

# **Antarctic Conservation for the 21<sup>st</sup> Century**

## **A Comprehensive Strategy**

Scientific Committee on Antarctic Research

Monash University PolarWorks

Antarctica New Zealand

COMNAP

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# Content

## 1. Introduction

- a. Area of interest.
- b. Conservation in the Antarctic – The Protocol on Environmental Protection and its Annexes.
- c. Biodiversity values to be conserved and managed.
- d. Previous conservation strategies.
- e. Relationships with other international agreements.

## 2. Scoping

- a. Current conservation threats and responses
- b. Future conservation threats

## 3. Climate change and changes to human activity patterns

- a. Climate change, its spatial variation and likely course of development.
- b. Marine consequences.
- c. Terrestrial consequences.
- d. Human activity change and interactions with climate change impacts.

## 4. Antarctic Specially Protected and Managed Areas

- a. The current protected area system.
- b. Modern approaches to area selection in marine and terrestrial environments.
- c. Antarctic Conservation Biogeographic Regions and representation of terrestrial biodiversity.
- d. ACBRs not represented by ASPAs.
- e. Finer scale biodiversity variation and genetic isolation.
- f. Missing areas (including those such as geothermal sites) that require designation.
- g. Missing data.
- h. Marine protected areas and selection.
- i. Major areas to be conserved.
- j. No human activity zones (inviolate areas).
- k. Dynamic management, climate change and human activity in terrestrial systems.
- l. Dynamic management, climate change and fishing in marine systems.
- m. Conservation of associated and dependent sub-Antarctic systems.

## 5. Non-indigenous species

- a. The nature of the problem.

- b. Antarctic activities and climate change.
- c. Terrestrial risk map for current and future extra-regional introductions.
- d. Closing vector pathways for extra-regional introductions.
- e. Closing vector pathways for intra-regional introductions – using the ACBRs and finer scale genetic data.
- f. Field protocols for preventing intra-regional movements.
- g. Extra-regional marine introductions.
- h. Identifying ports and species of most concern.
- i. Closing vector pathways for extra-regional marine introductions.
- j. Intra-regional marine introductions – a risk analysis map.
- k. Closing pathways for intra-regional introductions.
- l. Pathway risk assessments.
- m. Missing data for vector pathway assessment.
- n. Risk assessments for taxa – an automated first approach.
- o. Microbial introductions – a unique challenge.
- p. Surveillance protocols for terrestrial taxa.
- q. Surveillance protocols for marine taxa.
- r. Surveillance protocols for freshwater and microbial taxa.
- s. Separating colonists by origin.
- t. Eradication decision-making for multiple taxa and environments.
- u. Reporting and decision support.
- v. Associated and dependent systems as sources and areas of concern.
- w. Research requirements.

## 6. Indigenous species and population management

- a. Species of interest.
- b. Species by species assessment of threats, cost of action, surveillance potential.
- c. Data deficiency: spatial and temporal.
- d. Recommendations.
- e. Associated and dependent systems and marine foraging.
- f. Ecosystem management and monitoring.
- g. CCAMLR, ACAP and other agreements.

## 7. Human disturbance to wildlife

- a. Species of concern.
- b. Information on impacts.
- c. Approach distance information for single intrusions.
- d. Cumulative impacts.
- e. Spatial distribution of main disturbance areas.

- f. Alternative sites for science and commercial tourism.
- g. Protocols for recognizing disturbance.
- h. Protocols for reducing disturbance.
- i. Costs of implementation.

## 8. Pollution and waste management

- a. Point source threats, cost, solutions.
- b. Cumulative source threats.
- c. Remedial solutions and cost (environmental and financial).
- d. Plastic pollution in marine systems.
- e. Analysis of spread and threat in marine systems.

## 9. Habitat degradation by human activity

- a. Cumulative impacts of on-foot visits, evidence.
- b. Vehicle disturbance.
- c. Surveillance for cumulative impacts.
- d. Disturbance at infrastructural facilities.
- e. Research requirements and outcomes thereof.

## 10. Marine noise

- a. Evidence for marine noise impacts elsewhere.
- b. Evidence from the Antarctic.
- c. Recommendations for mitigation.
- d. Research requirements.

## 11. Interacting impacts

- a. A scale of interactions – antagonistic, neutral, additive, synergistic
- b. Quantitative risk analysis.
- c. Likelihood based on spatial assessment.
- d. Cumulative impacts, cost, solutions.
- e. Research requirements.

## 12. Integrated area management plans

- a. Standards for value description.
- b. Contextual management – human activity.
- c. Connectivity, change and invasion.
- d. Wildlife disturbance.
- e. Non-indigenous species management.
- f. Cumulative impacts.

- g. Climate change responses.
- h. Alternative sites.
- i. Migration and evolutionary potential.
- j. Species management and movement.
- k. No human activity zones.

### 13. Permanent settlement and non-renewable resource-related research

- a. Permanent settlement and regulatory requirements.
- b. Measures for non-renewables research at sea.
- c. Measures for non-renewables research on land.

### 14. Decision support, state of the environment and information delivery

- a. Real-time information for decision support through a web-based portal.
- b. Monitoring and surveillance in key areas: learning from approaches elsewhere.
- c. Rapid decision-making in the event of a conservation crisis.
- d. Dynamic conservation management.