

The Senate

Environment, Communications,
Information Technology and the Arts
References Committee

**Turning back the tide—the invasive species
challenge**

Report on the regulation, control and
management of invasive species and the
Environment Protection and Biodiversity
Conservation Amendment (Invasive Species)
Bill 2002

December 2004

© Commonwealth of Australia 2004

ISBN 0 642 71308 1

Committee Membership

Members in the 40th Parliament

Senator John Cherry (AD, QLD) (Chair)
Senator John Tierney (LP, NSW) (Deputy Chair)
Senator Kate Lundy (ALP, ACT)
Senator Sue Mackay (ALP, TAS)
Senator Tsebin Tchen (LP, VIC)
Senator Penny Wong (ALP, SA)

Members in the 41st Parliament

Senator John Cherry (AD, QLD) (Chair)
Senator John Tierney (LP, NSW) (Deputy Chair)
Senator Mark Bishop (ALP, WA)
Senator Stephen Conroy (ALP, VIC)
Senator Kate Lundy (ALP, ACT)
Senator Tsebin Tchen (LP, VIC)

Committee Secretariat

Mr Michael McLean, Secretary
Mr Frank Nugent, Principal Research Officer
Dr Jacqueline Dewar, Principal Research Officer
Ms Jacqueline Tucker, Senior Research Officer (WISE)
Ms Jacquie Hawkins, Research Officer
Ms Hanna Allison, Executive Assistant
Mrs Dianne Warhurst, Executive Assistant

Committee Address

Environment, Communications, Information Technology and the Arts References
Committee

S1.57

Parliament House

Canberra ACT 2600

Tel: 02 6277 3526

Fax: 02 6277 5818

Email: ecita.sen@aph.gov.au

Internet: http://www.aph.gov.au/senate/committee/ecita_ctte/index.htm

Recommendations

Recommendation 1

The Committee recommends that the Commonwealth Government strengthen its leadership role in the national effort to combat invasive species by developing a robust national framework, in consultation with State, Territory and local governments, to regulate, control and manage invasive species. [see paragraph 8.12]

Recommendation 2

The Committee recommends that as part of developing a list of invasive plant species of national importance, the Commonwealth, States and Territories develop an agreed national Alert List. [see paragraphs 5.36 and 8.15]

Recommendation 3

The Committee recommends that those States and Territories that have failed to legislate a prohibition on the sale of WONS within their jurisdictions should act to do so as a matter of priority. [see paragraphs 5.25 and 8.19]

Recommendation 4

The Committee recommends that the species listed on the WONS list be reviewed and that other significant threatening species be included as part of a new national control list of invasive plant species. [see paragraphs 5.28 and 8.20]

Recommendation 5

The Committee recommends that the Commonwealth, States and Territories provide funding to enable the Australian Weeds Committee to engage the CRC for Australian Weed Management to produce a scientifically credible and robust national list of invasive plant species. [see paragraphs 5.51 and 8.21]

Recommendation 6

The Committee recommends that the Commonwealth, in consultation with the States and Territories, promulgate regulations under section 301A of the EPBC to prohibit the trade in invasive plant species of national importance, combined with State and Territory commitment to prohibit these same species under their respective laws. [see paragraphs 5.51, 5.107 and 8.22]

Recommendation 7

The Committee recommends that the Commonwealth, in consultation with the States and Territories, produce a list in legislation of taxa that prevents their sale and spread for each state or region. Nominations for each taxon on a state or regional basis can be developed in consultation with natural resource management agencies, state herbaria and members of the general public. [see paragraphs 5.51 and 8.23]

Recommendation 8

The Committee recommends that the Commonwealth Government investigate the imposition of a 'polluter pays' principle where importers pay for the cost of control and repair should a plant become a weed. [see paragraphs 5.58 and 8.25]

Recommendation 9

The Committee recommends that the National Weeds Strategy better clarify responsibility for funding eradication of 'sleeper weeds' with purely an environmental or social impact. [see paragraphs 5.33 and 8.29]

Recommendation 10

The Committee recommends that investment in early warning systems be increased for the detection and eradication of sleeper weeds. [see paragraphs 5.32 and 8.30]

Recommendation 11

The Committee recommends that the Commonwealth Government place on the agenda of the Natural Resource Management Ministerial Council, as a matter of urgency, the issue of progressing development of a National Strategy for Vertebrate Pests. [see paragraphs 5.40, 5.48 and 8.32]

Recommendation 12

The Committee recommends that the Commonwealth Government take a lead role in Ministerial Councils and other appropriate forums to accelerate progress on the development, implementation and funding of a national system to deal with marine invasive species. [see paragraphs 6.123 and 8.37]

Recommendation 13

The Committee recommends that, as a matter of urgency, the Commonwealth Government should develop programs to minimise the threat of invasive marine species entering Australia's waters via hull fouling or as a result of the mariculture industries. [see paragraphs 6.100, 6.104 and 8.38]

Recommendation 14

The Committee recommends that the Commonwealth Government should provide long-term funding for research aimed at identifying and combating marine invasive species, particularly those which may threaten marine parks such as the Great Barrier Reef Marine Park, and those that are in the ports of Australia's trading partners and could be translocated to Australia. [see paragraphs 6.105 and 8.39]

Recommendation 15

The Committee recommends that the Threat Abatement Process (TAP) be reviewed to enable threatening processes to be listed prior to threatened species reaching a critical stage. [see paragraphs 5.106 and 8.41]

Recommendation 16

The Committee recommends that the Commonwealth Government act urgently to ensure that:

- all listings on Schedule 5 of the *Quarantine Proclamation 1998* are made by species, not genera;
- a mechanism be developed to ensure that species identified as weeds of national significance are automatically removed from Schedule 5; and
- all listings and applications for the import of plants and seeds be standardised using the scientific names of species. [see paragraphs 6.69 and 8.44]

Recommendation 17

The Committee recommends that the import risk analysis process be modified to guarantee greater independence in their preparation. [see paragraphs 6.18 and 8.46]

Recommendation 18

The Committee recommends that the Commonwealth place on the agenda of the Natural Resource Management Ministerial Council the need for arrangements to be implemented for environmental pest incursions in parallel with those currently in place for threats to primary industries. [see paragraphs 5.143 and 8.48]

Recommendation 19

The Committee recommends that the Commonwealth Government take a leading role in relevant international forums to seek better recognition of the environmental consequences of invasive species, particularly in relation to current trade rules. [see paragraphs 6.22 and 8.51]

Recommendation 20

The Committee recommends that the Commonwealth Government provide certainty of funding to research institutions, such as CSIRO and CRCs, to enable them to undertake long-term research projects. [see paragraphs 5.131 and 8.58]

Recommendation 21

The Committee recommends that, under the National Heritage Trust, the Commonwealth Government initiate, develop and deliver national community education campaigns on invasive species. [see paragraph 8.71]

Recommendation 22

The Committee recommends that the Commonwealth Government provide the relevant curriculum materials to enable invasive species to be included in relevant schools program across Australia. [see paragraph 8.72]

Recommendation 23

The Committee recommends that the Commonwealth Government continue to provide support through the NHT and Envirofund to community groups that deliver education and awareness campaigns. [see paragraph 8.73]

Recommendation 24

The Committee recommends that all tiers of government immediately commit to an eradication program for all WONS and all locally significant invasive species within their formal plantings. [see paragraph 8.75]

Recommendation 25

The Committee recommends that the Commonwealth, States and Territories, the Nursery and Garden Industry Association and other stakeholders, including conservation NGOs, establish a process under the proposed National Weeds Action Plan to examine the merits of a mandatory labelling scheme on invasive garden plants. [see paragraphs 5.76 and 8.77]

Recommendation 26

The Committee recommends that the nursery and gardening industry give consideration to labelling of all invasive plants which, while able to be sold legally, may have invasive characteristics and should be managed responsibly. [see paragraphs 5.76 and 8.78]

Recommendation 27

The Committee recommends that gardening and lifestyle programs should be encouraged to include warnings about the appropriateness of the plants suggested on their shows. Such warnings could require an indication of the country of origin of the plant, the areas it is indigenous to, and whether it has proven invasive elsewhere. [see paragraphs 5.82 and 8.80]

Table of Contents

Committee Membership	iii
Recommendations	v
Preface	xiii
Terms of reference	xiii
Conduct of the inquiry	xiv
Discussion of the terms of reference	xvi
The report	xvi
Acknowledgements	xvii
Chapter 1: Introduction	1
Overview	1
The current situation in Australia	4
Economic Impact	7
Environmental Impact	14
Social impact	23
Chapter 2: Regulatory and legislative framework	33
Introduction	33
Constitutional limitations and intergovernmental arrangements	34
Commonwealth legislative framework	35
State and Territory legislation	41
Local government	49
International legislation and conventions	54
Chapter 3: Institutional Arrangements	61
Introduction	61
Ministerial Council	61

Natural Resources Management Ministerial Council (NRMMC)	62
Primary Industries Ministerial Council (PIMC).....	64
National Strategies and Committees	65
Coordinating Committee for Introduced Marine Pest Emergencies (CCIMPE)..	70
Natural Heritage Trust.....	71
Natural Resource Management – the local approach to funding	73
Chapter 4: Cost of responding to invasive species.....	85
Cost benefit ratios.....	85
Early eradication.....	87
Containment/exclusion.....	93
Damage mitigation	95
Inaction.....	100
Conclusion.....	104
Chapter 5: Management of invasive species within Australia	107
Introduction	107
Commonwealth, State and Territory action	108
Commonwealth action.....	132
Conclusion.....	154
Chapter 6: Management of invasive species at the coastal border	157
Introduction	157
Border control.....	157
Protection of the marine environment.....	178
Conclusion.....	191
Chapter 7: Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002	193
Overview of the Bill	193
Comment on the Bill	198
Committee discussion.....	207

Chapter 8: The Way Forward	211
A national framework.....	212
Research.....	221
Education	222
Appendix 1: List of submitters	227
Appendix 2: Witnesses appearing at public hearings	231
Appendix 3: Exhibits	235
Appendix 4: Charts.....	239

Preface

Terms of reference

On 26 March 2003 the Senate agreed to the recommendation of the Selection of Bills Committee in its Report No. 4 of 2003 that the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 be referred to the Environment Communications, Information Technology and the Arts Legislation Committee for inquiry and report by 25 November 2003.

