

Introduced animals on Victorian islands: improving Australia's ability to protect its island habitats from feral animals.

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Arthur Rylah Institute for Environmental Research Client Report

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Summary

The Australian Government has sought data on introduced fauna that are found on offshore islands. All Australian states and territories have contributed this data which will be used to implement a number of Threat Abatement Plans under the *Environment Protection and Biodiversity Conservation Act 1999*.

Victorian islands were identified from a variety of hard copy and electronic map sources. Records of fauna on islands were initially extracted from the Victorian Fauna Database (Department of Sustainability and Environment). A literature search was conducted and further information was also sought from people with knowledge about specific islands. An electronic mapping tool was used to determine the size of islands where this information was required.

Victoria has over 90 offshore islands, with 37 of these greater than 20 ha. Introduced fauna have been recorded on at least 49 Victorian offshore islands. This study found that birds were the most frequently reported introduced fauna on Victorian islands, with the common starling (*Sturnus vulgaris*) recorded on 24 islands. The red fox (*Vulpes vulpes*) was the most frequently reported mammal (20 islands). No records were located that indicated that populations of introduced reptile, amphibian or fish species were found on Victorian offshore islands. Data on invertebrates are inadequate for proper appraisal. At least two species of introduced invertebrate (honey bee and European wasp) have been recorded from at least two islands (French Island and Phillip Island).

State legislation regulates the management of introduced fauna in Victoria and carries penalties for release of listed species anywhere in the state. There are no provisions dedicated to regulating management of introduced fauna specifically on offshore islands. Some introduced species, including deer and game bird species, are protected under provisions in the Wildlife Act 1975.

This report does not include islands within the Gippsland Lakes region and it does not account for introductions of Australian native fauna onto islands, such as has occurred at several locations with koalas (*Phascolarctos cinerus*).

The status of some islands and/or species may be reported incorrectly due to the survey methods used and/or the frequency of visitation by skilled observers. Improving the accuracy of the data presented in this report would necessitate the adoption of thorough survey techniques and more frequent visits to each of the islands.

1 Introduction

The Australian Government's Department of Environment and Water Resources contracted the Arthur Rylah Institute for Environmental Research to undertake the project 'Introduced animals on Victorian islands: improving Australia's ability to protect its island habitats from feral animals (Com ID: 63777)'.

Similar studies have been undertaken in all Australian states and territories. The data will be used to implement a number of Threat Abatement Plans under the *Environment Protection and Biodiversity Conservation Act 1999*. The data required for fulfilment of this contract are presented below.

Stage 1 I. List all Victorian islands 20 hectares or larger in size. For each island: provide (a) name, and (b) centroid coordinates (or if un-named centroid coordinates only).

II. List all Victorian islands of any size known to have or have had populations of introduced animals. This list will be a sub-set of the list produced from I above. For each island:

- (a) name (eg Fraser Island),
- (b) centroid coordinates (or if un-named centroid coordinates only),
- (c) area in hectares,
- (d) archipelago name (if part of an archipelago),
- (e) land tenure category (as listed by Geoscience Australia),
- (f) land status under Victorian legislation (reserve number, if reserved),
- (g) vesting (if reserve is vested),
- (h) ownership (if freehold),
- (i) introduced animal scientific name (eg *Bufo marinus*),
- (j) introduced animal common name (eg Cane toad),
- (k) current status of introduced animal (eg state is eradicated),
- (l) whether island is known to be currently or recently naturally joined to mainland or larger island or artificially joined by construction of causeway or bridge.

III. List all Victorian islands 20 hectares of larger with no known occurrences of introduced animals. This list will be a sub-set of the list produced from I above. For each island:

- (a) name (eg Fraser Island),
- (b) centroid coordinates (or if un-named centroid coordinates only),
- (c) area in hectares,
- (d) archipelago name (if part of an archipelago),
- (e) land tenure category (as listed by Geoscience Australia),

- (f) land status under Victorian legislation (reserve number, if reserved),
- (g) vesting (if reserve is vested),
- (h) ownership (if freehold),
- (i) whether island is known to be currently or recently naturally joined to mainland or larger island or artificially joined by construction of causeway or bridge.
- (j) whether island has been surveyed for introduced animals.

