

# Conservation Management at Southern Ocean Islands: towards the Development of Best-Practice Guidelines

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**Abstract:** Islands in the Southern Ocean are susceptible to several land-based threats, including invasion by human-introduced biota, disturbance of wildlife or sites, and various forms of pollution. In this biogeographical region there are 13 sub-Antarctic or cool temperate island groups without permanent inhabitants, which fall under the sovereignty of five countries and are subject to a variety of management practices aimed at addressing these threats. A review of these practices was undertaken, in order to highlight opportunities for developing consistent best-practice guidelines for management of these islands. Each of the island groups is of conservation importance and this is reflected by their protection status under national legislation and international agreements. All except the French-owned islands and Nightingale Island in the Tristan da Cunha group have formal management plans. Tourism is allowed at all island groups except the Prince Edward Islands and three of the five New Zealand groups, but the potential environmental impacts are mitigated by various restrictions, including the limitation of visitor access to certain zones and in some cases, to certain islands in a group. At all island groups, the importance of preventing introductions of alien (non-native) biota is recognized and at seven groups, successful eradications of alien species have been undertaken. However, the comprehensiveness of quarantine measures to prevent introductions varies considerably, a quarantine officer to oversee quarantine procedures prior to disembarkation is required at only a few islands, the cultivation of fresh fruit and vegetables is still allowed on some islands, and expedition vessels remain a potential source of marine introductions at most islands. At all islands, measures are in place to prevent or minimize human disturbance of wildlife, but these vary considerably. Similarly, there are differences in the extent of island infrastructures, although all management authorities address the issue of waste disposal and several have invested considerable time and effort in the removal of accumulated waste or obsolete structures. Limited use has been made of fuel-free power on the islands. The establishment of an international forum of managers and researchers would facilitate the exchange of information regarding best practices at these islands.

**Zusammenfassung:** Inseln im südlichen Ozean sind gegen verschiedene Gefahren an Land empfindlich, insbesondere gegen die Ausbreitung von durch den Menschen eingeführten Organismen, die Störung der Tierwelt und verschiedene Formen der Umweltverschmutzung. In dieser biogeographischen Region gibt es 13 subantarktische oder kühl-gemäßigte Inselgruppen ohne ständige Bewohner, die unter die Hoheit von fünf Ländern fallen. Sie sind gegen diese Gefahren einer Vielzahl von Managementpraktiken unterworfen. Der vorliegende Artikel gibt eine Übersicht über diese Praktiken, um so Möglichkeiten für bessere Management-Richtlinien für diese Inseln aufzuzeigen. Jede der Inselgruppen hat eine besondere Bedeutung für den Schutz, der durch den Schutzstatus im Rahmen der nationalen Gesetzgebung und internationaler Vereinbarungen widerspiegelt wird. Alle Inseln, ausgenommen der von Frankreich beanspruchten und von Nightingale Island in der Tristan da Cunha-Gruppe haben formelle Management-Pläne. Tourismus ist auf allen Inselgruppen – ausgenommen der Prinz Edward Islands und drei der fünf Neuseeland-Inselgruppen – erlaubt; die potentiellen Umwelteinflüsse

