

The Guardian



World's largest king penguin colony has declined by 90%

Number of king penguins on the remote Île aux Cochons has fallen from 2m to 200,000, warn scientists

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The planet's largest colony of king penguins has declined by nearly 90% in three decades, researchers have warned.

The last time scientists set foot on France's remote Île aux Cochons - roughly half way between the tip of Africa and Antarctica - the island was blanketed by 2m of the penguins, which stand about a metre tall.

But recent satellite images and photos taken from helicopters show the population has collapsed, with barely 200,000 remaining, according to a study published in *Antarctic Science*.

Why the colony on Île aux Cochons has been so decimated remains a mystery.

"It is completely unexpected, and particularly significant since this colony represented nearly one third of the king penguins in the world," said lead author Henri Weimerskirch, an ecologist at the

Centre for Biological Studies in Chize, France, who first set eyes on the colony in 1982.

Climate change may play a role. In 1997, a particularly strong El Niño weather event warmed the southern Indian Ocean, temporarily pushing the fish and squid on which king penguins depend south, beyond their foraging range.

“This resulted in population decline and poor breeding success for all the king penguin colonies in the region,” Weimerskirch said.

El Niño events are cyclical events that occur every two to seven years, but they can be amplified by global warming, which itself produces many of the same results, albeit on a longer timescale.

Indeed, Weimerskirch and colleagues showed in an earlier study that climate change, on its current trajectory, will probably make the Crozet islands - the archipelago that contains Île aux Cochons - unviable for king penguins by mid-century.

Migration is not an option because there are no other suitable islands within striking range.

Other factors may be contributing to the decline of the Île aux Cochons colony, including overcrowding. “The larger the population, the fiercer the competition between individuals,” noted a statement from France’s National Centre for Scientific Research, which funded the study. “The repercussions of lack of food are thus amplified and can trigger an unprecedented rapid and drastic drop in numbers.”

But this so-called “density-dependent effect” can also be made worse by climate change, the study notes.

Another possible culprit is avian cholera, which has affected seabirds on nearby Marion and Amsterdam Islands, including some king penguins. But until Weimerskirch and other researchers return to Île aux Cochons - hopefully, he said, in early 2019 - they won’t know for sure.

It is also possible that invasive species such as rats, mice or cats, have found their way on to the island. The Red List of Threatened Species conservation status for king penguins is currently “least concern,” but the new data may prompt a reevaluation.

King penguins are the second-largest penguin species after the Emperor. They do not make a nest, but rather lay one egg at a time and carry it around on their feet covered with a flap of abdominal skin, called a brood patch. Parents take turns incubating the egg, switching every couple of weeks over a two-month period.

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