IV. List all Victorian archipelagos where an introduced animal may, one established on one island, disperse quickly to others, including small islets. This list will include sub-sets of the list produced from I above. For each archipelago provide: (a) name, and (b) centroid coordinates (or if un-named centroid coordinates only). A set of precautionary principals to be considered with list IV will also be provided in the final report.

- Stage 2 Identify any entry on Lists I-IV above that is not included in the Gazetteer of Australia.
- Stage 3 Provide information on the government legislation, if any, in place to regulate the movement or control of introduced animals on each island included in List I.
- Stage 4 Are management plans in place which are designed to deal with any unintentional or intentional introduction to the islands, where the island has a conservation status under legislation? If yes, provide a copy (or internet reference) of each plan.

2 Methods

Victorian offshore islands were identified using a variety of map sources, including;

- Vicmap 1:50000 topographic map series;
- Vic Roads Country Directory;
- Google Earth <http://earth.google.com/> ;
- Google Map <http://maps.google.com.au/maps?hl=en&tab=wl> ;
- Crawford's Mariners Atlas (1997) Apollo Bay to Jervis Bay, Crawford House Publishing, 1997. ISBN: 1 86333 153 0; and
- Department of Sustainability and Environment 'MapShare'.

The size of the islands was identified either from the literature or calculated using an electronic mapping tool provided on the DSE Mapshare package. Species lists were generated for each island using the Victorian Fauna Database (Department of Sustainability and Environment 2005). A polygon was drawn around the coastline of the island and all fauna records in that polygon were subsequently displayed. Where possible, these data were supplemented with records from the literature (see References) and cross-checked with people with recent knowledge about specific islands. In most cases these people were the land managers or had conducted some form of biological survey on the island.

The island names identified in this project were checked against the Geoscience Australia Place Names Search (<http://www.ga.gov.au/map/names/>).

Publicly accessible planning documents for Victorian offshore islands were reviewed. Many of these documents can be accessed from the Parks Victoria website (www.parkweb.vic.gov.au).

3 Results

3.1 List I

Forty-six islands greater than 20 ha are found off the Victorian coast (Attachment 1). The largest islands are found in Western Port and are named French Island (17 300 ha) and Phillip Island (10 300 ha). These islands differ from the remainder of Victorian offshore islands due to the number of permanent residents and nature of land use. French Island has a permanent population of approximately 70 people and receives up to 2000 visitors annually. However, Phillip Island has a permanent population of 5700 people and receives up to 3.5 million visitors annually.

Most of the Victorian offshore islands are managed as nature reserve under various classifications (39) while a minority (6) are privately owned or are managed by the Commonwealth Department of Defence (1).

3.2 List II

Fifty islands were found to meet the criteria for this list (Attachment 2). The islands ranged in size from 1 ha to 17 300 ha. Introduced mammal and bird species were recorded on 42 and 40 of these islands, respectively.

Table 1. Frequency of occurrence of introduced species on Victorian offshore islands. Figures within brackets indicate the number of islands where the species is now thought to be absent either via direct eradication, local extinction or destocking.

