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prioritisation of high conservation status offshore islands

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Executive Summary

The Australian Government Department of the Environment, Water, Heritage & the Arts (DEWHA) required an independent national assessment of the conservation value of Australia's offshore islands, and the specific vertebrate pest management issues on these islands. Australia has approximately 8 300 offshore islands, including small rocks which are often associated with larger islands; too many for effective investment of funds to secure biodiversity values into the future. A priority list of 100 islands of high conservation status is needed to help guide future government investment on offshore islands.

This report presents our assessment of the conservation status of Australia's offshore islands. In collaboration with Dr Ray Pierce (Eco Oceania Ltd) we conducted a detailed assessment of key island biodiversity, comprising threatened species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and/or state/territory legislation, as well as listed EPBC Marine and/or Migratory species (Bonn, CAMBA, JAMBA and/or ROKAMBA). This 'biodiversity value' assessment was followed by an evaluation of the types and status of vertebrate pests on those islands (intrinsic feral 'value'), supplemented by a matrix of species-specific impacts, island by island. For example, a non-climbing Red Fox will have a greater impact on small ground-dwelling mammals than it will on arboreal species.

Herewithin we provide:

- a priority list of 100 high conservation status islands of at least 200 ha in area, indicating the top and lower 50 qualifying islands
- a summary list of additional islands that were fully evaluated, but did not make the priority 100 list
- a summary list of smaller islands (< 200 ha) which we believe should be examined more closely
- profiles for the 100 priority islands, including their geographical context, additional ecological and environmental values, management issues and our island specific recommended actions, and
- overall recommendations to help guide future DEWHA investment.

Our results represent the climatic, geographical, topographical, biological and ecological diversity of Australia's offshore islands. Priority islands (> 200 ha) occur in the oceans all around Australia, in all states and territories with coastline and offshore waters:

- 26 are in Queensland
- 23 are in Western Australia
- 19 are in the Northern Territory
- 15 are in Tasmania

- 11 are in Victoria
- 5 are in South Australia, and
- 1 is in NSW (Lord Howe Island).

Priority islands ranged in area from 202 ha (Boodie Island, WA) to 578 577 ha (Melville Island, NT). Some are near the mainland (e.g. Bribie and North Stradbroke islands, QLD), and may even be linked by sand spits at low tides (e.g. Dolphin Island, WA), others are extremely remote (e.g. Macquarie, TAS). Some islands qualified in the list based largely on the number and type of Migratory and/or Marine seabirds and/or shorebirds that utilise the islands for breeding (e.g. Phillip Island, VIC). Others have endangered small mammals that are at risk of extinction or already no longer occur on the mainland (e.g. Bernier and Dorre islands, WA and Groote Island, NT). Others still had significant biodiversity representation among both fauna and flora (e.g. Fraser Island, QLD and French Island, VIC). Detailed consideration of smaller islands (< 200 ha) may yield a different distribution of high conservation status islands. However, any island assessment is limited by the available data. Many islands are little surveyed, and others that are well surveyed do not have easily accessible data.

Worldwide, offshore islands provide unique ecosystems and present the opportunity for protecting species that may be driven to extinction on mainlands where feral pests are much more difficult to eradicate. Australia's islands are no exception, and their potential importance for safeguarding Australia's native biodiversity cannot be overstated. Vertebrate pests are one of the most pressing challenges placing refugial island biodiversity at risk. Many commendable pest management plans have already been implemented on islands (e.g. Lord Howe Island, NSW and Macquarie Island, TAS), and feral pests have been eradicated from some (e.g. islands in the Dampier Archipelago, WA), but many, if not all, are in need of additional resources to ensure that pest free status is achieved where possible, and maintained if achieved. For others, maintaining low feral populations is the most practicable option.

We hope that this assessment provides a solid foundation on which investment decisions can be made for Australia's offshore islands. However, we would like to emphasise that this assessment is a snapshot in time, and we encourage the ongoing maintenance of island biodiversity and feral species datasets so that threats to island biodiversity can be continually assessed and appropriate measures taken to safeguard our ecological heritage into the future.

Acronyms

ABSA	Australian Bird Study Association
APAMP	Australian Pest Animal Management Program (replaced NFACP), DAFF
ATSIP	Aboriginal and Torres Strait Islander Partnerships
AusBIOSEC	Australian Biosecurity System for Primary Production & the Environment
ACT	Australian Capital Territory, Australia
BioSIRT	Biosecurity, Surveillance, Incident Response & Tracing
BRS	Bureau of Rural Sciences (formerly Bureau of Resource Sciences)
CAMBA	China–Australia Migratory Bird Agreement
CALM	former Western Australian Department of Conservation and Land Management
CR	threatened species listed as Critically Endangered
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Australian Government Department of Agriculture, Fisheries & Forestry
DEC	Western Australian Government Department of Environment and Conservation
DECC	NSW Department of Conservation and Climate Change
DEH	former Australian Government Department of Environment & Heritage (now DEWHA); also, South Australian Department of Environment & Heritage
DERM	recently formed Queensland Government Department of Natural Resources and Water/Environmental Protection Agency
DEWR	former Australian Government Department of Environment, Water and Resources (now DEWHA)
DEWHA	Department of the Environment, Water, Heritage & the Arts
DIWA	Directory of Important Wetlands in Australia
DPIWE	former Department of Primary Industries, Water and Environment, Tasmania (now DPIPWE)
DPIPWE	Department of Primary Industries, Parks, Water and Environment, Tasmania
DSE	Department of Sustainability and the Environment, Victoria
EDOWA	Environmental Defender's Office WA Inc
EN	threatened species listed as Endangered
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERIN	Environmental Resource Information Network, DEWHA
GBRMPA	Great Barrier Reef Marine Park Authority
GIS	Geographic Information System