werden aber durch verschiedene Beschränkungen abgeschwächt, einschließlich der Begrenzung des Besucherzugangs zu bestimmten Zonen und in einigen Fällen, zu bestimmten Inseln einer Gruppe. Auf allen Inselgruppen wird die Vermeidung einer Einführung fremder Organismen erkannt; auf sieben Gruppen wurde eine erfolgreiche Ausrottung der vormalig eingeführten Arten erfolgreich vorgenommen. Der Umfang von Quarantänemaßnahmen zur Verhinderung einer Einfuhr fremder Organismen variiert beträchtlich: Ein Quarantäneoffizier zur Beaufsichtigung von Quarantänemaßnahmen vor der Ausschiffung ist nur auf einigen Inseln notwendig. Das Anpflanzen von Obst und Gemüse ist noch auf einigen Inseln erlaubt. Expeditionsschiffe bleiben weiter eine mögliche Quelle zur Einfuhr von Organismen auf den meisten Inseln. Auf allen Inseln gibt es Maßnahmen zur Verhinderung oder Minimierung der Störung der Tierwelt durch menschliche Aktivitäten, jedoch variieren diese beträchtlich. Unterschiede bestehen auch im Ausmaß der Insel-Infrastruktur; obgleich alle Managementbehörden den Punkt der Abfallbeseitigung ansprechen, investieren einige beträchtliche Zeit und Aufwand in die Beseitigung von angesammeltem Müll oder überholten baulichen Strukturen. Begrenzt werden auch alternative, kraftstofffreie Energiequellen auf den Inseln genutzt. Die Einrichtung eines internationalen Forums der Manager und Forscher würde den Informationsaustausch bezüglich der besten Praxis an diesen Inseln fördern.

## INTRODUCTION

Clustered around the Antarctic Polar Frontal Zone are several islands and island groups that form part of the Sub-Antarctic Biogeographical Region (Fig. 1). Although relatively species-poor, these isolated land masses in the Southern Ocean provide breeding and moulting grounds for vast numbers of seabirds and seals, support a high proportion of endemic taxa and are amongst the few representatives of mid-to-high-latitude terrestrial ecosystems in the southern hemisphere (CHOWN et al. 2001). Their conservation value is thus nationally and in some cases internationally recognized (Tab. 1). The islands are dynamic systems and are subject to considerable natural pressures such as glacial and volcanic action. They have been relatively unaffected by humans and their biotic components remain relatively intact (references in CHOWN et al. 1998). Nevertheless, they are susceptible to a number of threats related to human activities. Whereas none of the islands considered in this review has a resident human population, representatives of almost all of the groups are regularly visited by research expeditions and some islands in most groups are also visited by tourists. The greatest threat to the islands associated with these visits is invasion by alien biota, exacerbated by climate change. Other significant land-based threats are disturbance of wildlife or sites of value, and various forms of pollution.

Although they form a biogeographical unit, the sub-Antarctic islands of the Southern Ocean are subject to the sovereignty of a number of countries and a variety of management approaches. In order to assist with the development of best-practice guidelines, we compare various management procedures,