It was subsequently agreed that there was merit in a more comprehensive examination of the general topic of the regulation, control and management of invasive species, and accordingly on 26 June 2003 the Senate agreed to refer the Bill to the Environment Communications, Information Technology and the Arts References Committee for examination in conjunction with a broad inquiry into invasive species with the following terms of reference:

- (1) The regulation, control and management of invasive species, being non-native flora and fauna that may threaten biodiversity, with particular reference to:
 - (a) the nature and extent of the threat that invasive species pose to the Australian environment and economy;
 - (b) the estimated cost of different responses to the environmental issues associated with invasive species, including early eradication, containment, damage mitigation and inaction, with particular focus on:
the following pests:
 - (A) European fox (*Vulpes vulpes*),
 - (B) yellow crazy ant (*Anoplolepis gracilipes*),
 - (C) fire ant (*Solenopsis invicta*),
 - (D) cane toad (*Bufo marinus*), and
 - (E) feral cat (*Felis catus*) and pig (*Sus scrofa*), and
the following weeds:
 - (A) mimosa (*Mimosa pigra*),
 - (B) serrated tussock (*Nassella trichotoma*),
 - (C) willows (*Salix spp.*),
 - (D) lantana (*Lantana camara*),
 - (E) blackberry (*Rubus fruticosus agg.*), and
 - (F) parkinsonia (*Parkinsonia aculeata*);
 - (c) the adequacy and effectiveness of the current Commonwealth, state and territory statutory and administrative arrangements for the regulation and control of invasive species;
 - (d) the effectiveness of Commonwealth-funded measures to control invasive species; and

- (e) whether the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 could assist in improving the current statutory and administrative arrangements for the regulation, control and management of invasive species.
- (2) That the order of the Senate adopting Report No. 4 of 2003 of the Selection of Bills Committee be varied to provide that the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 be referred to the Environment, Communications, Information Technology and the Arts References Committee instead of the Environment, Communications, Information Technology and the Arts Legislation Committee.

The Senate originally asked the Committee to report by the last sitting day in March 2004 but it subsequently agreed to extend the reporting deadline until 25 November 2004 to allow the Committee to give the issues raised during the inquiry its fullest consideration. The Committee was unable to finalise its report before the close of the 40th Parliament on 15 November 2004, and the reference lapsed.

On 1 December 2004, on the recommendation of the re-established Committee, the Senate in the 41st Parliament resolved to renew the reference with a new reporting date of 9 December 2004. However, it should be noted that this report reflects the deliberations of the Committee members in the 40th Parliament.

Conduct of the inquiry

The Committee invited submissions to the inquiry in an advertisement placed in *The Australian* on 2 July, with a deadline of 10 October 2003. It also wrote to appropriate Commonwealth, State and Territory Ministers, and a range of plant nursery industry groups, farming and agricultural organisations, and environmental groups. Some 76 submissions were received, as listed at Appendix 1.

In order to gain a better appreciation of the issues, the Committee undertook a series of four public hearings with some 54 witnesses in Canberra (on two occasions), Brisbane and Adelaide. Evidence was also taken from representatives of the Townsville-based Great Barrier Reef Marine Park Authority by teleconference. Details of these hearings are shown at Appendix 2.

A number of documents were tabled for the Committee's information either in the course of the hearings or were provided later. These are listed in Appendix 3.

Inspections

While in Brisbane, the Committee supplemented the formal information from the public hearings with a day of site inspections. The day commenced with the Committee visiting the Queensland Government's Fire Ant Control Centre in Wacol, which is described in detail in Chapter 5. Additionally the Committee was hosted by Dr Rachel McFadyen, Chief Executive Officer of the CRC for Australian Weed

Management, on a tour of several sites around suburban Brisbane to inspect weed infestations, before concluding with a tour of the Alan Fletcher Research Station.

Dr McFadyen was joined by her CRC colleague Dr Raghu, while Mr Craig Walton, Senior Policy Officer, Ecology, in the Department of Natural Resources, Mines and Energy also joined the group.

The tour commenced at the Gap Creek Reserve within the Mount Coot-tha Forest Park. The group was joined by Mr Bryan Hacker from the Moggill Creek Catchment Group. He distributed a paper entitled *Distribution of some major environmental weeds in western Brisbane*. The paper summarised a survey, funded by the Natural Heritage Trust, of the distribution of 11 of the worst weed species in Moggill Creek and neighbouring catchments. The survey basically highlighted the prevalence of such weeds as lantana, ochona, cat's claw and glycine, and Chinese elm the most widespread of the two tree species examined.

As the tour proceeded, Mr Hacker pointed out examples of invasive weed infestations and stressed their role in crowding out and smothering natives and their adverse impact on the health of the ecosystem, such as reducing numbers of butterflies that rely on native plants. He stressed that the invasives may have been wind blown, distributed by birds, or as the result of dumping of garden rubbish. Stolons can also be washed long distances downstream in high rainfall conditions. The fact that the major weed loci are in peri-urban areas suggests the adverse impact of planting of many of these weeds in urban areas.

At a site at Witton Creek, Indooroopilly, the Committee was shown an area consisting almost solely of densely packed invasives. Queensland Government entomologist, Mr Michael Day, pointed to *duranta*, *leucaena* and asparagus fern, as well as lantana and cat's claw. Ironically, while obviously an exotic scene, many of the shrubs had attractive foliage and red, pink, purple and yellow flowers – and attracted considerable numbers of butterflies – which in itself helps explain their attraction for planting in suburban backyards.

The Committee then inspected the Queensland Department of Natural Resources, Mines and Energy Quarantine Insectary facility at the Alan Fletcher Research Station at Sherwood. It was met by Dr Bill Palmer, the Principal Entomologist. Research into weed biocontrol, ecology and herbicide control, and into the chemistry of baits for pest animals is conducted at the site. The offices of the CRC for Australian Weed Management are also co-located on the site.

Dr Palmer escorted the Committee through the \$600,000 facility as if it were a plant or packet of seeds being subjected to quarantine screening. He made a number of interesting comments and observations about the challenges his centre faces, which were noted by Committee members but which will not be repeated in this report because of their informal nature.

One interesting feature in the grounds of the Research Station was the presence of a stand of prickly pear. Having been given indications by Mr Walton that its eradication

had been one of the country's biocontrol success stories, its presence was something of a surprise. However, Mr Walton noted the poor condition of the plants and pointed to the presence of the control insects. The visit concluded with lunch, which enabled invaluable informal discussions to take place.

Discussion of the terms of reference

Several submitters raised concerns about what they saw as defects in the terms of reference. One issue that became apparent to the Committee in the course of its inquiry was the inappropriateness of the suggestion in the terms of reference – and in the Bill - that invasive species are only those that are 'foreign' to Australia's shores. Evidence was taken about the ability of native flora and fauna to threaten biodiversity in areas outside their natural range, largely due to human involvement. They can display many of the worst features of invasives, despite being natives.

The Committee also received representations about the need to consider pest and weed species not specifically included in term of reference (b), often based on a misunderstanding that the list was exclusive of all others. The most obvious example was marine pests, a subject about which the Committee received several detailed submissions as well as considerable oral evidence.

In fact, it was submitted that term of reference (b) – concentrating on the estimated costs of different management responses for certain specified pests and weeds – was essentially unhelpful to the cause of sound decision-making. The Committee was told that, rather than looking at the costs of different stratagems as required by term of reference (b), a strategic approach was needed with the focus on prioritising species and habitats according to the potential for damage to indigenous biodiversity and the likely effectiveness of effort.¹

Quantification of direct costs of weed and feral animal control is theoretically a relatively straightforward exercise. Assuming comprehensive data was available, one would simply aggregate expenditures by all levels of government and by the private sector and individuals. However, assessing, for example, the environmental cost of the impacts of fox and feral cat depredation on native fauna is far more problematic. The Department of the Environment and Heritage advised that there is no agreed model to measure the ecological cost of invasive species in economic terms.² Accordingly, in Chapter 4 the Committee has examined the costs and benefits of invasive species programs, without attempting to factor in the indeterminate environmental costs.

The report

This report addresses the Committee's terms of reference by progressively dissecting the invasive species problem into its component parts.

1 Invasive Species Council, Submission 33, p. 3

2 Department of Environment and Heritage, Submission 61, p. 4

Chapters 1 to 4 are descriptive of the current situation, describing in turn the nature and extent of the invasive species problem, an overview of the current regulatory environment, the current institutional arrangements, and the evidence of the economic benefits of invasive species programs.

In Chapter 5 the Committee examines the efficiency of management of the invasive species problem on the Australian landmass, while Chapter 6 concentrates on border control issues and the adjoining marine environment.

The Committee examines the specifics of the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 in Chapter 7. Many submitters addressed the intricacies of the Bill in great detail, including numerous suggestions for its improvement. However, the Committee has concluded that the Bill not be proceeded with, with other approaches being preferred.

While the Committee has made recommendations as appropriate throughout the report, they have been drawn together in the final chapter, Chapter 8, to form a coherent approach to the way forward.

Acknowledgements

The Committee wishes to thank all those who contributed to its inquiry by preparing submissions and appearing at the hearings. Their contributions have been both informative and challenging.

The Committee also records its regret that, with the then imminent prospect of the Federal election, it was unable to undertake a more extensive program of site inspections in order to gain a deeper appreciation of the issues, especially of some of the regional aspects, and to have had more time to take evidence from some of the other submitters, particularly other State and Territory governments. The Committee thanks all persons who contributed to the success of its inspections in Brisbane - it found it very helpful to see the extent of the challenge at first hand and to discuss possible solutions personally and frankly with experts in the field.

The Committee hopes that this report nonetheless highlights the significance of the topic and trusts that governments at all levels will act promptly to address the problems identified. Australia's unique environment depends on it.

Senator John Cherry
Chair

Chapter 1

Introduction

Non-native species are referred to by many names: exotic, alien, non-indigenous, or introduced. When they spread aggressively, they're called invasive.¹

1.1 This chapter provides an overview of the current invasive species situation in Australia and describes their economic, environmental and social impacts.

Overview

1.2 While invasive species are generally argued to be the second biggest threat to Australia's biodiversity after land clearing and other forms of habitat destruction, Dr Barry Traill, President of the Invasive Species Council, went so far as to say:

with land clearing hopefully now sorted out as a destructive problem, with controls in Queensland and New South Wales, invasive species are probably now the No. 1 threat to nature in Australia.²

1.3 The economic impact of invasive species is also high. The economic impact of weeds and 11 key vertebrate pest animals has been calculated at \$4 billion and \$720 million per annum respectively. These figures primarily represent production losses and control costs, as the cost of weeds to the environment and biodiversity is largely incalculable. This compares to an estimated combined annual cost of salinity, sodicity and soil acidity of \$2.4 billion.³ A 1997 Australian Bureau of Statistics survey showed 47% of farmers reported weeds as a major problem, compared with about 15% for dryland salinity. However:

despite estimates that weeds are costing the economy 10-20 times as much as salinity, planned government programs on invasive plants amount to less than 10% of the resources dedicated to the salinity issue.⁴

This is demonstrated through the funding of \$1.4 billion for the recent National Action Plan for Salinity and Water.⁵ More contemporary data on the cost of invasive species is given below.

1 Cheryl Lyn Dybas, *Invasive species: the search for solutions*, BioScience, July 2004/ Vol. 54 No. 7, p. 617.

2 Dr Barry Traill, *Committee Hansard*, 14 April 2004, p. 41.

3 Bureau of Rural Sciences, *Submission 62a*, p. 11.

4 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra p. 10.

