Antarctic Conservation for the 21st 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.
   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.
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.
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.
    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.