

# New survey explores hidden mega-colonies of Adélie penguins in Antarctica

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## Video Abstract

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# Abstract

Recognized by the distinctive white ring around its eyes, the Adélie penguin is only one of two species of penguin whose only home is Antarctica. While Adélie numbers have been observed to decline in some regions amid a changing climate, the truth is surprisingly little is known about the penguins' actual distribution along Antarctica's coastline. A 2015 land-and-air survey explored previously unreported colonies of Adélie here, in a cluster of ice-choked islands called the Danger Islands. The discovery could mark an important technological turning point in species tracking that would have clear implications for preserving biodiversity. Researchers conducted their survey from aboard a research vessel and on the grounds of several of the Danger Islands—only one of which had ever been inspected for Adélie penguins. They counted nests [manually], [from panoramic photos], and [from imagery captured by drones]. In all, the team tallied 751,527 pairs of Adélie penguins in the Danger Islands. That's more than the rest of the Antarctic Peninsula combined! And at a region scale, the new count boosts the previous population estimate by nearly 70%. The researchers compared their findings with aerial imagery captured in the 1950s and satellite imagery gathered since the 90s. The analysis revealed that, overall, Adélie numbers have remained roughly stable, in stark contrast to the declines observed along the Western Antarctic Peninsula. These findings are consistent with recent modeling work showing that the warming pattern of the peninsula has perhaps spared the Danger Islands from large environmental changes—at least from a penguin's perspective. That conclusion, of course, is limited by the lack of imagery between the late 1950s and 1990. But it points to the potential power of medium-resolution satellite imagery. Combined with drone-based photography, such imagery could enable researchers to discover further penguin colonies and chart their biogeography over time. Additionally, the results make a strong case for increased species protection in the Danger Islands. The islands are large and likely to remain a vital hotspot for avian abundance under projected climate change. As such, the team argues that they deserve special consideration in the negotiation and design of Marine Protected Areas in this region.