5 CSIRO, *Submission 34*, p. 4.

1.4 The threat to Australia's biodiversity and economy is from weeds, vertebrate and invertebrate pests, and plant and animal diseases, and it is contended that the threat is increasing:

Addressing the problem of these invasive alien species is urgent because the threat is growing daily and the economic and environmental impacts are severe.⁶

1.5 The physical isolation of Australia has favoured the evolution of unique species and ecosystems that occur nowhere else in the world. At the species level about:

- 82 percent of mammals;
- 45 percent of terrestrial birds;
- 85 percent of flowering plants;
- 89 percent of reptiles; and
- 93 percent of frogs are endemic to Australia.⁷

1.6 The evolutionary processes associated with being isolated has meant that:

[Native] [s]pecies are especially vulnerable to predators, pathogens, and parasites.⁸

1.7 Australia has had an unfortunate history of incursions by plants and animals since colonisation. Mammals, birds, fish and plants have been imported, mainly for commercial reasons, but often simply for the purpose of making early settlers feel more 'at home'. We now know that many of these early species which were imported for seemingly innocent or harmless reasons have gone on to have significant adverse environmental impacts.

1.8 The rate of incursions has increased dramatically in more recent years, with the growth of international trade and travel leading to importation of thousands of invasive weeds, pest animals and diseases. The problem of invasive species has also been exacerbated by the ability of people to trade over the Internet.

1.9 Until recently many plants and animals were brought into Australia without being subject to rigorous pre-import risk assessment. Most of the plants and animals that have become invasive were brought in deliberately. Plants were brought in for pasture, horticulture and as ornamentals. Animals were brought in for sport shooting, as food sources or as pack animals. The Bureau of Rural Sciences noted in

6 Jeffrey A. McNeely, *Strangers in our midst: the problem of invasive alien species*, Environment, Volume 46 Number 6, July-August 2004, p. 16.

7 Richard Sharp, *Federal Policy and Legislation to Control Invading Alien Species*, Australian Journal of Environmental Management, Volume 6, September 1999, p. 172.

8 Jeffrey A. McNeely, *Strangers in our midst: the problem of invasive alien species*, Environment, Volume 46 Number 6, July-August 2004, p. 17.

its submission that based on the history of current vertebrate pests and weeds in Australia:

introduction of new vertebrate species and plants is likely to be deliberate, legal or illegal introduction rather than by accidental human-assisted dispersal. Hence for exotic plants and vertebrates it is highly desirable to have robust, scientifically-based risk assessment processes to distinguish species that pose a high threat of becoming future pests or weeds from those that pose a low threat, and a sound process to ensure that species identified as posing a high threat are not allowed to enter Australia.⁹

1.10 Unfortunately, the Committee heard evidence that current import risk assessment methods for plant and animal importation are neither robust nor highly effective in preventing the entry of future pest species. Loopholes in plant import legislation and the import risk assessment system for animals are detailed in Chapter 5.

1.11 CSIRO put the scale of the invasive species problem in context. It told the Committee that the ratio of species that become invasive is roughly 1 in 1000. Of one thousand species entering Australia, 10 may become naturalised and 1 of that 10 naturalised species will become a pest species. Obviously, prior identification of the 1 in 1000 that is likely to become an invasive species is a significant challenge for authorities charged with the protection of Australia's environment and agricultural sector.

1.12 As will be discussed, addressing the invasive species problem is not simply a border control issue, but also includes managing those species that are already here: in gardens, aquariums, farms, aviaries and the like, and that would pose a threat if they escape.

1.13 The Committee was also alerted to the challenge of 'sleeper' species which have the potential to become the next generation pest problem. Invasive species were identified as a major threat to Australia's biodiversity in both the 1996 and 2001 State of the Environment reports. The 2001 report noted that:

'sleeper' weeds (species that have established, but are yet to become a widespread problem) are now recognised to be of major concern, as are exotic organisms that might find their way in through Australia's quarantine barriers as a result of trade and other human activities.¹⁰

1.14 As a result of the introduction of pest species to Australia, ecosystems have become more homogenous and biodiversity has been affected. It is widely recognised that vast areas of the Australian landscape have been seriously altered

9 Bureau of Rural Sciences, *Submission 62a*, p. 14.

10 Australian State of the Environment Committee 2001, *Australia State of the Environment 2001, Independent Report to the Commonwealth Minister for the Environment and Heritage*, CSIRO and the Department of Environment and Heritage, p. 78.

and degraded by invasive plants and animals. Human intervention has also seen native plants transferred within Australia, often with equally dramatic adverse effect on native ecosystems elsewhere.

1.15 On a global level, Jeffrey A. McNeely notes that:

This inadvertent ending of millions of years of biological isolation has created major ongoing environmental problems that affect developed and developing countries, with profound economic and ecological implications.¹¹

1.16 Climate change, degradation caused by habitat destruction, fragmentation of native vegetation, disruption to conditions for the breeding of native animals and birds, and changes to the nutrient status of soil, have all enabled invasive plants and animals to spread.

The current situation in Australia

Weeds

1.17 Evidence provided by the CRC for Australian Weed Management (generally referred to as the Weeds CRC) states that in the last 200 years over 28,000 foreign plants have been introduced to Australia. Most of the species that have become invasive were from deliberate introductions. The Weeds CRC advised that:

- Between 1947 and 1985 460 pasture grasses and legume species were trialled in northern Australia. Sixty became weeds, 13 of which are now serious crop weeds. Only 4 proved useful without also causing weed problem.
- Between 1971 and 1995 two-thirds of the 300 plants that became established as weeds in the wild were introduced as ornamentals.
- Over 2500 species of introduced plants have established in the wild, and many threaten the integrity of valued places, such as Kakadu National Park.¹²

1.18 Many of the species that have become established in the wild may be sleeper weeds, as was *Mimosa pigra* (Mimosa). Mimosa was introduced to Darwin in the late 1800s. The plant was not considered a problem until 1952, when it was discovered growing outside Darwin. Following the wet year of 1974 it spread further and by 1981 much of the Adelaide River floodplain in the Northern territory

11 Jeffrey A. McNeely, *Strangers in our midst: the problem of invasive alien species*, Environment, Volume 46 Number 6, July-August 2004, p. 27.

12 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra, p. 2.

was covered with Mimosa, some areas with monospecific stands.¹³ Currently, half a million dollars a year is spent to keep it out of Kakadu.¹⁴

Vertebrates

1.19 The Vertebrate Pests Committee (VPC) has created a list of all exotic vertebrates (except fish) present in captivity or in the wild in Australia. The list includes:

- 218 exotic mammals;
- 246 birds;
- 148 reptiles; and
- 12 amphibian exotic species.¹⁵

1.20 In its submission the Bureau of Rural Sciences stated that over 80 species of exotic vertebrates (excluding marine species) have established wild populations in Australia. These species include:

- 25 exotic mammals;
- 20 birds;
- 4 reptiles;
- 1 amphibian; and
- 23 freshwater fish on mainland Australia;
- plus 1 mammal, 7 birds and 2 reptiles on offshore islands.¹⁶

1.21 The Bureau of Rural Sciences acknowledges that species that are already in Australia have passed through quarantine barriers, legitimately or otherwise, and relatively few of the listed species have had a risk assessment conducted to determine the threat they pose should they escape and establish wild populations. In its submission it stated that:

The cost and responsibility for conducting risk assessments of pest potential for exotic vertebrates already present in Australia but not yet established in the wild is an issue to be resolved.¹⁷

As will be discussed in Chapter 6, evidence indicated that there are weaknesses in Australia's biosecurity policy that should be addressed.

13 Bureau of Rural Sciences, *Submission 62a*, p. 11.

14 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, p. 2.

15 Bureau of Rural Sciences, *Submission 62a*, p. 15.

16 *ibid*, p. 10.

17 *ibid*, p. 15.

Marine

1.22 The major vectors for the introduction of marine pests in Australian waters is through ballast water and hull fouling, although they have also spread as a consequence of aquaculture and the aquarium trade.

1.23 In Australia, the majority of research into marine pest species is conducted by CSIRO Marine Research. Dr Nicholas Bax, Senior Research Scientist, CSIRO Marine Research told the Committee that 1593 invasive marine species have been identified worldwide. Of which:

- between 135 and 308 have invaded Australia;
- of those that have invaded, 53 to 73 are classified as having had economic and/or environmental consequences; and
- 36 more have been identified as on their way to Australia. They have been identified as causing damage overseas and have been identified as being in the ports of Australia's trading partners.¹⁸

1.24 Australia has 22,000 ship visits per year; half of which are from international sources. The Committee has heard that most new introductions will have no large-scale impact on the environment or marine industries, however, a small number will become significant marine pests with associated impacts and an unknown fraction will be sleepers.¹⁹

1.25 A web accessible database, the National Introduced Marine Pest Information System (NIMPIS), has been developed by the CSIRO to meet national needs for a central repository of information on known and potential introduced marine species. The project was jointly supported by the Department of the Environment and Heritage, with funding from the National Heritage Trust (NHT) Introduced Marine Pests Program, CSIRO and a consortium of State agencies. The database contains detailed information on over 80 known introduced species in Australia, and limited information concerning 35 species not currently known to be in Australia but that pose a potential threat. Users who are aware of introductions of marine or brackish water species not currently included in the database are requested to submit a report of their sighting.²⁰

1.26 The NIMPIS database is one of a number of key initiatives aimed at providing tools to prevent further introductions of exotic marine species, facilitate rapid responses to new incursions, and assist in the management of existing introduced species in Australian waters. Reported sightings are automatically

18 Dr Nicholas Bax, *Committee Hansard*, Adelaide 28 June 2004, p. 28.

19 CSIRO, *Submission 34*, p. 10.

20 Hewitt C.L., Martin R.B., Sliwa C., McEnnulty, F.R., Murphy, N.E., Jones T. & Cooper, S. 2002. (Eds). *National Introduced Marine Pest Information System*. At: <http://crimp.marine.csiro.au/nimpis>, Date of access: 6-Jul-2004.

referred onto the Centre for Research on Introduced Marine Pests at CSIRO Marine Research.²¹ Marine pests are discussed in detail in Chapter 6.

Economic Impact

1.27 Invasive species represent a major cost to the Australian economy. As the management of invasive species is a shared responsibility of government, industry and the community each sector bears the costs of responding to the threat or managing the consequences of it. However, the primary responsibility for managing invasive species primarily rests with land holders and consequently management costs are largely borne by private citizens, particularly farmers, not government (except when government is also the landholder, such as reserves and parks). These costs take the form of direct management costs and also the increased cost of foods, loss of land value and reduced economic welfare.

1.28 The CRC for Australian Weed Management (Weeds CRC) and the Pest Animal Control CRC (Pest Animal CRC) have sought to quantify the cost of invasive species in recent reports entitled, respectively, *The economic impact of weeds in Australia* and *Counting the Cost: Impact of Invasive Animals in Australia, 2004*. These are discussed in the next sections.

