.)

Kareiva left academia to work for the National Oceanic and Atmospheric Administration, where he played a lead role in Pacific salmon recovery efforts. It was during his two years there that Kareiva moved beyond theory and learned something about doing conservation in the real world.

In 2002, biologist Dan Simberloff, a former member of the Conservancy's governing board, recommended Kareiva, also a former board member, for the newly created lead scientist post at the Conservancy. Simberloff admired Kareiva's "unique" combination of quantitative skills and fieldwork.

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But Kareiva didn't fit the Conservancy mold. Although he had hiked and camped as a kid, he never experienced an environmental epiphany, never dreamed of someday saving endangered species or cleaning up polluted rivers. He still prefers cities to natural areas.

Simberloff admits he had some reservations about the fit. Would Kareiva feel stifled working at a large environmental organization? Could the Conservancy tolerate his quirkiness?

Kareiva himself insists he fell into this line of work, a twist of biographical fate he considers a plus. "That's partly why I can be so skeptical," he says. "Everybody else is such a true believer, whereas I question *everything*."

"He's probably the most creative person I know," says Simberloff. "And it seemed to me, at that time the Conservancy needed some creativity."

### Rattling Cages

That creativity, coupled with his penchant for plain talk, rankles some colleagues, particularly those who fall into the category Kareiva once described as "myopic biodiversity-besotted conservationists." But those who admire Kareiva commend him for refusing to pull punches. In fact, with regular coauthor Marvier, a Santa Clara University biology professor and Kareiva's former postdoc, he has landed plenty of one-two punches. Their new textbook is just the latest in a string of Kareiva-Marvier collaborations that challenge prevailing assumptions among ecologists about the relationship between man and nature.

In 2003, less than a year after Kareiva joined the Conservancy's staff, he and Marvier wrote an article for *American Scientist* that questioned the practice of designating biodiversity "hot spots" based on the number of threatened species found within a particular geographic area. It's sham science, they alleged, and it puts too high a premium on plant life and lush tropical climates while ignoring other credible valuation yardsticks. What about "cold spots"—ecosystems with few species that primarily benefit humans?

That article kicked up a lot of dust. Steve McCormick recalls that a leader at Conservation International, the group that promoted hot spots, took umbrage. The official phoned McCormick and asked him to reel in the Conservancy's marquee scientist. McCormick declined: Part of Kareiva's job was, and is, to question conventional wisdom and rattle cages.

In 2008, Kareiva and Marvier were at it again, doing a random-sample study of World Bank development projects. The results showed that the inclusion of a biodiversity component had no bearing whatsoever on a project's ultimate success or failure. Therefore, they concluded in an article written for *Science*, there was "no excuse" for the World Bank not to be a more active proponent of biodiversity. Development and conservation aren't mutually exclusive.

Fast-forward to the textbook, which airs plenty of against-the-grain opinions, like the contention that nature is more resilient than most environmentalists realize (Kareiva won't even utter the adjective *fragile* when discussing ecosystems) or the unsentimental assertion that the days of pristine wilderness are long gone. Mankind's fingerprints can be found everywhere on the planet. Get over it, Kareiva would say. And start focusing on preserving what's left of the good (if no longer great) outdoors.

The book ticked people off even before it was finished. After *Scientific American* ran a work-in-progress excerpt in October 2007, two university professors wrote a blistering letter to the editor, blasting the book's situational-ethics environmentalism: "If the movements for abolition or civil rights had adopted Kareiva and Marvier's approach ... we would still be living with Jim Crow."





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**WICKED HUMOR:** He says he's shy, but there's also an element of showmanship to Kareiva's persona. Colleagues collect his out-of-office messages, which poke fun at his own hyperkinetic, peripatetic schedule.



The completed manuscript also alarmed some people. Early reviewers, says Kareiva, "felt that it was selling conservation short to put people into the equation so prominently."

But Tercek, the Conservancy's president, thinks Kareiva has got the formula right. The book "gets into real-world issues," says Tercek, who read it in galleys months before publication. "Conservation is not airy-fairy stuff."