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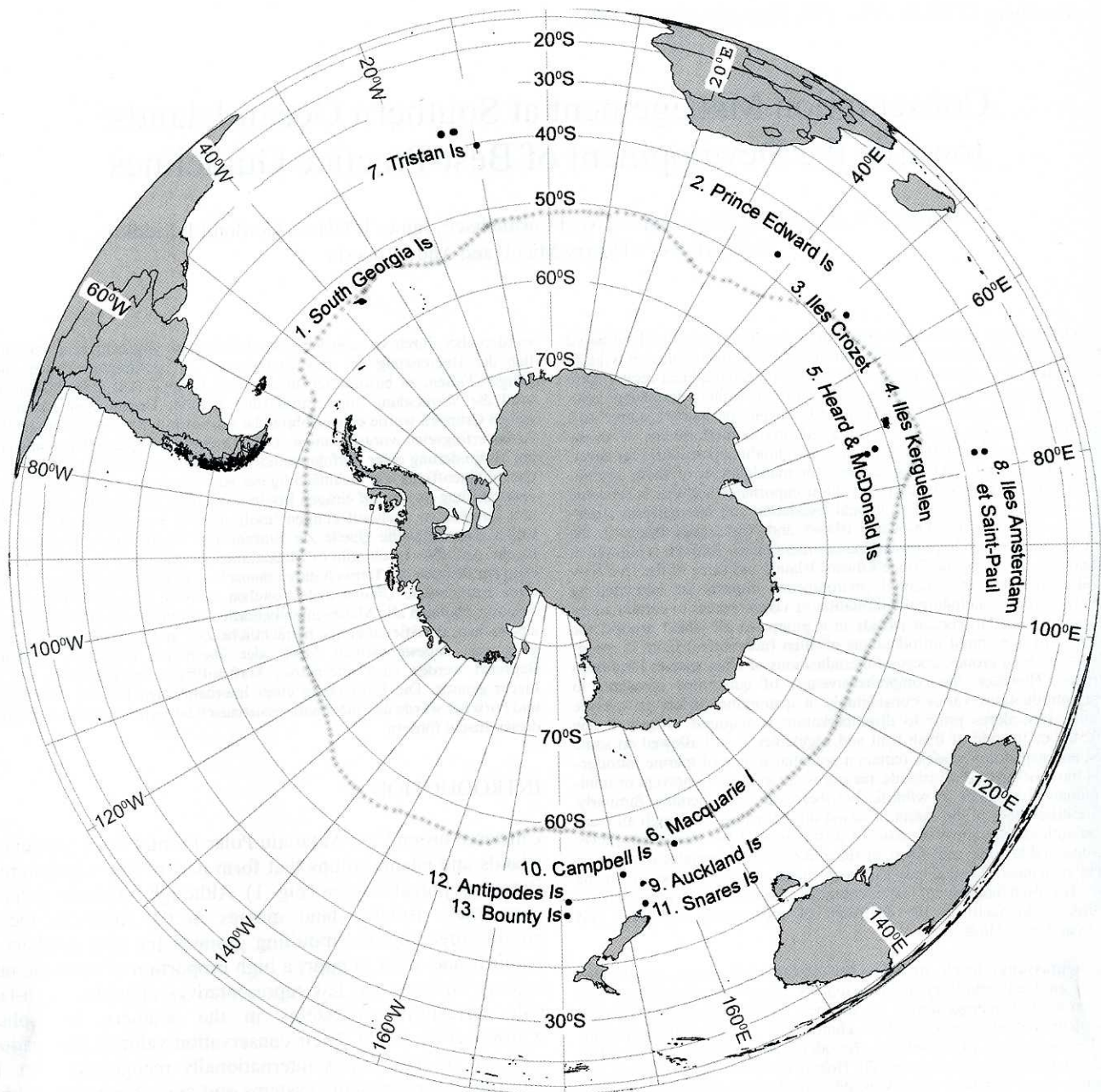


Fig. 1: The position of thirteen island groups without resident human populations in the Southern Ocean.

Abb. 1: Lage der dreizehn Inselgruppen im südlichen Ozean ohne ständige menschliche Bewohner.

which address each of the main threats to the terrestrial environment, identified above. We include in our comparison sub-Antarctic as well as several other more northerly Southern Ocean islands groups, all of which have no permanent human residents (Fig. 1, Tab. 1). Although the latter islands support woody vegetation and have thus been categorised as cool temperate rather than sub-Antarctic, they have many taxa and also some management practices in common with the sub-Antarctic islands. We exclude from our comparison islands in the maritime Antarctic, such as Bouvet øya, the South Sandwich and the South Orkney Islands, as these form part of a different biogeographical zone and have marked biotic differences. We also exclude those Southern Ocean islands with permanent human inhabitants (the main island of Tristan da Cunha and the Falklands / Malvinas) because of the broader

range of conservation issues which they face.

#### *Conservation status and protection by international conventions*

The thirteen island groups fall under the sovereignty of five countries (Tab. 1). South Georgia (together with the South Sandwich Islands, SGSSI) and the three Tristan islands considered here (together with Tristan da Cunha) are overseas territories of the United Kingdom, with management plans commissioned by the governments of SGSSI (McINTOSH & WALTON 2000, PASTEUR & WALTON 2006) and Tristan da Cunha (COOPER & RYAN 1993, RYAN & GLASS 2001), respectively. Although Australia has sovereignty at Heard and McDo-

