

Antarctic life – highly diverse, unusually structured

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Credit: Newcastle University

The variety of plant and animal life in the Antarctic is much greater than previously thought, reveals an assessment of Antarctic biodiversity published by a team of scientists in the journal *Nature* this week.

The scientists, led by Monash University, along with colleagues from the British Antarctic Survey, University of Waikato and Australian National

University, looked at how recent investigations have shown the continent and surrounding ocean is rich in species. They are also highly diversified into a variety of distinct ecological regions that differ greatly from each other.

Lead author, Professor Steven Chown, School of Biological Sciences at Monash, said the team explicitly focussed on demonstrating the diversity of various areas of the Antarctic continent and Southern Ocean.

"Most people think of the continent as a vast, icy waste, and the sea as uniformly populated by whales, seals and penguins. But that's simply not true," he says.

"There's much [biodiversity](#) on land, especially among the micro-organisms, such as bacteria, and the seafloor is very rich in larger unusual species, such as sea spiders and isopods (the marine equivalents of slaters or wood lice). More than 8000 species are known from the marine environment."

Professor Craig Cary, co-author from the University of Waikato, says Antarctica and the Southern Ocean have much more biodiversity, structured in more interesting ways than previously thought.

"The discovery of micro organismal life living under glaciers is an example of a surprising recent discovery. How this unique biodiversity will respond to the globally changing climate is unknown," he says.

"A review in *Nature*, which is one of the highest-ranked journals in the world, is a huge accolade for Antarctic biodiversity research because it's timely and important under current climate change predictions. The article has a fantastic message that has integrated the work of hundreds of researchers around the world who have contributed to developing an awareness of the problems that face Antarctica."

Professor Cary has a strong interdisciplinary science background spanning the biological, earth and physical sciences in both marine and terrestrial environments in Antarctica. He is a Deputy Director of the New Zealand Antarctic Research Institute NZARI Science Programme and the Associate Dean of Research at the University of Waikato where he also directs the International Centre for Terrestrial Antarctic Research. Professor Cary has been at the University of Waikato for 12 years and originates from the US.

Other key findings from the review showed the Antarctic has very distinct biogeographic regions, each with different groups of species; it's not simply one homogeneous area. Terrestrial and marine diversity has relied on a variety of refugia (shelters), including geothermal refuges, while life has also persisted sub-glacially, and Antarctic micro-organismal systems can be among the most diverse globally, but also highly specialised to arid, low nutrient conditions.

More information: "The changing form of Antarctic biodiversity." *Nature* 522, 431–438 (25 June 2015) [DOI: 10.1038/nature14505](https://doi.org/10.1038/nature14505)

Provided by University of Waikato

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