### Conservation in the Real World

According to Kareiva's line of reasoning, conservation in the real world should go something like this: Concentrate on protecting those essential things that the natural world provides us—like clean water—and we'll wind up better stewards of nature in the long run. Make nature relevant to everyday lives and you can produce billions of grass-roots conservationists, each with a vested interest in seeing a workable balance struck between human beings and the environment. "Look," Kareiva says, "we're in nature. The deal is how to work with it and how to help it work for us."

"People are an inextricable part of virtually every ecosystem on the planet," adds Tercek, "and people depend on nature for their survival. The better we are at ensuring that people get [nature's] benefits, the better we'll be at doing conservation."

To that end, the CEO and his chief scientist are aligned in pushing the Conservancy to reach out to new constituents, particularly minorities. Diversifying makes practical as well as moral sense. It's impossible to influence something as vast as the global environment, Kareiva argues, by marshaling only a fragment of the population. So more people of color need to embrace green, which means the Conservancy needs to think outside the usual large-landscape box. Cities and urban parks offer opportunities to expand the movement, says Kareiva. "You could certainly touch people immediately."

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In another effort to make conservation more meaningful to the masses, Kareiva, Stanford professor Daily and Taylor Ricketts, head of conservation science at the World Wildlife Fund (WWF), founded the Natural Capital Project. A joint effort of the three institutions, the project employs economic models to measure the value of ecosystems. How much is a clean stream worth? What are the hidden economic assets of a rainforest? Detractors argue that nature has intrinsic worth, that preservation can never be reduced to cash-register considerations. But the naysayers, Kareiva contends, are slowly coming around to his way of thinking.

And other things are going his way. When he was hired by the Conservancy, Kareiva was given the mandate to encourage his colleagues to publish more—and better—research papers. He estimates that 99 percent of all scientific studies vanish without a trace. Why? The resulting peer-reviewed articles are densely written and mind-numbingly boring. Nobody reads them. That's unacceptable, Kareiva says. If scientists can't do a better job of communicating with the public and rallying popular support, the environmental movement will run out of steam, despite all that hot air.

Witness climate change.

"The failure with climate change should be a wake-up call," he told a group of scientists who gathered for a workshop in California in August. The environmental community has been talking over people's heads, lecturing rather than educating.

The takeaway message? Make science writing compelling and relevant to regular Joes. The conservation battle will be won incrementally, article by carefully crafted article, sentence by shining sentence.

### The Endgame

Kareiva has already planned the next phases of the battle to put people first in conservation, starting with a focus on students. He's taking a partial sabbatical at Stanford in 2011 to teach a conservation-for-people class to grad students. Next, educate the conservationists already in the field: He's awaiting publication in the spring by Oxford University Press of another book, a how-to guide for practitioners trying to measure the economic value of nature's benefits to humans.

But what do all the books and classes add up to? What is Kareiva's endgame? Nothing short of recharging the conservation movement, now at risk of stalling.

It's certain to conk out if we keep talking about biodiversity, says the guy who shuns the word. So Kareiva will keep preaching people: conservation of the people, by the people, for the people.

Call him an ecopopulist.



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ESSAY / PART TWO

# The Future of Conservation

## Balancing the Needs of People and Nature

Text by
PETER KAREIVA,
Chief Scientist,
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SAVING THE WORLD HAS ALWAYS BEEN THE GOAL. But our definition of success recently has been narrowly defined in terms of "biodiversity"—an abstract word few people even understand.

Most of the world's nearly 7 billion people don't care about biodiversity, and most don't think of nature conservation as essential to their ambitions and goals. People want to be safe and secure, have food and shelter, and have an opportunity to better their lives. And they will use natural resources in any way possible to further those objectives.

The modern conservation movement has been naive in its strategies of defending nature *against* these human goals. Most notable is the thinking that "fortress conservation"—in the form of parks and nature reserves with guards and restrictions—can both expand enough to protect biodiversity and hold up against the pressures of the projected 2 billion more people by midcentury who will be in search of food and water.

So how exactly do we intend to achieve the conservation results the world requires?

What we must have is a vision of the future in which the needs of people and nature are balanced, based on the hard facts of growing population, huge climate impacts, and expanding agriculture and energy exploration.

The conservation of the future will be less and less about protected areas and increasingly about working landscapes, in which the most intrusive human activities are planned for and managed to generate the least damage and to avoid irreplaceable natural systems that cannot tolerate heavy impacts.