Common name	Scientific name	Number of islands
Common myna	<i>Acridotheres tristis</i>	5
Skylark	<i>Alauda arvensis</i>	11 (1)
Mallard duck	<i>Anas platyrhynchos</i>	2
Goose (Domestic)	<i>Anser anser</i>	1
Chital	<i>Axis axis</i>	0 (1)
Hog deer	<i>Axis porcinus</i>	11
Cattle (Domestic and/or feral)	<i>Bos taurus</i>	7 (1)
Dog (Domestic)	<i>Canis familiaris</i>	5 (2)
Goat (Domestic and/or feral)	<i>Capra hircus</i>	5
European goldfinch	<i>Carduelis carduelis</i>	16 (1)
European greenfinch	<i>Carduelis chloris</i>	7
Red deer	<i>Cervus elephas</i>	0 (1)
Sambar deer	<i>Cervus unicolor</i>	1
Pigeon (Feral)	<i>Columba livia</i>	7
House Crow	<i>Corvus splendens</i>	0 (1)
Fallow deer	<i>Dama dama</i>	3
Horse (Domestic)	<i>Equus caballus</i>	3 (1)
Cat (Domestic and/or feral)	<i>Felis catus</i>	9 (5)
Chicken (Domestic and/or feral)	<i>Gallus domesticus</i>	4
Llama (Domestic)	<i>Lama glama</i>	2
Alpaca (Domestic)	<i>Lama pacos</i>	2
European hare	<i>Lepus capensis</i>	1
Common turkey	<i>Meleagris gallo-pavo</i>	0 (1)
Ferret (Domestic)	<i>Mustela furo</i>	2
House mouse	<i>Mus musculus</i>	13
European rabbit	<i>Oryctolagus cuniculus</i>	15 (9)
Sheep (Domestic)	<i>Ovis aries</i>	4 (1)
House Sparrow	<i>Passer domesticus</i>	8
Eurasian tree sparrow	<i>Passer montanus</i>	3
Indian Peafowl	<i>Pavo cristatus</i>	3
Common pheasant	<i>Phasianus colchicus</i>	1 (1)
Black rat	<i>Rattus rattus</i>	12 (3)

Brown rat	<i>Rattus norvegicus</i>	6
Spotted Turtle-Dove	<i>Streptoplia chinensis</i>	6
Common starling	<i>Sturnus vulgaris</i>	25 (3)
Pig (Domestic and/or Feral)	<i>Sus scrofa</i>	2 (2)
Common blackbird	<i>Turdus merula</i>	17 (1)
Red fox	<i>Vulpes vulpes</i>	20 (2)

The one record of house crow on Phillip Island was of an individual bird by reliable observers in 2001. However, the bird was not sighted during subsequent visits to the site (P. Dann, *pers comm.*).

The ownership and management of islands included on 'List II' is predominantly through the State Government, which has vested management of specific islands to agencies such as Parks Victoria (36), Phillip Island Nature Park (2) or local government (3). A further five islands are privately managed and one is managed by the Commonwealth Department of Defence.

3.3 List III

Sixteen islands >20 ha have no records of occurrences of introduced fauna (Attachment 3). All of these islands are Crown land with fourteen of them vested to Parks Victoria for ongoing management. However, it is likely that this list may be subject to inaccuracies due to limited survey effort on some islands, failure to update records in the database or reinvasion. In reality, the occurrence of introduced birds is likely throughout most of the Victorian islands even if only for short periods.

The ease of access onto islands, for both human observers and the animal species concerned, is also likely to have been a contributing factor in determining whether introduced mammals have been recorded on the islands.

3.4 List IV

For the purposes of this study, an archipelago is loosely defined as an area consisting of two or more islands of >1 ha that are separated by less than 1000 m of water. Using this definition, archipelagos were identified and are indicated in Attachment 4.

The Anser Group, Glennie Group and Nooramunga Faunal Reserve are names officially recognised on the Gazetteer of Australia.

Determining whether introduced fauna would disperse quickly to neighbouring islands would require examination of many factors, including;

- type of animal (bird, mammal, etc.);
- swimming and/or flying ability;
- dispersal behaviour (sedentary or pioneer);
- distance between islands (particularly at low tides);
- topography of coastline (ie. mudflat, beach or cliff); and
- ambient conditions (rough seas, tides, wind direction, etc.).

The degree to which the introduced species establishes a population on offshore islands is also dependent on availability of resources such as food, water, nesting sites, breeding partner, etc.