ESRI	a company that designs and develops geographic information system (GIS) technology.
IA CRC	Invasive Animals Cooperative Research Centre
IUCN	International Union for the Conservation of Nature
ISSG	Invasive Species Specialist Group (IUCN/SSC)
JAMBA	Japan–Australia Migratory Bird Agreement
NFACP	National Feral Animal Control Program; ran from 1996-2008 under the Natural Heritage Trust.
NM&EF	National Natural Resource Management Monitoring & Evaluation Framework
NLWRA	National Land & Water Resources Audit
NT	Northern Territory, Australia
NRETAS	Northern Territory Department of Natural Resources, Environment, the Arts and Sport
NSW	State of New South Wales, Australia
NZ	New Zealand
NZ DOC	New Zealand Department of Conservation
QLD	State of Queensland, Australia
QPWS	Queensland Parks and Wildlife Service
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
SA	State of South Australia, Australia
SPRAT	DEWHA’s Species Profiles and Threats Database
SSC	IUCN Species Survival Commission
TAP	Threat Abatement Plan
TAS	State of Tasmania, Australia
VIC	State of Victoria, Australia
VPC	Australian Vertebrate Pests Committee
VU	threatened species listed as Vulnerable
WA	State of Western Australia, Australia

Glossary

1080	sodium fluoroacetate or compound 1080 is a commonly used pesticide
abiotic	non-living chemical and physical factors in the environment
Aeolian	a time reference for the occurrence of prehistoric geomorphological processes.
alluvial	a geomorphological process whereby soil or sediments deposited by a river or other running water
amensal	an interaction between coexisting populations of different species, where one is adversely affected and the other unaffected.
anthropogenic	effects, processes or materials are those that are derived from human activities
archipelago	a chain or cluster of islands
atoll	is an island of coral, typically encircling a lagoon
Australian Biosecurity System for Primary Production & the Environment	a framework of common principles and guidelines to enable biosecurity arrangements to be applied consistently across Australia (DEWHA definition)
birridas	unusual gypsum claypans that were originally land-locked saline lakes
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS) signed in 1979 in Bonn and entered into force in 1983
calcarenite	also known as dune rock or dune limestone, is a rock formed by the trickling movement of water through a mixture of shell fragments and quartz sand causing the dissolved lime to cement the mass together
chenopod	any plant of the goosefoot family, which includes spinach, beets, and pigweed.
colluvial	loose bodies of sediment that have been deposited or built up at the bottom of a low-grade slope or against a barrier on that slope, transported by gravity
dolerite	an intrusive igneous rock similar to volcanic basalt.
ecological community	an assemblage of organisms characterised by a distinctive combination of species occupying a common environment and interacting with one another
empirical	empirical data are those produced by experiment or observation
Eocene	a time reference for the occurrence of prehistoric geomorphological processes
EPBC Act	the Commonwealth <i>Environment Protection & Biodiversity Conservation Act 1999</i>

environmental biosecurity	protection of the environment & social amenity from the negative effects associated with invasive species; including weeds, pests & diseases. It occurs across the entire biosecurity continuum: pre-border preparedness, border protection & post-border management & control (DEWHA definition)
Erith Mob	a group from Melbourne, whose summer pilgrimage originated with historian Stephen Murray-Smith in the 1960s
exotic animal	an animal that is outside its natural range, either through introduction from another country, or translocation within the same country/continent
feral animal	a non-native animal that has escaped from captivity, or a translocated native animal, that has established a self-sustaining population independent of humans
Invasive Species	organisms (usually transported by humans) which successfully establish themselves in, & then overcome, otherwise intact, pre-existing native ecosystems (IUCN definition)
invertebrate	an animal without a backbone or spinal chord; e.g. insects, snails (molluscs), crabs and other marine crustaceans
isthmus	a narrow strip of land connecting two larger land areas
pest	an animal that causes significant damage to a valued resource; the pest status of an animal can change with time, between areas or according to the perception of the assessor
Ramsar Convention	Convention on Wetlands of [International Importance, Especially as Waterfowl Habitat] signed in Ramsar, Iran, in 1971
Ramsar wetland	a wetland that is designated as being of international importance under the Ramsar Convention
rill	a small channel, such as one formed by soil erosion
talus	a steep slope, scree
Threat Abatement Plan	Threat abatement plans provide for the research, management, & any other actions necessary to reduce the impact of a listed key threatening process on native species & ecological communities (DEWHA definition)
Threatening Process	a Threatening Process is one which threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community (EPBC Act definition)
translocation	the capture, transport & release or introduction of species from one location to another by humans.
tors	Large granite boulders
vertebrate	an animal with a backbone or spinal column; e.g. amphibians, birds, fish, mammals and reptiles

Vertebrate Pests Committee

body of representatives from the Australian Government, the Australian states & territories, CSIRO & New Zealand; provides coordinated policy & planning solutions to pest animal issues

Nomenclature

Scientific and common names for species of fauna and flora are used in accordance with species' listings and information available from DEWHA, such as in the Species Profiles and Threats Database (SPRAT), which is available online (www.environment.gov.au). Accordingly, common names are capitalised for listed threatened fauna and flora, and also for vertebrate pest species (see Appendix A, B and C). Capitals are used when the species is referred to (e.g. Black Rat), but lower case is used in the plural (e.g. black rats or rats).

The accepted common name for some vertebrate pests refers to domesticated species e.g. Domestic Dog and Domestic Goose (Appendix A). However, the 'pest' status of such species on islands, as considered in this report, typically refers to wild, unmanaged (i.e. feral) animals, and not those that are kept as pets.

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