The cost of weeds

1.29 The Weeds CRC report released in 2003 assessed the economic impact of weeds on agricultural land, national parks, other public land and indigenous land. The report assessed costs for the 2001-02 financial year. It estimated that the economic impact of weeds, across Australia, was approximately \$4 billion per annum and it acknowledged the fact that weeds have monetary and non-monetary costs and benefits:

If there were no weeds, incomes to agricultural producers and benefits to consumers of food would rise by \$3.927m in the mean case and \$112m of government expenditure would be released for productive investment elsewhere.²²

1.30 The report identified that the impact of weeds could be measured as the:

- direct financial costs to control the weeds (herbicide etc);
- losses in production;
- changes in net money revenue; and

21 Hewitt C.L., Martin R.B., Sliwa C., McEnulty, F.R., Murphy, N.E., Jones T. & Cooper, S. 2002. (Eds). *National Introduced Marine Pest Information System*, At: <http://crimp.marine.csiro.au/nimpis>, Date of access: 6-Jul-2004.

22 J Sinden, R Jones, S Hester, D Odom, C Kalisch, R James and O Cacho, *The impact of weeds in Australia – Report to the CRC for Australian Weed Management*, CRC for Australian Weed Management 2003, p. 39.

- and changes in welfare.²³

1.31 The estimated cost of \$4 billion per annum is, in fact, conservative as it does not include the financial impacts on:

- biodiversity;
- landscape;
- tourism;
- water;
- labour costs of volunteers; and
- other asset and industry costs that could not be quantified.²⁴

1.32 Some estimated costs of weeds to primary production are set out in the table below.

Table 1.1 – Estimated costs of weeds to primary production

Issue	Cost
National cost of weeds in annual winter grain regions	\$1.2 billion
Annual cost of wild oats in grain crops in 1987-88	\$42 million
Annual cost of serrated tussock in NSW pastures	\$40 million
Annual cost of serrated tussock in Victorian pastures	\$5.1 million (1997), estimate increasing to \$15 million by 2007
Cost of weeds to farmers in the southern cropping zone	\$70/ha per year (average);
Cost of attempts to eradicate <i>Kochia scoparia</i> in WA, where it was introduced for use with salinised soils	\$530,000 (1992-98)

1.33 While several submitters argued that weed management programs should be based on the 'public good', the CRC report notes that the allocation of monies to such programs is based on comparing costs and benefits and allocating to the project with the greatest rate of economic return. A downside of this approach is that a funding application based predominately on environmental grounds may not

23 *ibid*, p.1.

24 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra p. 10.

receive the same level of support as one that has impacts on agriculture. The Committee was told that non-economic factors, such as social and environmental impacts, warrant consideration in comparing costs and benefits.

1.34 Total expenditure by Commonwealth and state agencies (other than the National Parks and Wildlife Services), other government authorities, local government and other public land managers in 2001-02 was estimated as being at least \$80.775 million, with \$8.252 million spent by the Commonwealth on weed management and research.

1.35 The CRC report's findings of the high per hectare benefits, benefits to the agricultural sector and benefits relative to other environmental problems that could be achieved from improved weed management adds support to claims that weed programs should be a major recipient of research, management and control funds.²⁵

The cost of pest animals

1.36 Pest animals have a triple bottom line effect. Dr Peacock, CEO, Pest Animal Control CRC, told the Committee that:

They affect our environment, our economy and our society. Often it is very difficult to quantify that cost. How do you value a threatened species or cost in another factor that makes life in the bush even harder than it should be? How do you measure the frustration of recreational anglers who cannot catch anything but carp? It is hard to measure but it is a big cost nevertheless.²⁶

1.37 A report released by the Pest Animal CRC in mid 2004 estimated that the economic, environmental and social impact of 11 major introduced vertebrate pests of Australian agricultural industries and the environment was \$719.7 million per annum.²⁷ The report assessed those species that are included in the CRC's research priorities, impacts were assessed Australia-wide and a triple bottom line assessment was applied.

1.38 Economic impacts were able to be calculated for all 11 vertebrate pest animals:

25 J Sinden, R Jones, S Hester, D Odom, C Kalisch, R James and O Cacho, *The impact of weeds in Australia – Report to the CRC for Australian Weed Management*, CRC for Australian Weed Management 2003, p. 39.

26 Dr Tony Peacock, *Committee Hansard*, Canberra, 26 November 2003, p. 8.

27 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, CRC for Pest Animal Control, Canberra.

Table 1.2 – Economic impact of vertebrate pests

Animal	Total Cost (\$m)
Fox	\$227.5
Feral cats	\$146
Rabbit	\$113.1
Feral pigs	\$106.5
Dogs	\$66.3
Mouse	\$35.6
Carp	\$15.8
Feral goats	\$7.7
Cane Toads	\$0.5
Wild horses	\$0.5
Camels	\$0.2

1.39 Rabbits, foxes, feral pigs and feral cats were identified as inflicting the greatest cost impact on the Australian economy, with a total impact of \$553.1 million. The major component of the impact from rabbits and pigs was reduced agricultural production, principally for sheep and cattle industries. To address this issue, the Pest Animal CRC report noted that:

Given the heavy impact these pests impose on these industries, collaborative research projects should be sought with sheep and cattle producers, as they would be the major beneficiaries of such research.²⁸

1.40 The environmental impact of the pest animals could only be quantified for foxes, feral cats and carp. Their impact was assessed as being \$190.0m, \$144.0m and \$11.8m respectively. Feral cats and foxes were identified as inflicting the greatest cost impact on native fauna, primarily as a consequence of bird deaths.

1.41 The major control costs were identified as including baiting, fencing, shooting and research associated with improving management of the invasive species. Production losses for sheep, cattle and cropping industries were predominately identified as being the result of invasive species predation on young stock, crop damage and competition for feed. The report identified that:

Feral pigs, rabbits, kangaroos and feral cats were estimated to account for 83% of losses and agricultural productivity loss accounts for about half of total costs estimated.²⁹

28 *ibid.*

29 *ibid.*

1.42 In calculating the economic cost of the invasive species, expenditure on public sector research and management costs were assessed. The report noted that the social impacts of the pest animals were not able to be quantified.

1.43 Other species which were identified as having significant impacts, but for which costs were not calculated, were:

- pest birds;
- rodents;
- deer; and
- finfish.

The report noted that impact assessments on these species need to be conducted if the complete cost of vertebrate pests in Australia is to be determined.

The cost of marine invasives

1.44 While there is a lack of specific information on the economic impact of marine pests, the Bureau of Rural Sciences advised that:

the economic threat of marine pests is also substantial to the Australian mariculture industry which is worth in excess of \$600 million per year³⁰

1.45 The Bureau of Rural Sciences noted that Tasmanian oyster and mussel growers are already experiencing heavy stock predation by the Northern Pacific Seastar.³¹ The Committee heard evidence that Port Phillip Bay recorded a 40 per cent reduction in fish stock numbers over the past three years as a consequence of invasion by the Northern Pacific Seastar.³²

1.46 Outbreaks of toxic dinoflagellate or other invasive microbial agents also pose a threat to aquaculture stock (mussels, oysters, scallops). If there is an outbreak it could lead to the closure of fisheries for human health reasons, such an event has the potential to be economically costly. The potential loss of Australia's 'clean' reputation could have a significant impact on mariculture if export markets are lost.

1.47 The extent of the economic impact of marine invasives is demonstrated through the campaign to eradicate the Black-striped Mussel that entered the marina in Darwin in 1999. The eradication campaign cost over \$2 million in materials alone. However, if left unchecked, it had posed a major threat to the local \$40 million per annum pearl industry. In assessing its response to the outbreak, Australia was able to learn from America's experience with the closely related zebra mussel that cost the United States \$100 million per annum to control in the Great

30 Bureau of Rural Sciences, *Submission 62a*, p. 12.

31 *ibid.*

32 Mr Tim Allen, *Committee Hansard*, Adelaide, 28 June 2004, p. 40.

Lakes alone.³³ A case study on the Black-striped Mussel eradication campaign is provided in Chapter 4.

1.48 The cost of invasive marine species is not limited to mariculture industries. It also impacts upon shipping and ports, coastal amenity, human health, species and ecosystem health and diversity. Hassall and Associates has suggested that:

Marine pests have the potential to reduce this public amenity by reducing the chances of catching a fish, reducing the attractiveness of a diving trip, leading to beach closures or increasing the time spent by a boat owner in maintaining their vessel.³⁴

1.49 The impacts listed in the Hassall report have flow-on economic impacts, such as:

- loss of revenue for dive operators and bait shops in tourist areas;
- increased costs associated with maintaining vessels; and
- costs associated with having to close marinas and waterways for treatment.

1.50 A key area that could be affected is tourism. If outbreaks occur in waters near tourist areas such as the Great Barrier Reef, and limit recreational use of the water, they have the potential to cause significant losses. This is demonstrated through the fact that:

The existence and option value of the Great Barrier Reef, at risk from human activities, has been estimated to be in the order of \$AUS45 million per annum.³⁵

1.51 The Commonwealth Government has recognised the potential threat to tourism in the Great Barrier Reef that is posed by the Crown of Thorns Starfish. In the 2004-05 budget it provided \$0.9 million over three years to assist tourism operators to implement a control program.

The cost of plant diseases

1.52 Invasive plant diseases include pathogens and invertebrate pests, such as viruses, fungi and various insects. Plant pests pose a major threat to the Australian economy through their potential to impact on primary production. A comprehensive study of the cost of plant diseases to the Australian economy has not been prepared, however, information is available on the economic impact of individual plant

33 CSIRO, *Submission 34*, p. 14.

34 Hassall and Associates Pty Ltd, *Introducing Marine Pests – Scoping the Socio-Economic Impact*, Sydney, 2003, p. 21.

35 *ibid*, p. 17.

diseases. In its submission CSIRO noted that annually approximately 12% of losses to global crop production are caused by diseases.³⁶

1.53 As with weeds and pest animals, plant pathogens have the potential to seriously reduce the productivity of crops once they become established in Australia. A known case is sorghum ergot, which costs industry \$4 million per annum to control.³⁷ One crop in Australia for which comprehensive data is available is wheat. In the 1980s annual crop losses of 14.5% of total production were attributed to wheat diseases; this amounted to \$300 million per annum.³⁸ This supports claims that the economic impact of plant diseases is significant.

1.54 In its submission Plant Health Australia (PHA) listed citrus canker (*xanthomonas axonopodis pathovar citri*), a highly contagious bacterial disease of citrus, as having a potential negative impact on the industry if it were to become established in Australia. Citrus canker is spread by wind-borne rain, lawnmowers and landscaping equipment, animals, birds, movement of plants and fruit. PHA advised that citrus canker could also have an adverse impact on the six native species of *Citrus*, potentially resulting in the loss of biodiversity of the native species if it were to enter Australia.³⁹ Outbreaks can result in dieback, defoliation, blemished fruit, premature fruit drop and although not harmful to humans the crop cannot be sold.⁴⁰

1.55 Outbreaks have occurred in Australia in 1912, 1991, 1993 and most recently in July 2004 in Emerald, Queensland. The most recent outbreak resulted in the Shires of Emerald, Peak Downs and Bauhinia being gazetted by Queensland as pest quarantine areas to further restrict the movement of citrus products. The cost of surveillance and eradication for the first six weeks of the outbreak was \$1.6 million. This activity will be followed by a further two years of surveillance which will cost significantly more. Though these costs are high they do not compare to the potential losses to the Queensland citrus industry, which is worth \$120 million per annum and the Australia-wide industry which is worth \$420 million.⁴¹ The disease was eradicated from the infected property through removing and destroying host plants in the wider vicinity of the area.⁴²

36 CSIRO, *Submission 34*, p. 9.

37 *ibid.*

38 *ibid.*

39 Plant Health Australia, *Submission 9*, p. 2.

40 *ibid.*

41 AAP, *QLD: Another blow to Australia's disease-free safe haven*, 9 July 2004.

42 Department of Agriculture Fisheries and Forestry, *Citrus Canker Identified in Queensland*, Media Release, 6 July 2004.