3.5 Islands in Lists I-IV not in Gazetteer

A search of all Victorian islands in the Gazetteer of Australia generated a list of 206 islands across the state, including inland areas. Twenty-seven of these names are regarded as 'Historic' names and are no longer officially in use. A further 22 islands are located in the coastal lakes in the Gippsland region.

The offshore islands that are not currently listed in the Gazetteer of Australia are indicated below;

- Eastern Island (38 ° 16'15"S 144 ° 46'23"E) and Boatswain Island (38 ° 16'22"S 144 ° 45'47"E) are in Port Phillip Bay. Together, they form an archipelago which is officially recognised as the Mud Islands.
- Dream Island is located at 38 ° 38'55"S 146 ° 51'34"E. This island is also locally known as 'The Mainland' and Three Hummock Island.
- The four islands that form the Killarney Reef are located in the area of 38°22'S 142°17'E.
- Box Bank is located at 38 ° 40'40"S 146 ° 47'53"E.
- Mangrove Root Island is located 38 ° 41'05"S 146 ° 43'45"E.

3.6 Relevant Legislation

The management of introduced fauna throughout Victoria, including offshore islands, is subject to regulation under at least five State Acts;

- National Parks Act 1975;
- Wildlife Act 1975;
- Catchment and Land Protection Act 1994;
- Domestic (Feral and Nuisance) Animals Act 1994; and
- Flora and Fauna Guarantee Act 1988.

The management of some introduced species such as deer and listed 'game' bird species in Victoria is regulated by the Wildlife Act 1975.

Relevant sections of the Acts and the respective web addresses are shown below.

3.6.1 National Parks Act 1975

Web address:

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/892C620022BBB0D8CA257306000812E5/\\$FILE/75-8702a117.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/892C620022BBB0D8CA257306000812E5/$FILE/75-8702a117.pdf)

Preamble

WHEREAS it is in the public interest that certain Crown land characterized by its predominantly unspoilt landscape, and its flora, fauna or other features, should be reserved and preserved and protected permanently for the benefit of the public...

S 17 National parks and State parks

(2) The Secretary shall, subject to this Act—

(a) ensure that each national park and State park is controlled and managed, in accordance with the objects of this Act, in a manner that will—

(i) preserve and protect the park in its natural condition for the use, enjoyment and education of the public;

(ii) preserve and protect indigenous flora and fauna in the park;

(iii) exterminate or control exotic fauna in the park;

(iv) eradicate or control exotic flora in the park; and

3.6.2 Wildlife Act 1975

Web address:

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fb-d56800ca256de500201e54/3FCA9203E44962A2CA25736800834119/\\$FILE/75-8699a076.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fb-d56800ca256de500201e54/3FCA9203E44962A2CA25736800834119/$FILE/75-8699a076.pdf)

S 1A Purposes

The purposes of this Act are—

(a) to establish procedures in order to promote—

(i) the protection and conservation of wildlife; and

(ii) the prevention of taxa of wildlife from becoming extinct; and

(iii) the sustainable use of and access to wildlife; and

(b) to prohibit and regulate the conduct of persons engaged in activities concerning or related to wildlife.

S 3 Definitions

PROTECTED WILDLIFE means all wildlife other than those kinds or taxon which—

(i) is a pest animal within the meaning of the Catchment and Land Protection Act 1994;

WILDLIFE means—

(a) any animal of a vertebrate taxon other than mankind which is indigenous to the whole or part or parts of Australia or its territories or territorial waters, whether or not it occurs elsewhere;

(b) all kinds of deer, non-indigenous quail, pheasants, and partridges and any other taxon of animal which the Governor in Council by Order published in the Government Gazette declares to be wildlife for the purposes of this Act;

(ba) any taxon of terrestrial invertebrate animal which is listed under the Flora and Fauna Guarantee Act 1988; and

(c) any hybrids of a kind or taxon of animal specified in or pursuant to paragraphs (a) and (b)—and except as is otherwise expressly provided in any such Order includes any such animal or any member of a taxon which is bred or kept in captivity or confinement but in Parts I to VI and Parts IX and XI does not include a whale within the meaning of section 75;

S 18 Secretary to prepare plans of management for reserves

(1) The Secretary shall—

(a) with respect to each wildlife reserve in existence at the commencement of this section, prepare a plan of management as soon as practicable after the commencement of this section; and

S 48 Offence for dogs or cats to attack etc. wildlife

(1) If a dog or cat rushes at, attacks, bites, worries or chases wildlife while at large on public land, the owner is guilty of an offence and liable, upon conviction, to a penalty of not more than 25 penalty units.

