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Antarctic penguin colony nears extinction

Expert ties sharp decline in breeding pairs to warming temperatures

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PALMER STATION, Antarctica - William Fraser remembers when the ice floes and rocky outcrops near this U.S. outpost were thick with Adélie penguins and the constant, almost deafening roar of their calls made it impossible to hold a conversation.

"You could not go anywhere without seeing hundreds to thousands of Adélies," says the ecologist.

Today, the Adélies outnumber people in this icy patch of the world by 100 to 1. The ratio sounds impressive until Fraser notes that the penguin population has shrunk by 80 percent since he began studying it in 1974, and that he expects the knee-high birds to be extinct in eight years.

What's to blame? Fraser, president of the Polar Ocean Research Group, says global warming is part of the problem because it has made it harder for the penguins to forage and breed.

When he first arrived at Palmer Station, Fraser says, the climate was cold and relatively dry. Now it is warmer and wet, "a bit like southeast Alaska," he says. "That environment did not exist at Palmer 30 years ago."

Peninsula problem
Palmer Station, the smallest of three permanent U.S. research bases on the continent, is near the northern tip of the Antarctic Peninsula, a finger-like piece of land that points at South America.

The region is warming faster than anywhere else on Earth. Winter temperatures have risen by between 9 and 11 degrees Fahrenheit since recordkeeping began about 50 years ago, and the annual sea ice that covers the ocean near Palmer Station lasts 25 percent to 30 percent fewer days than it did in the 1970s.

Adélie penguins spend 90 percent of their lives at sea, swimming or huddled on ice floes in one of the world's harshest climates.

In 1974, about 15,200 breeding pairs nested each summer on a handful of windswept islands near Palmer Station.

In 2003, there were 5,635 breeding pairs. "Right now, you can walk on some of these islands and it is completely silent," Fraser said at the time. "It's sad."

During the 2005 breeding season, Fraser could find no breeding pairs on a rocky outcrop called Litchfield Island. It marked the first time in at least 700 years that, according to paleontological evidence from an excavation, Adélie penguins hadn't nested there.

The latest breeding season ended early this year. Speaking from his home in Montana, Fraser said his team counted only 3,393 pairs of Adélies.

The U.S. Fish and Wildlife Service said in July that it is considering listing 10 species of penguins as possibly facing extinction, also citing global warming as part of the problem. Adélie penguins are not on the agency's list, however, because large colonies in other parts of Antarctica are thriving.

Fraser says the birds near Palmer Station are struggling to have families.

Adélies arrive at the islands in the area each October, soon after the snow melts during the southern hemisphere's spring. They build pebble nests big enough to cradle a basketball in colonies with up to several thousand adults.

But there is evidence that snowfall is increasing on the Antarctic Peninsula, which in the past was almost desert-like. The cause is believed to be warmer air, which is able to hold more moisture, and reduced sea ice, which permits more ocean water to evaporate.

More winter precipitation means the islands around Palmer Station don't become snow-free until later in the spring. But Adélies can't build nests and lay viable eggs until their gravel breeding ground is bare.

Time pressure to feed
If the penguins wait too long to lay eggs, there won't be enough time to raise chicks before the area's krill season ends and the penguins are forced to move for the winter.

When they do depart, the Adélies rely on ice floes, which act like moving sidewalks, helping to carry the birds to their winter feeding grounds hundreds of miles south of Palmer Station. But sea ice is shrinking, Fraser says, and the penguins don't always make it to the best places to feast on the shrimp-like krill that sustain them.

As a human being, Fraser says it is troubling to see the birds he's studied his whole professional life disappear. But as a scientist, he watches the rapid-fire changes taking place at Palmer Station with fascination.

"At one time we were getting glimpses of these changes," he says. "Right now they're so obvious it's quite remarkable."

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