Environmental Impact

1.56 Apart from their economic impact, invasive species are a major threat to Australia's unique biodiversity:

In some cases, as with mimosa in the NT, it takes only one type of invader to cause total landscape change. Scientists refer to these invaders as 'transformer species' because they have the ability to transform entire ecosystems. Their legacy is a degraded, foreign environment, stripped of native plants and animals. Future generations may never realise what was lost.⁴³

1.57 Habitat disturbance and destruction, and changed fire and water regimes, are often linked to the presence of invasive species. Grazing, predation and competition by introduced vertebrates are also recognised as impacts of invasive species.

1.58 The situation is not helped if ecosystems are already degraded:

A sick ecosystem is likely to allow new pests to establish themselves more easily and extensively and heighten their collective impact.⁴⁴

Weeds such as serrated tussock and Chilean needle grass (*Nasella neeisana*) easily invade pasture lands through dispersal by wind, birds or human assistance.

1.59 The environmental impact of invasive species is part of a suite of impacts that can threaten the survival of native species. Impacts from invasive species include:

- reduced floral diversity by competing with native species for water and nutrients;
- shading out lower vegetation strata;
- altering fire regimes;
- reducing the productivity of pastoral land; and
- disrupting food webs.

1.60 Invasive plants have the capacity to spread across significant areas. Examples include:

43 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra p. 6.

44 Hassall and Associates Pty Ltd, *Introducing Marine Pests – Scoping the Socio-Economic Impact*, Sydney, 2003, p. 18.

Table 1.3 – Coverage of invasive plants⁴⁵

Invader	Area
Blackberry	8 million ha nationally
Prickly acacia	6.6 million ha in Qld in 2002 (potentially 50m ha nationally)
Lantana	4 million ha nationally
Rubber vine	700,000 ha, and now found across 20% of Qld
Mimosa pigra	80,000 ha in the Top End of NT

1.61 Jeffrey A. McNeely summed up the impact of invasive species when he wrote:

invasives may cause changes in ecological services by disturbing the operation of the hydrological cycle, including flood control and water supply, waste assimilation, recycling of nutrients, conservation and regeneration of soils, pollination of crops, and seed dispersal.⁴⁶

1.62 It is very difficult to attribute a cost to such factors. The Hassall and Associates report noted that:

A significant factor limiting the capacity of researchers to determine the impact of these pests has been the absence of base-line environmental data and the consequential difficulty in determining the pre-existing environmental valuation of the resources. In many cases impacts are simply reported in a subjective manner as being "real and alarming"...Similarly, the impact on the environment is often noted as significant, relative to that on another sector, without real valuation.⁴⁷

Biodiversity impact

1.63 The invasion of native ecosystems by invasive species is: regarded as a major threat to biological diversity worldwide.⁴⁸

1.64 Traits common amongst invasive species include:

- broad environmental tolerances (salinity, temperature, water quality);
- rapid colonisation;

45 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra p.6.

46 Jeffrey A. McNeely, *Strangers in our midst: the problem of invasive alien species*, Environment, Volume 46 Number 6, July-August 2004, p. 22.

47 Hassall and Associates Pty Ltd, *Introducing Marine Pests – Scoping the Socio-Economic Impact*, Sydney, 2003, p. 17.

48 Invasive Species Council, *Submission 33*, p. 1.

- fecundity;
- lack of specific dietary requirements;
- capacity to exploit an available niche; and
- capacity for broad dispersal.

1.65 Hybridisation of native and introduced species poses a threat to the survival of native species. The Committee heard from Mr John Stewart, Vice President, AgForce Cattle, AgForce Queensland, that:

with domestic dogs mating with dingoes we now have a much larger population of wild dogs than we have of pure dingoes. In fact pure dingoes tend to be dying out.⁴⁹

1.66 Additional evidence of the hybridisation of native and introduced species was provided by Dr Black, Committee Member, Nature Conservation Society of South Australia. He told the Committee that:

the mallard has eliminated the pure New Zealand grey duck, and it is progressively invading genetically the black duck in Australia.⁵⁰

1.67 Dr Peacock advised that foxes predate on small animals in the range from 300 grams – mouse size – to 5½ kilograms – small wallaby size. In discussing the decimation of small animals by foxes Dr Peacock said that:

As Tim Flannery said, half a century ago no-one even knew about these small mammals and in half a century from now it will be too late to do anything about them.⁵¹

1.68 The Committee received evidence that invasive species often flourish when introduced to new environments as generally they do not have natural predators to control their spread. An example of this is cane toads which have flourished since their introduction to Queensland in the 1930s. One reason that they have flourished is that they are poisonous in all stages of their life-cycle. Current estimates show cane toads are spreading in the tropics at about 27 kilometres a year. The Pest Animal CRC report noted that:

Populations of Northern Quoll, *D. haaucaus*, have seriously declined in Queensland following colonisation by cane toads (Burnett 1997). These quoll populations have not recovered in the past 10 years, therefore cane toad impact on quolls is likely to be a long-term phenomena (Burnett 1997, in Glanznig, 2003).⁵²

49 Mr John Stewart, *Committee Hansard*, Brisbane, 14 April 2004, p. 70.

50 Dr Andrew Black, *Committee Hansard*, Adelaide 28 June 2004, p. 79.

51 Dr Tony Peacock, *Committee Hansard*, Canberra 18 June 2004, p. 12.

52 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 47.

1.69 Recent research undertaken in Kakadu National Park indicates that cane toads cause substantial declines in northern quoll populations. The Department of the Environment and Heritage acknowledged the threat that cane toads pose to native species survival. In its submission it stated that:

There is a significant risk that quoll species across northern Australia may become locally extinct in areas invaded by cane toads. As a precautionary measure, a representative sample of northern quolls have been moved to cane toad-free islands off Arnhem Land to safeguard the species.⁵³

1.70 Evidence indicated that limited research is being conducted into the impacts of cane toads and possible control methods. Funding had been cut to a research program that had sought, through tracking the impact of cane toads on northern quolls and goannas in Kakadu National Park, to verify stories from indigenous communities in Cape York that cane toads led to the disappearance of the native animals. The research project had been commissioned by Parks Australia North and had been operating since 2001. The Committee expresses its regret that support for the project was withdrawn, at such a late stage, when:

To finish the radio-tracking, the project needed another four to five months and about \$16,000-\$20,000, roughly a tenth of what has already been spent.⁵⁴

1.71 Cane toads have cut a swathe through native animals.

Australian native fauna that has been killed by cane toads include Goannas, Freshwater Crocodiles, Tiger Snakes, Red-bellied Black Snakes, Death Adders, Dingoes, and Northern Quolls.⁵⁵

1.72 Evidence indicated that preference for funding is given to invasive species that cause significant economic impact over those that have non-economic impacts, such as environmental or cultural impacts. The preservation of biodiversity and the flow-on cultural impacts need to be accorded a commensurate level of recognition. The Indigenous Land Corporation submitted that:

weed management on a pastoral lease where the invasion is clearly affecting the economic capacity of that land is far more likely to be funded than where weed invasion is affecting Indigenous peoples capacity to hunt, gather food, undertake management of site and management [of the] country in accordance with cultural traditions. There needs to be a greater focus on invasive species that do not necessarily have a negative commercial impact.⁵⁶

53 Department of Environment and Heritage, *Submission 61*, p. 3.

54 B. Lane, *The Australian*, 23 August 2004, p. 5.

55 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 47.

56 Indigenous Land Corporation, *Submission 38*, p. 5.

...Indigenous landholders are responsible for a significant part of the country, but are not major economic players commensurate with the extent of title held.⁵⁷

1.73 The Bureau of Rural Sciences noted that weed species can reduce biodiversity and contribute to local extinctions of native plants and animals through competition. An example cited was blue trumpet vine (*Thunbergia grandiflora*) which spreads rapidly, smothering rainforest in the tropical lowlands of coastal north Queensland. It can invade about 0.6 of a hectare of rainforest per year, and can climb trees up to 40 metres tall.⁵⁸

1.74 When pasture biomass is low, competition for food and water can occur between stock and invasive vertebrates. Invasive vertebrates can cause significant land degradation as they do not cease grazing if farmers de-stock pastures. Changes in the composition and cover of the vegetation caused by grazing vertebrate pests can influence populations of ants, termites and topsoil micro-arthropods. Changes in the vegetation may have long-term effects on the soil structure by increasing soil disturbance. This can have a flow on effect of reducing land values.

1.75 Invasive pest animals can have a variety of biodiversity impacts.

- Camels may deplete shelter and refuge for desert animals. Camel grazing can impact on native vegetation.⁵⁹
- Rabbits and goats overgraze, resulting in increased soil erosion.
- Wild horses can increase soil erosion, destroy native plants along frequently used routes, foul water holes, collapse wildlife burrows, spread weeds through their hair and dung, and compete with native wildlife for food and shelter.⁶⁰
- Foxes predate on mammals and birds. It has been estimated that they are responsible for the 9.5 million kilograms per year of live bird predation. Based on an average bird weight of 50g this accounts for 190 million fatalities per year.⁶¹
- Feral pigs threaten native species through feed competition. Native vegetation is also affected by damage from trampling, the spread of rootrot fungus (*Phytophthora cinnamomi*) and dieback disease.⁶²

57 Indigenous Land Corporation, *Submission 38*, p. 12.

58 Bureau of Rural Sciences, *Submission 62a*, p. 10.

59 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 45.

60 *ibid*, p. 49.

61 *ibid*, p. 22.

62 *ibid*, p. 27.

-
- Carp increase water turbidity which releases sediment nutrients and destroys aquatic plants. They result in a reduction in the abundance of invertebrates and aquatic plants, which form the basis of native fish diets⁶³.

1.76 The impact of wild dogs on biodiversity was highlighted by Mr John Stewart, Vice President, AgForce Cattle, AgForce Queensland, who explained that:

There is a significant impact on the survival of remnant populations of endangered fauna such as small macropods, and we have bilbies, bandicoots and smaller wallabies within the target range for wild dog food. In Central Queensland the last remaining population of northern hairy-nosed wombats has had to be fenced to protect it from the predations of wild dogs.⁶⁴

1.77 The Invasive Species Council noted in its submission that despite the identified negative impacts:

there is virtually no momentum to address the invasive species threat to biodiversity. Currently, institutions, policies and funding are overwhelmingly concerned with protecting agricultural production values, and there is little public or private investment in environmental pests.⁶⁵

1.78 It went on to advise that:

every year of neglect is a year when the long term costs blow out, usually with irreversible consequences on indigenous biodiversity.⁶⁶

Naturalisation of invasive species

1.79 The already daunting task of managing invasive species is augmented by the fact that many people accept some introduced species as a normal part of the landscape, despite the harm they cause. This was demonstrated to the Committee during its site inspections in Brisbane where it saw the widespread use of varieties of *Duranta* for hedges, landscapes and colour features on public and private land. The Committee heard that many people who have planted *Duranta* in urban areas are not aware that it is widely dispersed through the spread of seeds by fruit bats and birds and is now naturalised from Cairns to northern New South Wales, outcompeting native vegetation.⁶⁷

1.80 The challenge of managing invasive species is compounded by the fact that a number of invasive species have become naturalised and native animals have

63 *ibid*, p. 31.