(2) Subsection (1) does not apply to dogs pursuing game birds or sambar deer in accordance with regulations made under this Act.

(3) An authorised officer may destroy any dog or cat found in circumstances in which the authorised officer reasonably believes that an offence under this section is being committed.

3.6.3 Catchment and Land Protection Act 1994

Web address:

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/57CBD8A2FDC227CCCA257353000483ED/\\$FILE/94-52a041.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/57CBD8A2FDC227CCCA257353000483ED/$FILE/94-52a041.pdf)

An information note has been jointly prepared by the Department of Sustainability and Environment and the Department of Primary Industries that provides further details on the requirements of this Act. This note can be accessed at:

<http://www.dpi.vic.gov.au/dpi/nreninf.nsf/linkview/e6a29a4e8e6a2943ca256bcf000ad58da01a5da2eca793d94a256dea00293e6d>

Purpose:

The following are the purposes of this Act—

- (a) to set up a framework for the integrated management and protection of catchments;*
- (b) to encourage community participation in the management of land and water resources;*
- (c) to set up a system of controls on noxious weeds and pest animals;*
- (d) to repeal and amend various Acts concerning catchment and land management.*

S 64 What are prohibited pest animals?

The Minister may recommend an animal for declaration as a prohibited pest animal if satisfied that—

- (a) it did not occur naturally in the wild in Australia before European settlement; and*
- (b) either—*
 - (i) it is a serious threat to primary production, Crown land, the environment or community health in a place outside Victoria; or*
 - (ii) its potential to threaten primary production, Crown land, the environment or community health in Victoria is unknown; and*
- (c) its importation, keeping and sale should be banned.*

S 65 What are controlled pest animals?

The Minister may recommend an animal for declaration as a controlled pest animal if satisfied that—

- (a) it did not occur naturally in the wild in Australia before European settlement; and*
- (b) it has a high potential to become a serious threat to primary production, Crown land, the environment or community health in Victoria; and*
- (c) it should only be kept in high security collections approved by the Minister.*

S 66 What are regulated pest animals?

The Minister may recommend an animal for declaration as a regulated pest animal if satisfied that—

- (a) it did not occur naturally in the wild in Australia before European settlement; and*
- (b) it is, or has the potential to become, a serious threat to primary production, Crown land, the environment or community health in Victoria; and*
- (c) it should only be kept in collections or at premises approved by the Minister.*

S 67 What are established pest animals?

The Minister may recommend an animal for declaration as an established pest animal if satisfied that—

- (a) it is established in the wild in Victoria; and*
- (b) it is a serious threat to primary production, Crown land, the environment or community health in Victoria; and*
- (c) it should be eradicated or controlled or its spread in the wild should be prevented.*

S 75A Offence to release pest animals

(1) A person must not release a prohibited pest animal.

Penalty: 480 penalty units.

(2) A person must not release a controlled pest animal.

Penalty: 240 penalty units.

(3) A person must not release a regulated pest animal.

Penalty: 120 penalty units.

(4) A person must not release an established pest animal.

Penalty: 60 penalty units.

(5) Subsections (1) to (4) do not apply to the releasing of a pest animal in accordance with a permit under this Division.

The red fox, feral dog, European rabbit, European hare, feral goats and feral pigs have been declared Established Pest Animals. No bird species have been declared under this Act.