The key is to take each of the major needs of people—water, food, livelihoods, security and health—and find the future that meets these needs and protects nature. This should be the endgame for The Nature Conservancy and for the conservation movement. There will be room for "wild" and wilderness in this vision, but only if people are secure and nourished.

This vision of balancing the needs of people and nature rests on two assumptions. First, nature is far more resilient than folklore and the media depict it to be. For example, surveys of the Bikini Atoll, the Pacific islands that were subjected to—or vaporized by—nuclear bomb testing during the Cold War, now show thriving coral reefs and abundant fish species. And there are examples of fisheries that have collapsed but now, with better management, are rebounding. Instead of doom and gloom, the story might instead be one of resurrection. Recovery is not always possible. But it is much more attainable than the label "fragile nature" implies.

The second key assumption is that we have options that will indeed allow us to balance the needs of people and nature. At first glance it might seem that 2 billion more people would foreclose any of those options.

But solutions exist, as do examples of those solutions. Israel, which has one of the highest population densities in the world, manages to maintain a network of protected areas that represent almost 20 percent of its land (among the highest of any nation). Agricultural systems in India and Costa Rica have been shown to harbor enormous biodiversity and at the same time yield high productivity and profit. And the Conservancy's own strategy of working with extractive industries to avoid or minimize impacts on rare habitats is based on the hypothesis that there is enough flexibility in energy and mining demands that both people and nature can be well served.

Clearly there are trade-offs, but some compromises represent healthy trade-offs. For example, the goal of nature-friendly commercial agriculture could be reached through a combination of modifying farming practices; creating wildlife corridors through agricultural lands; breeding or engineering plants that require less water, are more nutritious and produce their own pesticides; and encouraging healthier human diets that emphasize reduced meat consumption.

The key is to stop calling agriculture a "threat" and to instead think of it as a sector of human activity that is essential, whose future practices we can help shape. That same mind-set should be applied to conserving fisheries and ocean and freshwater resources, and to protecting ecosystems that will help humans adapt to a changing climate.

Already, there have been successes in this arena, where conservation is distinguished by actions that ensure that economic and human needs are met. But for these boutique successes to become retail and then wholesale, the very core language of conservation may need to change. The Nature Conservancy and other conservation groups write about "millions of acres protected." Protected from what? From humans? The message of protecting nature from humans is a losing message to most of the world.

The alternative message is a goal of providing billions of people with a natural environment that is managed to meet their needs in perpetuity. We have to change the way people think about conservation, so that its connection to their well-being is ingrained.

And until we conservationists make a vivid and compelling connection between what people want and the need for conservation, our work will never save the world.

Conservation will succeed at protecting biodiversity when it ceases to think only about biodiversity. At the end of the day, it is all about us.

HUMAN NEED: **WATER**

CASE STUDY

### Extrema, Brazil

Brazil's Atlantic Forest supplies water to roughly 9 million people. But deforestation has damaged water quality and decreased quantity. The Conservancy supports a local program that collects fees from water users to pay for watershed restoration.

**Paulo Henrique Pereira, secretary of the environment for Extrema, drinks spring water from the watershed that supplies the town. Pereira runs a program, known as Water Producers, that funds watershed restoration, and he grows seedlings for the restoration work.**

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HUMAN NEED:
FOOD

CASE STUDY

## Pohnpei, Micronesia

To save Pohnpei's fisheries from collapse, the Conservancy has provided financial support and scientific expertise to help Micronesians create networks of marine sanctuaries, known as marine protected areas.

**A fisherman, who also serves as a community conservation officer, fishes for yellowfin using a hook and line. He fishes to feed his family and to generate income. As a conservation officer, he helps guard the marine protected area from poachers.**

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HUMAN NEED: LIVELIHOODS

CASE STUDY
Galilea, Bolivia

For the Conservancy's *Design for a Living World* exhibit, 10 designers were invited to create new objects from sustainable materials sourced from around the world. A designer for kate spade traveled to Bolivia and worked with weavers to create handbags.

