The Penguin Maven

Biologist Dee Boersma has been watching the Magellanic penguins of Punta Tombo, in Argentina, for more than 25 years.

By Eric Wagner

WILLIAM CONWAY

In November 2006, while Dee Boersma was waiting to board a plane in Trelew, Argentina, she picked up the city's newspaper, *Diario Jornada*, to read during the flight. As she scanned the front page, a headline caught her eye: "*Denunciaron un Escándalo en la Pingüinera*." Next to it was a photo of a Magellanic penguin, the species that Boersma, a biology professor at the University of Washington, has studied for more than 25 years. Boersma's Spanish is far from perfect, but the gist seemed clear: There was a scandal of some sort, and it involved penguins.

Curious, she turned to page 37. There she saw, much to her dismay, an article lambasting one "Dee Borman" for crimes against the Provincial Office of Tourism. The piece was short but hinted at dark revelations to come.

"It was," Boersma would tell me later, "not good."

It got worse. The next day, she found herself the subject of a ringing traducement. "*Echaron a la científica del escándalo en la pingüinera*," the headline blared, and there was a photo of this "Dee Borman" character, grimacing in dark glasses, her gloved hands wrapped around the neck of a penguin, which she appeared to be strangling.

"The worst part was that the story claimed I was going to try to sell them," Boersma says. At the Punta Tombo Reserve, home to the largest colony of Magellanic penguins in the world, this was a serious allegation. During the nesting season from September through late February, around half a million Magellanic penguins come ashore there, and 200,000 pairs breed. This wildlife spectacle still occurs largely because local people banded together in the early 1980s to stop a Japanese company from harvesting thousands of the penguins each year for their oil, meat, and skin (to use for golf gloves). Under the auspices of the Wildlife Conservation Society (WCS), Boersma first came to Punta Tombo at that time to see whether such a harvest might be in any way sustainable. She found that it would not. And now, years later, here she was apparently trying to profit from the penguins, according to the newspaper, at any rate.

What had happened was this: The Friday before she was to return to the U.S., Boersma learned from the reserve warden ("a good man in a tough spot") that Argentina's director of conservation planned to extend a tourist trail through the penguin colony over the weekend. From the start, Boersma had opposed the trail. If it followed its planned route, she argued, the trail would destroy almost 200 penguin nests and cut off the birds' access to 10,000 more.

The warden showed Boersma the planks of wood for the trail. But Boersma had to catch her flight, and there wasn't time to make the appropriate calls. So she moved the planks, hiding them under bushes and scattering them about. When the director found out what she had done, he was furious. He accused her of destroying government property. He went to the press. The penguin scandal was born.

In the end, the imbroglio was more a product of misunderstanding than entrepreneurial menace, and it was duly resolved. The trail wasn't built, Boersma paid a fine, and her relations with the provincial government of Chubut went back to their usual amicable state. But the incident illustrates how the focus of Boersma's research has evolved. She started out asking basic biological questions: How far do Magellanic penguins have to swim so they can feed their chicks? What are their nesting habits? Now, she must tackle thornier, more existential topics: How will penguins fare in the face of climate change? And how do you keep the cute, comical creatures that people love from being loved too

In late September, at the start of the nesting season, around half a million Magellanic penguins come ashore at Argentina's Punta Tombo (pages 34–35), and 200,000 pairs breed. About half of the breeding pairs dig and nest in burrows (this photo). Many of the birds become attached to their mates and return faithfully each year to the same nest site.

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much?

Barely a third of a mile across at its widest point, Punta Tombo is a finger of beach that curls off the coast of Argentina, where the Patagonian steppe meets the Atlantic Ocean. For a temperate desert, it is full of life. Besides the bird colonies, southern elephant seals occasionally haul out on its sands, killer whales haul out after those seals to eat them, and right whales mosey past during migration. But the penguins are what give the peninsula its singularly pungent air and cacophonic character. They begin to arrive in late September—at first a steady drop drop drop, which swells and swells in the following weeks. By mid-October, penguins are everywhere, a great sea of birds braying at each other and settling into the burrows in which, if the year is good, they will raise their brood of two chicks.

In her role as director of the WCS Penguin Project, Boersma watches over this phenomenon. That the birds might suffer from a surfeit of love is due in no small part to her advocacy on their behalf. Each year, she and her crew of students and volunteers head down to Punta Tombo to spend the austral spring and summer giving the colony its annual check-up. They brave fleas, snapping beaks, and a seemingly bottomless supply of guano to weigh and measure penguins by the thousands. An adult can weigh up to 12 pounds, so hefting them all day is "good weight training," says Ginger Rebstock, a researcher in Boersma's lab. The scientists track survivorship by banding the flipper-like wings of young birds or giving them toe-tags. They visit hundreds of nests throughout the colony to see how each penguin pair is doing and whether their chicks will fledge.