64 Mr Stewart, *Committee Hansard*, Brisbane, 14 April 2004, p. 70.

65 Invasive Species Council, *Submission 33*, p. 2.

66 *ibid*.

67 Dr Rachel McFadyen, *Committee Hansard*, Brisbane, 14 April 2004.

learned to live with them. A case in point for this is cane toads. At the public hearing in Brisbane Mr Craig Walton, Senior Policy Officer, Ecology, Queensland Department of Natural Resources, Mines and Energy stated that:

there have also been a number of native species and a number of bird species that now feast on cane toads—they have now worked out how to roll them over on their back and eat their stomachs, and cane toads are now a prey species.⁶⁸

1.81 Developing on this issue, Mr Peter Tucker, Committee Member, Nature Conservation Society of South Australia, explained the dependence of some native species on invasive species. Mr Tucker stated that:

We also have quite a conundrum in that ... where we have weeds, quite often native animals will use those weeds There is the nationally endangered bandicoot, and if we were to eliminate the blackberries another type of bandicoot would go extinct. It [invasive species management] is complex.⁶⁹

1.82 It has been recognised that:

This mutualism presents an intractable conservation management dilemma.⁷⁰

1.83 Evidence supports claims that invasive species can play a dual role. It has already been demonstrated that cane toads are a food source for some native species and the killer of others. The same situation is occurring with weed species. Weeds can harbour feral animals and diseases but also provide a food source and protection to native species. An example of this is blackberry (*Rubus fruticosus*) which provides protection for rabbits.⁷¹ The other role it plays is harbour native species, such as bandicoots.

1.84 Many invasive pest animals have become integrated into the food chain. This has impacts on biodiversity when attempts are made to reduce their numbers. Highlighting this is the fact that:

Dingoes have been integrated into established predator-prey relationships and may play a constructive ecological role of regulating the population of certain native fauna. The controlling influence of wild dogs on marsupials and emus numbers is demonstrated by the difference in their prevalence across the two sides of the barrier fencing (Pople *et al.* 2000).⁷²

68 Mr Craig Walton, *Committee Hansard*, Brisbane, 14 April 2004.

69 Mr Peter Tucker, *Committee Hansard*, Adelaide, 28 June 2004, p. 76.

70 Jeffrey A. McNeely, *Strangers in our midst: the problem of invasive alien species*, Environment, Volume 46 Number 6, July-August 2004, p. 26.

71 Bureau of Rural Sciences, *Submission 62a*, p. 10.

72 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 41.

1.85 There is also a case to argue that predation by wild dogs of other introduced species of predators such as foxes, feral cats and feral pigs counters their negative impact on native species. Mr John Stewart, Vice President, AgForce Cattle, AgForce Queensland explained this issue to the Committee.

For instance, some people will not bait for dogs and they do not bait for feral pigs because they want the dogs to keep the pig population down—that is, chase and get rid of the piglets. So, for that reason, they will not bait for feral pigs. Sometimes it needs to be explained to people. While people in the bush are well aware of feral pigs, wild dogs, foxes and so on, some people probably need to go through a greater education process about just what is happening to their overall profitability.⁷³

1.86 As a consequence of the dual role of many introduced species the management of them needs to be carefully mapped to ensure that a consequence of management plans is not further loss of biodiversity. Mr Mark Ramsey, Executive Officer, Animal and Plant Control Commission, told the Committee that:

simply removing the feral species is not going to achieve a good outcome unless you know and plan what you want to achieve at the other end. So we are suggesting that people really need to start planning for the outcome they are trying to achieve, not just remove the weed.⁷⁴

Keystone species

1.87 The Committee heard evidence that some of the small mammals and plants that have become extinct or are threatened by invasive species are keystone species. A keystone species is a species that is disproportionately important in the maintenance and balance of its community's integrity. They interact with a large number of other species in a community and because of those interactions, the removal of the species can cause widespread changes to the community structure. The reduction in keystone species has a significant impact as they are the cornerstone of the ecological community in which they reside.

1.88 Examples of keystone species are the small crabs on Christmas Island. Robber, red and blue crab populations were significantly reduced in areas of Christmas Island that were infested by yellow crazy ants in the 1990s. The crabs play a key role in the forest ecology by digging burrows, turning over the soil and fertilising the soil with their droppings. Once the crab numbers declined the structure of the forest changed. Populations of other ground and canopy dwelling animals, such as reptiles and other leaf litter fauna also decreased. Increased densities of crazy ants led to increased densities of scale insects, which led to increased light gaps in the canopy of the rainforest. The light gaps and reduction in crab numbers led to change in the ecology of the forest, resulting in an increase in seedlings and weeds growing on the forest floor. With the introduction of control

73 Mr John Stewart, *Committee Hansard*, Brisbane, 14 April 2004, p. 76.

74 Mr Mark Ramsey, *Committee Hansard*, Adelaide, 28 June 2004, p. 12.

mechanisms for the yellow crazy ants crab numbers were able to increase and biodiversity is slowly being restored However, the longer terms impacts may not be evidenced for some time.⁷⁵

Increased fire risk

1.89 A large number of pasture grasses were introduced to Australia from Africa in the last century because they grew larger and produced more feed for cattle than native grasses. Mr Tim Low, Councillor, Invasive Species Council, told the committee that:

If they are not eaten by cattle they dry out into straw and produce very hot bushfires—much hotter than Australia has been used to. These are having a devastating impact all over Northern Australia, changing vegetation structure, killing young trees and eating into inland rain forest. Putting a cost to that ecological damage is just unbelievable⁷⁶

1.90 The Committee heard evidence from Mr Neville Crossman, President, Weed Management Society of South Australia, that feral olive trees burn faster and hotter than native trees, such as eucalypts. He advised that this occurs because they have a greater biomass, consistent canopy and higher oil content than natives. Concern was expressed regarding the bushfire risk posed by the large number of failed olive plantation investment schemes in areas of Australia that have a Mediterranean climate, especially those that are in close proximity to urban areas.⁷⁷

1.91 The SA Government is seeking to address this risk. Mr Mark Ramsey, Executive Officer, Animal and Plant Control Commission, told the Committee that:

In South Australia, under the policies of the risk assessment process we have implemented, if an olive grove is not managed for two years, it can be proclaimed as a feral planting and removal can be enforced. Obviously we are always concerned about the fact that foxes and starlings spread olive seeds over large distances. When we are looking at new applications, we request that they consult their local boards and develop a management plan for those species. Providing a place for the birds to defecate before they fly off is at least a good start, so we ask the local boards to do something to manage the feral olives.⁷⁸

1.92 The Committee heard that olive trees were brought to South Australia on the HMS *Buffalo* and this has resulted in a situation in South Australia of there being:

75 Information in this paragraph is referenced from:
www.ea.gov.au/parks/christmas/fauna/crazy.html.

76 Mr Tim Low, *Committee Hansard*, Brisbane, 14 April 2004, p. 43.

77 Mr Neville Crossman and Mr Noel Richards, *Committee Hansard*, Adelaide 28 June 2004, p. 53-4.

78 Mr Mark Ramsey, *Committee Hansard*, Adelaide, 28 June 2004, p. 12.

both heritage listed olive trees and feral olives and we have an industry that is trying to develop.⁷⁹

These different categories pose management challenges as blanket management plans cannot be applied.

Social impact

1.93 The difficulty in quantifying the social impacts of invasive species was acknowledged by the Pest Animal CRC in its publication *Counting the Cost: Impact of Invasive Animals in Australia 2004*. It wrote that:

Social impact is perhaps the most difficult element of the 'triple bottom line' framework to define and quantify.⁸⁰

1.94 The report sought to quantify the cost of 11 major vertebrate pests on Australian agricultural industries and the environment. The report was able to include annual cost values, including control and production loss estimates. However, it acknowledged that many gaps exist in knowledge of the social impacts of vertebrate pests and they were only discussed in qualitative terms in the report.⁸¹

1.95 Evidence received by the Committee indicated that the social impacts of invasive species are significant. However, it was widely acknowledged that there was difficulty in attributing an economic value to the social impacts for all areas that are affected by invasive species.

A cross section of impacts

1.96 It is recognised that many introduced species do not cause significant problems – it is worth recalling CSIRO's evidence cited above that only 1 in 1000 species imported into Australia end up being classified as invasive. For example, dogs and cats, tulips and roses, have arguably made a significant positive contribution to Australian social life. However, those that are invasive can have considerable social impact on the community.

1.97 Social impacts of invasive species are considerable and are not limited to rural areas. A cross section of impacts include:

- vehicle accidents involving pest animals;
- distress, fear and nuisance, eg. mice and pigeons;
- reduced rights of movement, for example in areas that are undergoing invasive species management activities;

79 Mr Mark Ramsey, *Committee Hansard*, Adelaide, 28 June 2004, p. 12.

80 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 7.

81 *ibid*, Executive Summary.

- loss of aesthetic values and amenity, such as with weeds, like *Hymenachne amplexicaulis*, that clog waterways; and
- impacts on lifestyle and health, such as the threat posed by red imported fire ants because of their aggressive nature, large numbers and tendency to sting a number of times.

1.98 Although the economic cost of the social impacts of invasive species is difficult to identify, the broad social impact of invasive species was widely acknowledged in submissions and other evidence the Committee received. The Bureau of Rural Sciences stated that:

Weed species, apart from impact on biodiversity, can also affect recreational use of areas. For example, many introduced plants can form dense infestations on or around coastline, such as bitou bush, and other water bodies limiting or preventing their use, such as willows (*Salix* spp.) which can make access along narrow rivers impossible. Many weeds grow densely and have prickles or spines such as lantana (*Lantana* spp.) and blackberry, and can limit or prevent access to areas.⁸²

1.1 Weeds can reduce the appeal of natural landscapes. This can be seen in wetlands in the Northern Territory which, which were initially havens for wildlife, but have now become overrun by monospecific stands of *Hymenachne amplexicaulis*.⁸³

1.99 Impacts of aquatic weeds include:

- blocking and polluting waterways;
- reducing employment opportunities;
- affecting drinking water; and
- reducing recreational enjoyment.