**A weaver, here with her extended family, is a member of a collective of female artisans living in the village. The women harvest their materials sustainably from the forest. Here, she is weaving jipijapa, a fiber made from palm leaves.**





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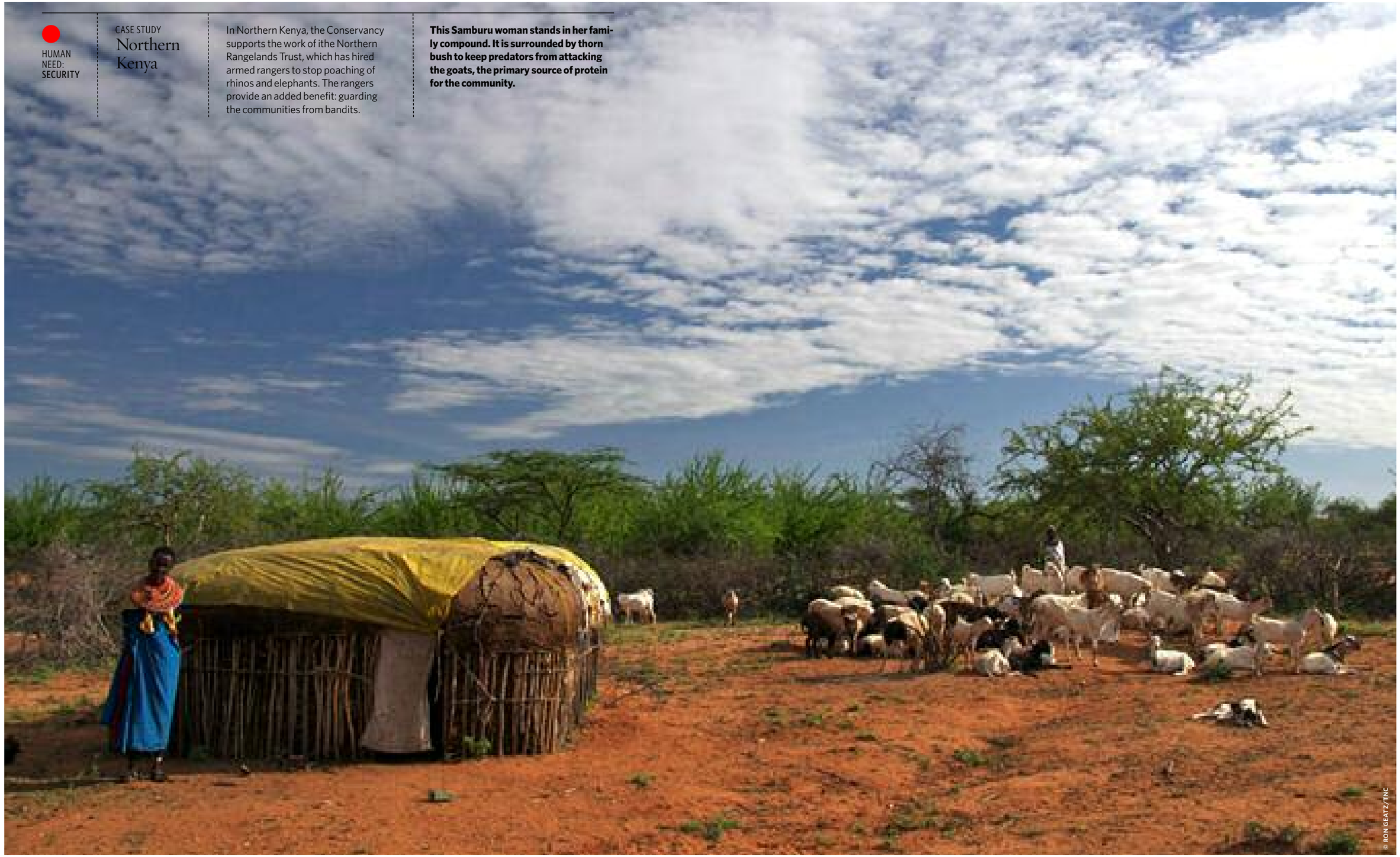
HUMAN NEED: **SECURITY**

CASE STUDY

## Northern Kenya

In Northern Kenya, the Conservancy supports the work of ithe Northern Rangelands Trust, which has hired armed rangers to stop poaching of rhinos and elephants. The rangers provide an added benefit: guarding the communities from bandits.

**This Samburu woman stands in her family compound. It is surrounded by thorn bush to keep predators from attacking the goats, the primary source of protein for the community.**







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