



CAN THIS MAN *(and a Few Thousand Octopuses)* HELP SAVE MADAGASCAR?

One of the most biodiverse countries on earth is losing its marine life at record speed, but Alasdair Harris, a scuba-diving scientist, has an eight-pronged plan to stem the tide. **DEBORAH DUNN** goes in search of his eco-holistic octo-cure



Harris, near Andavadoaka. "He's not the usual tree-hugging greenie," says Charles Sheppard, his Ph.D. adviser.

STANDING ON the beach in Andavadoaka, a remote fishing village on Madagascar's southwest coast, you'd be hard-pressed to find anything wrong. Candy-colored bungalows overlook a turquoise lagoon. Young British and American tourists just back from their morning scuba dive gush over their sightings (manta rays as big as cars, humphead wrasses the color of stained glass). The Vezo, the master fishermen of Madagascar, paddle along the shore in brightly painted pirogues. But the idyllic setting masks a looming crisis. Rampant deforestation, climate change, and overfishing have led to catastrophic loss of sea life, jeopardizing not only the area's fragile ecosystem and vast tourism potential but the livelihood and food supply for tens of thousands of locals.

The most promising solution has come from an unlikely source: an amiable, highly caffeinated 30-year-old Scotsman. Alasdair Harris first arrived in Madagascar in 2001 on a university-funded expedition to study the Grand Recif, an extensive barrier reef lying outside Toliara, the biggest city in the southwest, and found the reef choked by four decades of sedimentation and pollution. "Madagascar supports some of the largest reefs in the Indian Ocean, but while no one's been watching, they've been slowly dying," Harris tells me at Toliara's Fisheries and Marine Sciences Institute, which overlooks the muddy bay. When the university funding ran out in 2003, Harris, who was by then earning a master's in environmental management from Oxford University, launched the conservation nonprofit Blue Ventures ("My mother tried to talk me out of the name because she thought it sounded like a skin flick," jokes Harris). At first the idea was simple: Enlist tourists to fund research and help survey Madagascar's little-known reefs. But over the past six years, Blue Ventures has morphed into the leading marine conservation nonprofit in the country, launching marine reserves, aquaculture businesses, education programs, and even family-planning clinics (see "Eight Arms of Conservation," page 160). The secret to all this success? The humble octopus.

Photograph by Deborah Dunn

* For the past two decades, *Condé Nast Traveler* has been honoring environmental visionaries around the world who have found solutions to seemingly intractable problems. Every year, we receive dozens of nominations from leading nonprofits (Ashoka nominated this year's winner) and, with the help of our expert judges, select one winner for a \$20,000 prize. Each of the three runners-up receives \$2,000. For the list of judges and the runners-up, see page 163.

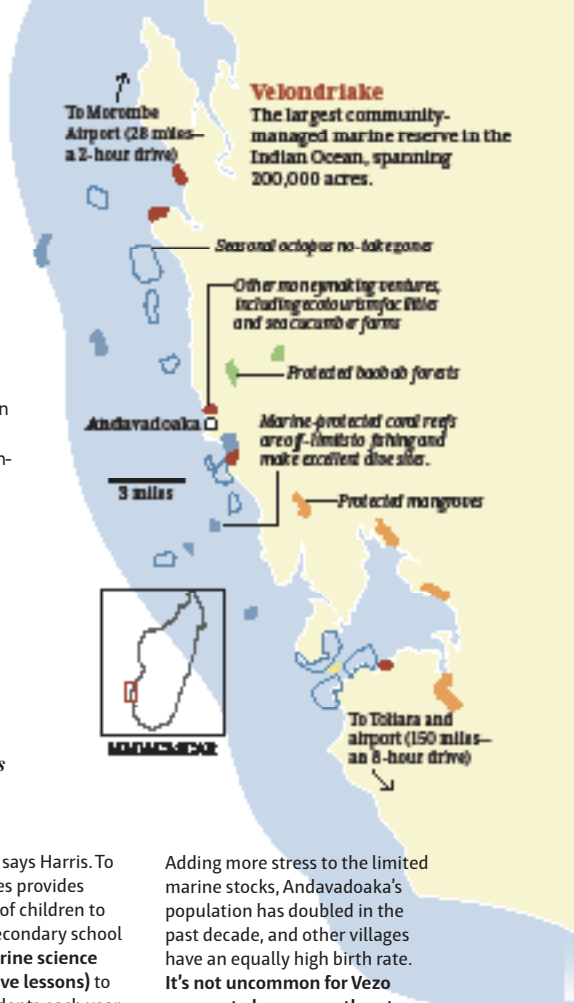
Continued on page 160. >



An Indian Ocean island the size of Texas, Madagascar is home to such an extraordinary number of endemic plant and animal species—about 150,000—that it's referred to as a mini continent. But while naturalists have been cataloging every leaf and insect on the island for the better part of a century, its vast marine resources have been largely ignored. Decades of slash-and-burn farming and deforestation have left much of the country's singular habitat and wildlife critically endangered, and though far less reported, the soil running off into the sea is killing Madagascar's reefs and the sea life along with them.