3.6.4 Domestic (Feral and Nuisance) Animals Act 1994

Web address:

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/055CE2308A048E63CA2573AD00834FAE/\\$FILE/94-81a035.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/055CE2308A048E63CA2573AD00834FAE/$FILE/94-81a035.pdf)

S 1 Purpose

The purpose of this Act is to promote animal welfare, the responsible ownership of dogs and cats and the protection of the environment by providing for—

(a) a scheme to protect the community and the environment from feral and nuisance dogs and cats;

S 31 Authorised officer able to destroy dog or cat found at large in certain areas

(1) An authorised officer may destroy any dog or cat found at large—

(a) in any area which is designated as a control zone under a management plan made under an Act which is a relevant law within the meaning of the Conservation, Forests and Lands Act 1987; or

(b) in any area classified as a conservation zone under a planning scheme under the provisions of the Planning and Environment Act 1987.

3.6.5 Flora and Fauna Guarantee Act 1988

Web address:

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/ED0FD1F2B3747AF4CA25736900014BAB/\\$FILE/88-47a035.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/a12f6f60fbd56800ca256de500201e54/ED0FD1F2B3747AF4CA25736900014BAB/$FILE/88-47a035.pdf)

S 1 Purpose

The purpose of this Act is to establish a legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes.

S 19 Action statements

(1) The Secretary must prepare an action statement for any listed taxon or community of flora or fauna or potentially threatening process as soon as possible after that taxon, community or process is listed.

(2) *The action statement must set out what has been done to conserve and manage that taxon or community or process and what is intended to be done and may include information on what needs to be done.*

Action statements have been prepared under this Act for;

- Predation of native wildlife by the cat, *Felis catus*.
[http://www.dse.vic.gov.au/CA256F310024B628/0/63A6422ACB02A4A4CA2570EC0082B8ED/\\$File/080+Predation+of+Native+Wildlife+by+the+Cat+Felis+catus+1997.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/63A6422ACB02A4A4CA2570EC0082B8ED/$File/080+Predation+of+Native+Wildlife+by+the+Cat+Felis+catus+1997.pdf)
- Predation of native wildlife by the introduced Red Fox *Vulpes vulpes*.
[http://www.dse.vic.gov.au/CA256F310024B628/0/D57F21E0DB90BCC1CA25709200233CD7/\\$File/044+predation+by+red+fox+_revised_+2002.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/D57F21E0DB90BCC1CA25709200233CD7/$File/044+predation+by+red+fox+_revised_+2002.pdf)

The 'Reduction in biomass and biodiversity of native vegetation through grazing by the Rabbit *Oryctolagus cuniculus*' has been listed under this Act but an action statement has not yet been prepared.

The Sambar deer was listed as a threat to biodiversity on November 28th, 2007 under this Act. An action statement will now be prepared.

3.7 Management Plans

In most cases the management of introduced species was incorporated into the overall management plan for the island. However, Phillip Island Nature Park has prepared a dedicated plan that aims to eradicate foxes from the island.

Swan Island is managed by the Commonwealth Department of Defence and as such is subject to the requirements of the Federal Environment Protection and Biodiversity Conservation Act 1999.

Table 2. Summary of management plans for Victorian offshore islands

Management Plan	Web address	Islands covered
Biodiversity assessments and strategies for Swan Island 2007	Contact the Senior Environmental Manager, Department of Defence, for access to this document. This position is currently filled by Michael Treanor, 661 Bourke St, Melbourne, 3000.	Swan Island
Port Phillip Heads Marine National Park Management Plan 2006	http://www.parkweb.vic.gov.au/resources07/07_1781.pdf	Boatswain Island Eastern Island South Channel Fort Duck Island
French Island National Park Management Plan 1998	http://www.parkweb.vic.gov.au/resources07/07_0169.pdf	French Island Barrallier Island Rams Island
Strategy for the eradication of foxes from Phillip Island 2004	See Attachments.	Phillip Island Churchill Island
Western Port Ramsar Site Strategic Management Plan 2003	http://www.parkweb.vic.gov.au/resources07/07_1001.pdf	French Island Phillip Island Churchill Island