1.100 Dr Nicolas Bax, Senior Research Scientist, CSIRO Marine Research told the Committee about an outbreak of *caulerpa taxifolia* in West Lakes in Adelaide, South Australia and explained the impacts of the weed. He advised that *caulerpa taxifolia*:

is a green algae and it has caused a huge amount of trouble in the Mediterranean, where it spread to cover 10,000 hectares. It has now invaded southern California as well. It basically covers surfaces; it almost looks like an underwater golf course, I think, when it comes. It covers reefs, it covers seagrass and it is basically noxious to most species, so not many species eat it. It is seen as a major threat to nursery areas—for fish, for example—so the South Australian government went ahead and looked at various solutions to eradicate it from South Australia. It is spread by the aquarium industry, which is an interesting vector. Up until very recently it

82 Bureau of Rural Sciences, *Submission 62a*, p. 10.

83 *ibid*, p. 11.

was still available—you can still buy it on the Internet, for example—and up until very recently it was exported from Queensland.⁸⁴

1.101 The cost of the eradication campaign was significant.

in South Australia they spent \$6 million to \$8 million eradicating from West Lakes through pumping freshwater into those lakes. So it does appear that eradication is possible, especially in areas where the environment is semi-closed...⁸⁵

1.102 He went on to explain that:

One thing that may be of interest about caulerpa is that, whereas the national system and the cost sharing which has been set up by the states and the Commonwealth addresses introduced marine pests, because it cannot be demonstrated that caulerpa is introduced—and it appears that it comes from Queensland—it falls outside of the whole cost-sharing arrangement.⁸⁶

Learning from other countries

1.103 Australia is able to learn about the social impacts of invasive species that have yet to become established in Australia, from countries that have experienced an outbreak of the species. This is what occurred when the red imported fire ant was discovered in Brisbane in February 2001. Australia looked to the United States experience with the red imported fire ant, where it had been allowed to spread beyond the point of eradication, and was able to conclude that inaction was not an option. In the United States the social impacts of fire ants included significant impact on public health due to their aggressive behaviour, their tendency to sting repeatedly, their ability to cause anaphylaxis, and safety risks for small children, the elderly and pets that may not be able to 'escape' an attack. Other social impacts included the loss of ability to use yards as places of relaxation and loss of amenity of other land, such as sporting fields.⁸⁷ A case study on the red imported fire ant incursion is provided in Chapter 5.

1.104 The social impact of invasive species is often a flow-on effect from the economic impact, especially if agriculture and industry are involved. Mr Tim Allen, National Coordinator, Marine and Coastal Community Network demonstrated this point through the example of the comb jellyfish in the Black Sea. He advised that:

It now constitutes up to 95 per cent of the biological mass of the Black Sea. It led to the collapse of the Black Sea's fishery worth \$250 million a year,

84 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 32.

85 *ibid*, p. 31.

86 *ibid*, p. 32.

87 Queensland Government, *Submission 43*, p. 30.

causing massive social dislocation and the complete collapse of that fishery.⁸⁸

1.105 A correlation can be drawn between the comb jellyfish outbreak and the outbreak of the Northern Pacific Sea Star in Port Phillip Bay. The Northern Pacific Sea Star was first identified in Australia in Tasmanian waters in 1992. It is believed to have been present in Tasmanian waters, but misidentified, since approximately 1986. By 1995 it had spread to Port Phillip Bay and it has now extended beyond Port Phillip Bay to near Inverloch, 100 kilometres to the east. It is estimated that there are now 1200 tonnes of the Northern Pacific Sea Star in Port Phillip Bay compared to 2700 tonnes of fish. The Committee heard that the Northern Pacific Sea Star has the potential to spread east of Port Phillip Bay due to prevailing currents, however, it will only spread west with human assisted dispersal, for example through ballast water.⁸⁹

1.106 The Department of the Environment and Heritage noted that there is evidence that the Northern Pacific Sea Star is affecting oyster production on some marine farms in southeast Tasmania.⁹⁰ It poses a threat to mariculture through its direct predation on native species, its ability to out-compete native species for food and its potential to occupy and dominate suitable habitats from Sydney to Perth. If it continues to spread across Australian waters and increase in prevalence it has the potential to cause significant social dislocation, resulting in job losses and reduced income, to areas that rely on fishing and aquaculture as key economic sources.

Local impacts

1.107 The social impacts of invasive species are generally localised. Mr Robert Pietsch, President AgForce Sheep and Wool and President Wool Producers, told the Committee that wild dogs are responsible for the slaughter of many lambs and sheep and are one of the factors that have made it no longer viable for people to run sheep in some areas of Queensland. He also explained that cattle farmers have problems with losses from wild dogs, a key source of losses being *Neospora caninum*, a disease which causes bovine abortion. Mr Pietsch told the Committee about the interrelation of the social and economic impacts. He told the Committee that:

there is an enormous impact socially in places like old wool towns where, because there are no longer shearing teams and all the rest of it, the economic loss to those communities is enormous.⁹¹

88 Mr Tim Allen, *Committee Hansard*, Adelaide 28 June 2004, p. 39.

89 *ibid*, p. 40.

90 Department of Environment and Heritage, *Submission 61*, p. 3.

91 Mr Robert Pietsch, *Committee Hansard*, Canberra 18 June 2004, p. 51.

1.108 Invasive species were identified by Dr Tony Peacock, CEO, Pest Animal CRC as being one of the aspects that make farming unappealing for people.⁹² Dr Peacock showed the Committee footage of a mouse plague and advised that:

If you have had to shake them [mice] out of your children's beds at night and that sort of thing, it is another thing that makes farming unattractive for many people to participate in.⁹³

1.109 The Committee heard that invasive fish species, such as carp, impact on anglers' recreational enjoyment. In some parts of Australia, fishing has been banned as a result of carp presence:

Lake Crescent (Tasmania), for example, which had 1,559 full season anglers who exclusively fished this area, was closed until the current brown trout season. Aside from directly affecting the well being of these fishermen, possible decreased expenditure by these people would have affected support industries. Each freshwater angler is estimated to spend around \$535 on the sport (Henry and Lyle 2000).⁹⁴

1.110 Public amenity has been affected by invasive marine species. Impacts of invasive species have included:

- reducing the attractiveness of dive sites;
- causing beach closures;
- reducing the productivity of recreational fisheries; and
- increasing the maintenance requirements for recreational vessels.

1.111 Invasive species also have the potential to impact on the cultural identity of indigenous Australians. It has been recognised that:

The introduction of cane toads into traditional Aboriginal areas, such as Kakadu, may result in the decline of dingo, snake and crocodile numbers – threatening the nomadic hunter and gatherer lifestyle.⁹⁵

1.112 The Indigenous Land Corporation submitted that:

the impact of weed species on cultural activities can be significant and must be included in the risk assessment of invasive species and the development of a Threat Abatement Plan and any other management strategy.⁹⁶

92 Dr Tony Peacock, *Committee Hansard*, Canberra 18 June 2004, p. 14.

93 *ibid*, p. 14.

94 R McLeod, *Counting the Cost: Impact of Invasive Animals in Australia 2004*, Cooperative Research Centre for Pest Animal Control, Canberra, p. 32.

95 *ibid*, p. 47.

96 Indigenous Land Corporation, *Submission 38*, p. 9.

Impacts on health – human and animal

1.113 Invasive species can have significant impacts on human and animal health, which flows on to adversely affect social well being.

1.114 Invasive plants can have an impact on peoples' wellbeing. For example:

- the health of asthma and hay fever sufferers is linked to rye grass;
- it has been documented that *Parthenium* can cause severe respiratory problems and dermatitis, prolonged exposure can cause severe allergic reactions; and
- olives can be accountable for up to 40% of air-borne pollen at flowering time in areas where there is an invasive problem.⁹⁷

1.115 The continued spread of certain invasive plants is increasing the adverse impacts that they have on peoples' health. Many invasive species that have become established can:

- sting people (stinging nettles);
- give people rashes (*Rhus, green cestrum*); or
- irritate skin with caustic sap (petty scurge).

1.116 Other weeds present a barrier of spikes, needles, thorns and prickles that can cause injury. Thornapple and castor oil seeds, arum, lilly, blackberry and nightshade, are toxic.

1.117 Twenty-three common weed species are a serious respiratory or toxic risk, especially to young children. However, amongst the twenty-three that pose significant respiratory or toxic risk only *Parthenium* has received federal funding for control.⁹⁸

1.118 Landholders are well aware of weed species that harm stock and pet animals. Examples include:

- Paterson's curse;
- St John's wort; and
- silverleaf nightshade.⁹⁹

1.119 As with humans, the thistles, spines and burrs on weeds such as mimosa, mesquite and acacias can often cause injury to stock and pet animals. This can have flow on economic effects.

97 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra, p. 13.

98 *ibid.*

99 *ibid.*

1.120 Evidence indicated that some invasive species are potential reservoirs of diseases. Dr Kevin Doyle, Veterinary Director, Australian Veterinary Association, advised that feral pigs carry a number of diseases which are endemic in Australia; including a number of insect-borne viral diseases that cause encephalitis.¹⁰⁰ The role of feral pigs as carriers of disease has a public health dimension as some diseases of concern, such as Japanese encephalitis, are zoonoses.¹⁰¹

1.121 One of the most significant impacts of pest animals is that they can spread disease to humans, livestock and native animals. Examples include:

- Rabbits which host tapeworm and liver fluke and can also increase the prevalence of hytoids, paovirus, toxo plasmosis, distemper, brucellosis, coccidian and leptospirosis.¹⁰²
- Feral pigs which can transmit leptospirosis, brucellosis, tuberculosis and other diseases. They are also reservoirs for exotic diseases such as foot and mouth disease and Japanese encephalitis.¹⁰³
- Wild dogs have the potential to be vectors for rabies if it enters Australia.¹⁰⁴
- Feral cats are vectors for toxoplasmosis and sarcosporidiosis, which can be transmitted to native animals, humans and domestic livestock. They also have the potential to be carriers of rabies.¹⁰⁵
- Cane toads are poisonous to pets, especially to dogs which attempt to eat them.

The social benefits of invasive species

1.122 The impacts of invasive species are not all negative. Camels, rabbits, foxes, carp and goats are a significant factor in the management costs for invasive species but also provide employment opportunities in rural and regional Australia.

- Export of feral camels to the Middle East is worth more than \$2 million per annum;¹⁰⁶
- Export of fox pelts was estimated as being worth about \$8 million per annum in 1984.¹⁰⁷ More recent estimates are not available, although demand has reduced.

100 Dr Kevin Doyle, *Committee Hansard*, Canberra 18 June 2004, p. 46.

101 Zoonoses are diseased that affect animals and humans.

102 *ibid*, p. 17.

103 *ibid*, p. 28.

104 *ibid*, Canberra, p. 41.

105 *ibid*, p. 53.

106 P Seidel, *Camel Catchers*, *The Bulletin*, 17 August 2004, p. 28.

- Commercial harvesting of carp was worth a gross total value of \$1.7 million in 2002.¹⁰⁸
- Export of feral goats was worth a gross value of \$29 million in 1993.

1.123 While noting the positive contribution of pest animals to rural and regional Australia, the beneficial outcomes need to be discounted by the potential impact on biodiversity. The Pest Animal CRC's report noted that in most cases the benefits are relatively minor in comparison to the cost of pest impacts.¹⁰⁹

1.124 In light of the disparity between the contribution and the cost of pest animals the Committee notes that compensation may be payable to people whose livelihoods are affected by the release of control methods.