Penguins show a site fidelity that borders on fanaticism. Of the 54,361 birds that Boersma's team has banded over the years, only 149 were later recorded at a colony other than the one in which they were born. If possible, adults use the same burrow year after year. Because of this, Boersma has come to know certain penguins quite well, and has named some of her stalwarts. One particular favorite of late is Turbo, a hapless male that lost his burrow and, as forcibly displaced young males are wont to do, overcompensated for his shortcomings: He took up residence under the project's giant pickup truck: a Ford F100.

Recently, Boersma and her team have shifted their focus from how the penguins behave while at the colony to what they do when they leave. In August 2007, she and graduate student Elizabeth Skewgar glued satellite tags to six males in San Clemente del Tuyú and Mar del Plata, two coastal towns more than 500 miles north of Punta Tombo. The birds had been found saturated with oil. Now that the birds are cleaned and fully recovered, Boersma hopes they will reveal their migratory routes south to Punta Tombo and help pinpoint the source of the oil that sullied their plumage.

Magellanic penguin parents can raise two chicks. But when food is scarce, they favor the chick that hatched first; the second one usually does not survive. After being fed regurgitated fish, the fuzzy chicks often rest against one of the parents outside the nest (below).

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WILLIAM CONWAY ⓟ DEE BOERSMA (RIGHT)

Over the years, penguin maven Dee Boersma (left) and her field crews have banded more than 50,000 birds in the Punta Tombo colony. Above, from left to right: the author and his wife El, volunteer Emily Wilson, project data manager Clay Gravelle, and research associate Ginger Rebstock, cuddling the hapless male Turbo.

"We don't know where the penguins go when they aren't at the colony," Boersma says. "We want to see whether they follow a straight, well-defined route or not."

Another big cause for concern is overfishing. As dedicated fleets mine the ocean, they force penguins to search farther and farther from the colony to find anchovies, their preferred food. Magellanics are remarkable swimmers and can travel 100 miles a day if they must. That doesn't mean they want to. When hunting to feed their young, they prefer to stay as close to the colony as possible, lessening the risk of the chicks starving while they wait. Boersma has found that, to find enough prey, penguins now have to swim almost 40 miles farther from their nests than they did a decade ago.

Climate change is the latest, biggest worry and the hardest to address logistically. Rising water temperatures have been shown to alter the distribution of prey species in the region, exacerbating the effects of overfishing. Climate change also alters precipitation regimes, making Patagonia's desert wetter. This could have disastrous consequences. During 24 years of record keeping, Boersma observed that the colony's nesting failures closely mirror the amount of rain in the area: If more than 2.5 inches of rain fall during the year, most chicks don't survive to fledge. When the rains cause flooding, penguin burrows collapse. Wet down is not an effective insulator, so the sodden chicks die of hypothermia.

"All these things add up," Boersma says. "The colony has declined by 22 percent since 1987, although it's showing signs of stabilizing. Still, we're not sure how the penguins will react to the effects of climate change, or to some of the challenges close to home."

"Close to home" means, in essence, people. Punta Tombo lies 60-odd miles from Trelew, the nearest town, population 100,000. When the reserve opened to the public in 1979, some 5,000 people braved the bumpy gravel road to visit the colony. Then, thanks to Boersma's work, people began to learn more about this spectacle of penguins only a few miles from their homes. The road was soon paved, and with that came concerted efforts by the provincial government to use the penguins to generate revenue for Chubut. Tourist numbers increased steadily. In 2003, 62,000 people visited; in 2007, 105,000. The needs of the penguins and the needs of the visitors are difficult to reconcile. But in April 2008, the government approved a new management plan for the reserve. Five years in preparation, it incorporates suggestions from 90 stakeholder groups.

The plan emphasizes that the key to sustainable relations between the species is for people to understand the cost to, and the worth of, the penguins they want to see so badly, says Boersma. Ironically, the fact that people want to see them may be their salvation. However, she adds, the affection people feel for these birds must carry over into action. "People can't be content with just looking and leaving. Penguins are marine sentinels. They are telling us things about *their* environment, which is also *our* environment. It's up to us to listen to them."

As this issue went to press, Eric Wagner was in Punta Tombo, helping band penguins during the 2008 nesting season.