Wilsons Promontory National Park Management Plan 2002	http://www.parkweb.vic.gov.au/resources07/07_0656.pdf	Chinaman Island
		Quail Island
		Barrallier Island
		Reef Island
		Rams Island
		Shelback Island
		Great Glennie Island
		Norman Island
		Anser Island
		Kanowna Island
		Wattle Island
		Rabbit Island
		Rabbit Rock
		Citadel Island
		Corner Island
		Long Island
		Benison Island
		Doughboy Island
		Granite Island
		McHugh Island
		Dannevig Island

Croajingolong National Park Management Plan 1996

http://www.parkweb.vic.gov.au/resources07/07_0238.pdf

Gabo Island

Tullaberga Island

Parks Victoria is currently preparing a draft management plan for the Nooramunga Marine and Coastal Park. This plan will describe the management strategy for the >30 islands that form this archipelago.

The following islands have a conservation status under legislation but do not have a management plan;

- Lady Julia Percy island;
- Killarney Reef islands; and
- Middle Island.

Note that the absence of a management plan may not have precluded management of introduced fauna on these islands.

4 Discussion

This study reports on the introduced fauna recorded as 'present' on Victorian offshore islands. It is highly probable that other species (particularly birds) inhabit or at least make occasional use of islands where they have not been recorded. This may be due to infrequent surveying of the islands, transient behaviour by the birds and/or issues relating to maintenance of databases.

No introduced reptiles, fish or amphibians have been recorded on Victorian offshore islands. However, introduced invertebrates (e.g. honey bees, European wasps) have become established on some islands (Phillip and French islands, Johnston *pers. obs.*) but this group of fauna are not recorded on the Victorian Fauna Database and as such have not been included in this study.

An opportunity exists to eradicate rabbits from Lady Julia Percy Island (150 ha). A previous eradication attempt failed but the rabbit population is currently at low density and hence a further attempt may be more likely to succeed (J. Amor, *pers. comm.*). Roger Kirkwood (unpublished data) undertook a count of rabbits during his last two visits using a similar route around the cliff line during the mid-afternoon. Fourteen rabbits were sighted in October 2006 and 84 rabbits in September 2007. Rabbits have been successfully eradicated from islands of similar size previously (Chapuis *et al.* 2001, Towns 2005).

A trial to determine the effect that the presence of the Maremma guardian dogs has on reducing predation of little penguins and short-tailed shearwaters by foxes is being undertaken on Middle Island. Further information on this project can be accessed from the Warrnambool City Council and also at:

http://www.warrnambool.vic.gov.au/Files/CA_5.6_25_Jun_07.pdf

Parks Victoria has undertaken fox control on some islands in the Nooramunga Marine and Coastal Park and claimed to have eradicated foxes from Dream Island (Parks Victoria 1999). However, reinvasion has occurred since this time. The accessibility of many of the islands throughout the Nooramunga archipelago, particularly at low tide, dictates immigration by foxes will be an ongoing management issue here.

The potential for reinvasion of islands by introduced species should be one of the key determinants in deciding what level of control should be undertaken on an island. In cases where reinvasion of an introduced species is low (e.g. rabbits on Lady Julia Percy island) then the cost:benefit of an eradication exercise is likely to be greater than on another island where the reinvasion is likely (e.g. foxes on Snake Island). Where reinvasion is inevitable, land managers should aim to reduce the impact of the introduced species at strategic times. For example, feral cat control is undertaken within French Island National Park at times and locations when migratory seabirds are present and nesting.

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Attachments

The metadata generated by this report can be accessed from the MS Excel files attached;

- Victorian islands introduced fauna.xls/List I
- Victorian islands introduced fauna.xls/List II
- Victorian islands introduced fauna.xls/List III
- Victorian islands introduced fauna.xls/List IV

The *Strategy for the eradication of foxes from Phillip Island 2004 (Parts 1 and 2)* is also provided as an electronic attachment.