The commercial fishing industry is dealing

another blow to the already vulnerable ecosystem. More than 70,000 Malagasy live along the southwest coast, one of the poorest regions in one of the world's poorest countries (over half the national population earn less than \$1.25 a day). Most coastal villagers rely entirely on fishing, especially the Vezo people, who for the past 2,000 years have been navigating the stretch of the Indian Ocean that separates Madagascar from the African continent in hand-carved pirogues. Increasingly, commercial boats, mostly from Asia and Europe, are fishing those same waters. "The traditional fishermen can't compete," says Volanirina Ramahery, a marine



THE REACH

Eight Arms of Conservation

Alasdair Harris's innovative approach to protecting marine life includes everything from microfinancing to ecotourism (you too can volunteer!)

Blue Ventures offers six-week volunteer programs, but you can opt for shorter stints. **Volunteers dive six days a week and stay in basic beach huts** (no hot water). Private bungalows cost \$6,600 to \$7,300 per couple for six weeks, depending on how much dive training you'll need. An ecolodge is slated to open in 2011.



TOURISM

Volunteers and scientists conduct extensive surveys of unexplored coral reefs. Mara Edouard Remanevy, a professor at Toliara's marine sciences institute, says that before Harris began his research, "there was a black hole in information about the country's reefs."



REEF RESEARCH

"Education is crucial," says Harris. To that end, Blue Ventures provides funding for hundreds of children to attend primary and secondary school and offers **on-site marine science training (including dive lessons)** to 12 local university students each year.



EDUCATIONAL PROGRAMS

Adding more stress to the limited marine stocks, Andavadoaka's population has doubled in the past decade, and other villages have an equally high birth rate. **It's not uncommon for Vezo women to have more than ten children.** Two years ago, Blue Venture's on-site doctors set up the region's first family-planning clinic, which allows women access to contraceptives and treatment for STDs. Today, 400 women from Andavadoaka, or 30 percent of the female population, are regular patients.



FAMILY-PLANNING CLINICS



TURTLE AND SHARK SURVEYS

A dozen shark species and five of the seven known turtle species were once prevalent in the area's coastal waters, but the high demand for shark fin in Asia and the local custom of eating turtles have brought the species to near extinction. In order to help determine how many remain, **local fishermen have been trained to document and photograph each turtle and shark they catch.** The photos are sent to marine scientists in London, where they're studied for clues to the status and health of the Indian Ocean populations.



SEA CUCUMBER FARMS

As one of several schemes that offer villagers alternative sources of income to shark and octopus fishing, Blue Ventures has helped launch and finance commercial sea cucumber farms in four Velondriake villages. Scientists, volunteers, and members of the local Women's Associations help with the care and monitoring. **Each harvest—every four months—nets 23 families about \$540 each.**



MARINE PROTECTED AREA

Velondriake includes nearly 1,000 acres of permanent no-fish zones and 700 acres of protected mangrove forest. **Locals guard the areas and heavily fine trespassers.** "Now people are excited about protecting the reefs," Andavadoaka's mayor told me.



OCTOPUS NO-TAKE ZONES

More than 3,000 acres of Velondriake are seasonal octopus reserves. The reserves are closed to fishing for a few months a year, giving the mate-happy mollusks time to multiply. **In one day this August, locals caught over ten tons of octopus,** earning more than double what they made in an entire month in previous years. Another 50 villages in Madagascar are implementing similar no-take zones, and communities throughout the Indian Ocean, from India to Somalia, are considering doing the same.

Photograph by Deborah Dunn. Map by Joyce Rendola



program coordinator for the World Wildlife Fund (WWF) in Madagascar and a former Blue Ventures research scientist. "There's nothing left for the locals, who have no choice but to buy their fish from the trawlers." According to the WWF, catches in the West Indian Ocean have dropped by almost half in the last 50 years.

Many Vezo have resorted to fishing hundreds of miles offshore, spending six to nine months a year in rough and dangerous waters in search of sharks and sea cucumbers, both in high demand in Asian seafood markets. Some bring their families and all their possessions and set up camp on sandbars far from civilization.

Closer to shore, where the Vezo hunt octopus to export to restaurants in Italy, France, and

to offer a financial incentive. Enter the octopus.

