

Scientists warn of tourism threat to Antarctica

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File photo of a tourist taking pictures of penguins on the Antarctic Peninsula

Antarctic scientists warned Wednesday that a surge in tourists visiting the frozen continent and new roads and runways built to service research facilities were threatening its fragile environment.

Tourist numbers have exploded from less than 5,000 in 1990 to about

40,000 a year, according to industry figures, and most people go to the fragmented ice-free areas that make up less than one percent of Antarctica.

A growing number of research facilities are also being built, along with associated infrastructure such as fuel depots and runways, in the tiny ice-free zones.

It is these areas which contain most of the continent's wildlife and plants, yet they are among the planet's least-protected, said a study led by the Australian government-funded National Environmental Research Programme (NERP) and the Australian Antarctic Division.

"Many people think that Antarctica is well protected from threats to its biodiversity because it's isolated and no one lives there," said Justine Shaw from the NERP of the study published in the journal *PLoS Biology*.

"However, we show that there are threats to Antarctic biodiversity.

"Most of Antarctica is covered in ice, with less than one percent permanently ice-free," she added.

"Only 1.5 percent of this ice-free area belongs to Antarctic Specially Protected Areas under the Antarctic Treaty System, yet ice-free land is where the majority of biodiversity occurs."

Five of the distinct ice-free areas have no protection at all while all 55 of the continent's protected zones are close to sites of human activity.

Fragile ecosystems



Antarctic scientists warn that a surge in tourists visiting the frozen continent was threatening its fragile environment and called for better protection

Steven Chown of Monash University, another collaborator in the study, said the ice-free areas contain very simple ecosystems due to Antarctica's low species diversity.

This makes its native wildlife and plants extremely vulnerable to invasion by outside species, which can be introduced by human activity.

"Antarctica has been invaded by plants and animals, mostly grasses and insects, from other continents," he said.

"The very real current and future threats from invasions are typically located close to protected areas.

"Such threats to protected areas from invasive species have been demonstrated elsewhere in the world, and we find that Antarctica is, unfortunately, no exception."

The study said the current level of protection was "inadequate by any measure" with Shaw saying more was needed to guard against the threat posed by the booming tourism industry.

"(We need) to protect a diverse suite of native insects, plants and seabirds, many of which occur nowhere else in the world," she said.

"We also need to ensure that Antarctic [protected areas](#) are not going to be impacted by human activities, such as pollution, trampling or [invasive species](#)."



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Antarctica is considered one of the last frontiers for adventurous travellers.

Most travel by sea, some paying in excess of US\$20,000 for a luxury cabin in the peak period from November to March. There is also a healthy market for sightseeing flights.

Approximately 30 nations operate permanent research stations on the continent including the US, China, Russia, Australia, Britain, France and Argentina, and more are on the way.

China's state media said in December that the country was building its fourth base and a fifth was being planned.

Fellow study author Hugh Possingham, from NERP, said that without better protection "this unique and fragile ecosystem could be lost".

"Although we show that the risks to biodiversity from increasing [human activity](#) are high, they are even worse when considered together with climate change," he added.

"This combined effect provides even more incentive for a better system of area protection in Antarctica."

More information: "Antarctica's protected areas are inadequate, unrepresentative and at risk," Justine D. Shaw, Aleks Terauds, Martin J. Riddle, Hugh P. Possingham and Steven L. Chown, *PLoS Biology*. www.plosbiology.org/article/in...journal.pbio.1001888

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