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Australia's Antarctic Territory – Assets and Capability

Australian Government
Committee Secretary
Joint Standing Committee on the National Capital and External Territories
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WWF welcomes the opportunity to make a submission to the *Joint Standing Committee on the National Capital and External Territories inquiry into Australia's Antarctic Territory.*

Reliable, safe and efficient infrastructure is key to undertake Antarctic research to deliver the Australian Antarctic Strategy and 20 Year Action Plan. The Plan outlines key actions the Government will deliver including:

- A new world-class research and resupply Antarctic icebreaker.
- New and stable funding to support an active Australian Antarctic programme.
- Establish Australia's position of science leadership in Antarctica through:
 - developing modern and flexible infrastructure, including
 - restoring traverse capabilities and establishing mobile stations in the Antarctic interior
 - further scoping options for expanded aviation capabilities to establish a year-round aviation capability between Hobart and Antarctica
 - progressing options for more efficient and flexible use of existing research stations
 - a revitalised science programme, including
 - coordinated and effective funding of Antarctic science
 - opportunities for public-private partnerships to conduct new and iconic scientific research endeavours
 - greater collaboration and resource-sharing with other nations active in East Antarctica.
- Strengthen the Antarctic Treaty system and our influence in it, by building and maintaining strong and effective relationships with other Antarctic Treaty nations through our international engagement.
- Build Tasmania's status as the premier East Antarctic Gateway for science and operations, including through:
 - streamlined Government regulatory and approval processes to facilitate increased use of Hobart as an Antarctic Gateway port
 - agreeing priority proposals with industry to enhance Tasmania's status as an Antarctic Gateway, including expanded infrastructure in Hobart for the new icebreaker

- a major review on building research infrastructure in Hobart to establish Australia as the world's leader in krill research.

WWF supports a science-based approach to identify the pressures and threats to the planet's largest wilderness and welcomes the Government's strategy to revitalise the science programme spawning greater collaboration and resource-sharing with other nations active in East Antarctica.

In 2016, WWF launched the first of a series of biennial reports – entitled *Tracking Antarctica* – identifying and explaining critical threats to Antarctic biodiversity and sustainable solutions to respond to global environmental change in the region.²

The report identifies the direct impacts on the continent of an ever-growing human presence and a rapidly changing climate. Antarctica's biota has evolved and diversified in relative isolation.³ This isolation is threatened by impacts associated with climate change and rapidly increasing human movement both into the region and between its distinct ecoregions. The oceans surrounding Antarctica are warming,⁴ affecting worldwide heat and sea levels.⁵ These changes have direct impacts on the climate worldwide.

Invasive species

Antarctica's ice-free area makes up just 0.34% of the continent, providing little land where sparsely distributed plants can grow.⁶ Increasing temperatures, and human visitors accidentally carrying plant seeds, are increasing the risk of invasive species.

With more than 100 Antarctic research stations, which can accommodate over 4,000 staff and a growing tourism industry, people have introduced more than 200 plant species to sub-Antarctic islands and parts of the Antarctic continent.⁷ Roughly 7,000 scientists and 33,000 tourists visiting Antarctica each year accidentally carry seeds and spores—on average about 10 seeds per person, with field scientists proportionally carrying more. More than 70,000 seeds enter the region annually.⁸ Introduced seeds include species that may have come from climatically similar places, increasing the chances of them germinating.⁹

With rising temperatures and human activities, there are increasing risks of invasive species, and species can move southward as the ocean warms. For example, there is increased introduction of non-native species on the Antarctic Peninsula by the growing numbers of tourists and researchers. Policy development to protect Antarctic ecosystems from invasive species is slow, and there is little monitoring of impacts, so non-native species eradication, and preventing their introduction in the first place, are vital. ⁰

Pollution

Strict regulations require scientists and tourists to take waste home and fishing vessels not to dump waste in waters governed under CCAMLR – the Commission for the Conservation of Antarctic Marine Living Resources. The exception is sewage. ² Untreated sewage from research bases can introduce bacteria, such as *E. coli*, to the Antarctic ecosystem. Researchers have found bacterial strains similar to those found in humans in marine ecosystems, and have discovered antibiotic resistant genes in bacteria isolated from shellfish. ³

Inadequate fuel storage at bases can leak hydrocarbons. Five to 50 times the average concentration of trace metal pollutants, such as lead, have been detected in soil and moss samples from the Fildes Peninsula, one of the most visited sites in Antarctica, and other areas of high human use. ⁴

Persistent organic pollutants (POPs), toxic compounds resulting from human activities, have been measured around Antarctica. Although they can come from research stations and shipping, POPs come predominantly from outside Antarctica, with the Southern Ocean a sink rather than a source of some POPs. ⁵ In addition, it was thought that the Southern Ocean was relatively free of microplastic contamination. However, recent studies and citizen science projects in the Southern Ocean have reported microplastics in deep-sea sediments and surface waters. ⁶

As WWF welcomes the continued leadership and excellence in Antarctic science, we strongly recommend enhanced biosecurity measures keep Antarctica safe from invasive species and pollution. This will be crucial in planning, developing and managing new infrastructure in the region to support critical science delivery.

WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global Network active in more than 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

Our global WWF Antarctic conservation program is hosted by WWF-Australia in Melbourne. We collaborate with researchers, governments, industry and partners and are a voice for credible science. A key focus of our work is to monitor and report on the state of species, ecosystems and human impacts and communicate innovative solutions.

Please do not hesitate to contact me if you have any queries (email: _____ or
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