In 2004, armed with a year's worth of research, local Blue Ventures representatives, including marine biologist Daniel Raberinary, met with the elders of Andavadoaka and proposed the first seasonal octopus fishing ban. If the octopus were left in peace for six months, they explained, they'd have a chance to multiply in exponentially greater numbers. Females not only grow quickly—they can more than double in size in six months—but the bigger they are, the more eggs they lay. The elders agreed to a temporary reserve and issued a *dina*, or local law, against octopus fishing in the designated area. The trial was an unqualified success. In the month after the ban was lifted, the villagers of

Andavadoaka caught 1,126 octopuses—1,040 more than their monthly average before the ban was imposed. Moreover, the average weight shot up by 48 percent. Despite widespread poaching by fishermen from other villages, the people of Andavadoaka earned 30 percent more for their octopus catch than they had prior to the ban. Andavadoaka's elders became the biggest proponents of controlled fishing and began ardently encouraging neighboring villages to follow suit. Within three

years, 24 villages had formed a 200,000-acre marine reserve and named it Velondriake, the Vezo word for "to the sea."

Madame Zizi, of the Andavadoaka Women's Association, farming sea cucumbers.

But octopus no-take zones are only a small part of Velondriake. The reserve also encompasses 1,700 acres of permanently protected marine and coastal forests, and it soon became a test kitchen for a slew of other Blue Ventures social and economic projects, from sea cucumber farms to English classes to family-planning clinics (overpopulation is another pressing issue).

"Since the communities can see the benefits of marine management, they have a much better understanding of conservation," says Raberinary. Up to 130 volunteers annually help with all aspects of Velondriake, but this year, with Madagascar's government in turmoil (in March, a military coup ousted the sitting president and violent protests followed), tourism has slowed to a trickle. Blue Ventures now offers volunteer expeditions in Fiji and Malaysia to help fund its Madagascar projects.

One night, while Harris and his staff are grappling over next year's budget, I walk into town for some zebu brochettes (Andavadoaka's tasty street food) and meet Edmond, a fisherman from another Velondriake village. When I ask how life has changed for him and his family since Blue Ventures arrived, he tells me that people now respect the environment and the laws intended to protect it. But with the tourism, education, and health projects spearheaded by Blue Ventures, bigger changes are afoot. "Young people now see that another kind of life is available," Edmond says, "not just fishing." □



Mauritius, the mollusk has suffered the same fate as sharks, turtles, and sea cucumbers: They have been fished nearly to death.

THE OCTOPUS PLAN

Andavadoaka isn't an easy place to reach. The quickest route from Antananarivo, the capital, requires two flights, which operate only twice a week, and a two-hour, kidney-rattling drive through a forbidding jungle of poison-sap euphorbia trees and towering cactuslike alluadia. The sight of a brilliant-blue sea at the end of the journey is a welcome shock. I arrive just in time for lunch at the Blue Ventures base camp, on a shell-studded beach a short walk from town. Over platters of grilled whitefish, red beans, and the ubiquitous bowl of rice, Harris, who lives in Antananarivo, introduces me to his "guys in the field" (most of whom are actually twentysomething women working on their Ph.D.'s). Later that afternoon, I meet the village's leading lights, including Bic Manahira, an electrician turned dive master who now trains volunteers to survey reefs; Thomas (no last name), a green-eyed former shark fisherman who currently works with a London biologist on pioneering shark and turtle research; and Roger Samba, the former mayor of Andavadoaka, who travels around the region (in a pirogue) rallying support for Blue Ventures' projects.

One of the keys to the success of any conservation project, says Harris, is community commitment. One way to earn that commitment is

THE JUDGES

The following individuals helped select this year's winner and runners-up

FRANCES BEINECKE, president, Natural Resources Defense Council

BLYTHE DANNER, actor; advisory board member of Environmental Advocates, the Environmental Media Association, and the Union of Concerned Scientists

BARBARALEE DIAMONSTEIN-SPIELVOGEL, chairwoman, Historic Landmarks Preservation Center

LARRY FAHN, executive director, As You Sow Foundation; past president, Sierra Club

THOMAS E. LOVEJOY, biodiversity chair, H. John Heinz III Center for Science, Economics, and the Environment

BILL MCKIBBEN, author of *The End of Nature*; scholar-in-residence, Middlebury College, Middlebury, Vermont

MARILYN PERRY, chairwoman emerita, World Monuments Fund

CARTER ROBERTS, president and CEO, World Wildlife Fund

PATRICIA SKYER, project team leader, World Wildlife Fund in Namibia; *Condé Nast Traveler's* 2002 Environmental Award winner

MARK TERCEK, CEO, The Nature Conservancy

TENSIE WHELAN, president, Rainforest Alliance

RUNNERS-UP



PRIGI ARISANDI

EAST JAVA, INDONESIA

For documenting the pollution of the Surabaya River and teaching students to monitor and protect its water quality.



SANJIT "BUNKER" ROY

RAJASTHAN, INDIA

For educating the rural poor so they can produce their own renewable energy.



DANILO VILFAÑA TORRES

SIERRA NEVADA DE SANTA MARTA, COLOMBIA

For protecting a sacred mountain from illegal coca farmers and for safeguarding the rights of the indigenous people who live there.

For more on the runners-up, plus a look at all ten semifinalists for this year's *Condé Nast Traveler Environmental Award*, log on to cntraveler.com/environmentalaward.