1.125 A case that highlights this is the recent ruling that requires the Commonwealth Government and CSIRO to pay \$1.5 million in compensation to a small group of shooters and wholesalers who made their livelihoods from the wild rabbit industry. The grounds for the suit were that the Government and CSIRO were negligent in failing to prevent the release of the calicivirus from a testing station on an island in the Spencer Gulf of South Australia in 1995.¹¹⁰

Challenges in addressing social impacts

1.126 The extent to which invasive species are able to be effectively managed is dependent upon whether key stakeholders have been engaged and acknowledge problems and support programs to address them. It is essential that landowners be engaged as they bear the majority of costs associated with invasive species and their support is required if management activities seek to incorporate their land and neighbouring land.

1.127 Management of invasive species can be hindered by negative attitudes amongst some members of the community to some management activities. In relation to invasive plants, there may be objections to what are seen to be beautiful plants, such as duranta or willow trees. In relation to pest animals, objections are primarily focused on the method of reducing the pest animal population or objections to the killing of animals on humane grounds. This issue is very complex and has been acknowledged by researchers and authorities responsible for the management of invasive species. The Committee was told that, on South Australia's Kangaroo Island, the koala population is in danger of starving to death, simply

107 *ibid*, p. 23.

108 *ibid*, p. 32.

109 *ibid*, p. 7.

110 Julie-Anne Davies, *The rabbit-proof defence*, *The Bulletin*, 24 August 2004, p. 31.

because there is no palatable public policy to deal with the overpopulation problem.¹¹¹

1.128 A backlash against proposed ariel baiting in the Kosciuszko National Park to control wild dogs highlights this issue. The Humane Society International advised that:

Under no circumstances does HIS support the use of 1080 baiting as a method of pest control. It is inhumane and indiscriminate in the species it kills.¹¹²

1.129 Four animals over which the management of the pest populations have been the recipient of heated debate are kangaroos, koalas, dingoes and wild horses. Reasons for objections to reducing their numbers include:

- an iconic status being attached to them;
- the animals being internationally recognised symbols of Australia and the attraction of international media attention on attempts to cull populations; and
- the animals being a source of eco tourism, such as wild horses on the NSW highlands, dingoes on Fraser Island and koalas on Kangaroo Island.

1.130 Dr Peacock told the Committee that invasive species are not the first issue for farmers. He said that:

The fact that it [invasive species management] is a second- or third-order level of magnitude means that it is an issue that goes between the cracks a little bit.¹¹³

1.131 If landowners do not see invasive species as a problem that warrants attention then the issue will not be effectively managed. To highlight this point, Dr Peacock told the Committee that:

the horticulture industry does virtually no vertebrate pest work and does not recognise it as an issue, but if you talk to a grape grower who is grape netting about what they are doing every night to keep vertebrate pests off their crops, it has a huge impact.¹¹⁴

1.132 Educating stakeholders about the issue is key to obtaining support for management programs. Mr Edward McAlister highlighted the role of education when he told the Committee about a project to return yellow-footed rock wallabies. He told the Committee that:

111 Mr Edward McAlister, *Committee Hansard*, Adelaide, 28 June 2004, p. 66.

112 Canberra Times, *Kosciuszko baiting could wipe out quolls: world body*, 27 August 2004, p. 7.

113 Dr Tony Peacock, *Committee Hansard*, Canberra, 18 June 2004, p. 18.

114 *ibid*, p. 18.

when we went up there first, the local people were a bit scathing about the idea of putting the wallabies back in the wild—more than scathing; they were a bit rude about the idea. However, once we got going, one of our young female vets went to the school and spoke to the children and the children became very enthusiastic. At Christmas time that year, they had the Wallaby Hop. The children all dressed up in wallaby outfits with tails and they did the Wallaby Hop. They went home to their parents and the parents were sucked in to getting involved. The pastoralists who did not want to do any baiting ended up being almost forced by moral pressure from the children. It started off with a 10-kilometre wide radius around the outside of the sanctuary. The result was that lambing percentages increased, so all of a sudden it has now been increased to a 30-kilometre wide radius. Once you can get the children on board, you can work through the children to get to the parents.¹¹⁵

1.133 The flow on from this was that:

The other thing that happened is that when they got enthusiastic they formed a biodiversity group up there in the Flinders Ranges. They got money from the NHT to eradicate weeds and to keep on eradicating foxes and rabbits, particularly, as well as dogs and cats.¹¹⁶

1.134 Another program that demonstrates the benefits of education campaigns is Weed Buster Week. This is a national education and awareness campaign that started in Queensland. A review of Weed Buster Week in 2003:

showed that for every dollar invested in education initiatives pertaining to weed control there is \$43.80 worth of benefits generated by weed control activities throughout the state.¹¹⁷

The value of engaging the community in management projects is discussed in Chapter 8.

115 Mr Ed McAlister, *Committee Hansard*, Adelaide, 28 June 2004, p. 64.

116 *ibid.*

117 Queensland Government, *Submission 43*, p. 15.

Chapter 2

Regulatory and legislative framework

Introduction

2.1 Under the Australian Constitution, specific and clear responsibility for the legislative and administrative framework within which natural resources are managed lies with the State and Territory governments. The Commonwealth's involvement in environmental matters focuses on matters of national environmental significance.¹

2.2 The key Commonwealth environmental legislation is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). One of the objectives of the EPBC Act is to promote a co-operative approach to the protection and management of the environment that involves governments, the community, landholders and indigenous peoples.²

2.3 This shared responsibility between the Commonwealth and the States is referred to as cooperative federalism and is reflected in the *Intergovernmental Agreement on the Environment* which was signed by the Commonwealth and all States and Territories in 1992. The purpose of the agreement was to achieve sound environmental management through a system of parallel and complementary legislation.³

2.4 Within the framework of cooperative federalism the Commonwealth has been involved in the coordination of national approaches to environmental issues and the States and Territories have been involved in assisting in such strategies. The aims of the cooperative approach include:

- reducing the number of disputes between the Commonwealth and States and Territories over environmental issues;
- providing a better framework for Government and business decision making; and
- providing a better framework for environmental protection.

2.5 Consultation between the Commonwealth, States and Territories has been formalised through ministerial councils, standing committees and a range of consultative committees that also include key industry and scientific representatives.

1 Department of Environment and Heritage, *Submission 61*, p. 7.

2 Department of Environment and Heritage, *An Overview of the Environment Protection and Biodiversity Conservation Act*, 1999, p. 2.

3 ECITA Reference Committee Report, *Regulating the Ranger Jabiluka, Beverley and Honeymoon uranium mines*, October 2003, p 1.

2.6 As will be apparent in the discussion below, the management of invasive species in Australia is multi-jurisdictional. With regards to the shared responsibility for environmental matters it has been noted that

It is in the interests of both the state and federal governments, therefore, to try to work out cooperative arrangements to environmental regulation wherever possible.⁴

2.7 This chapter provides an overview of the regulatory structure of the three tiers of government: Commonwealth, State and local, before describing the impact of the international regulatory environment. It first examines the Commonwealth's role, then describes that of the States, Territories and local government, before examining evidence in relation to the adequacy of intergovernmental cooperative arrangements. It concludes with a discussion of the international context, which places important limits on Australia's regulatory sovereignty.

Constitutional limitations and intergovernmental arrangements

2.8 The Commonwealth or Australian Government derives its authority from the Australian Constitution. The Commonwealth has no explicit authority to enact environmental laws as the Constitution is silent in this respect. As Ms Renea Leverenz submitted:

In 1897, an environmental pioneer named John Clark petitioned the Constitutional Convention to draft in the Constitution a clause protecting native animals, flora and trees. Despite this and other petitions, Government power to regulate activities relating to environmental protection was left almost entirely absent from the Constitution.

A Senate Committee recently highlighted three clear reasons why environmental protection was not made part of the Constitution:

1. There was little environmental consciousness regarding preservation of the environment at that time.
2. The framers of the Constitution, like the rest of society at that time, would have viewed the natural environment as something to be tamed and exploited – not something requiring protection.
3. If the framers had thought the environment deserved legislative attention, it would likely have been seen as a matter for the States.⁵

2.9 However, there are particular powers that may be able to be used in reference to the environment within the Constitution. The heads of power that may be able to be used to promote environmental law include:

- the trade and commerce power;⁶

4 G Bates, *Environmental Law in Australia*, 5th edition, 2000, p. 73.

5 Ms Renea Leverenz, *Submission 27a*, pp. 20-21.

6 The Australian Constitution, section 51(i).

- the taxation power;⁷
- the quarantine power;⁸
- the corporations power;⁹
- the external affairs power;¹⁰
- the power over Commonwealth instrumentalities and the public service;¹¹
- the power over customs, excise and bounties;¹² and
- the financial assistance power;¹³ and the territories power.¹⁴

2.10 An important aspect of the Constitution is that if there is inconsistency between Commonwealth law and the law of a State or Territory, the Commonwealth law prevails.¹⁵ Therefore, should it choose to do so, the Commonwealth has the ability to over-ride state laws in areas of constitutional competence.

Commonwealth legislative framework

2.11 The Commonwealth's involvement in environmental protection has been to institute legislation with respect to matters of national environmental significance and fulfilling Australia's international obligations.

2.12 The Commonwealth Government is involved in the development and implementation of national measures and programs to control invasive species. The two main Government departments with responsibility for environmental protection are the Department of Environment and Heritage (DEH) and the Department of Agriculture, Fisheries and Forestry (DAFF).

2.13 DEH has responsibility for managing invasive species which pose a threat mainly to environmental values. Its efforts are focussed on the control and management of established invasive species. Its key legislation is the EPBC Act.

7 *ibid*, Section 51(ii).

8 *ibid*, Section 51(ix).

9 *ibid*, Section 51(xx).

10 *ibid*, Section 51(xxix).

11 *ibid*, Section 52.

12 *ibid*, Section 90.

13 *ibid*, Section 96.

14 *ibid*, Section 122.

15 *ibid*, Section 109.

2.14 DAFF's responsibility is to manage invasive species which pose a threat mainly to production values.¹⁶ Its key legislation is the Quarantine Act 1908 (the Quarantine Act).

2.15 Most of DAFF's efforts and responsibilities are aimed at protection and response to newly identified invasive species, as distinct from established invasives. In its submission DAFF advised that:

Under current Administrative Arrangement Orders, DAFF has three major areas of responsibility; agricultural, pastoral, fishing, food and forest industries; water, soils and other natural resources; and quarantine.¹⁷

2.16 DAFF's responsibilities include managing the development and implementation of:

- international agreements and undertakings;
- pre-border and border monitoring, detection and control arrangements; and
- national policies and programs to manage early pest incursions.¹⁸

2.17 DEH and DAFF work cooperatively. An example of this cooperation is demonstrated through the fact that the EPBC Act and the Quarantine Act require that live specimens be assessed for their potential impacts prior to import. DEH submitted that:

The Departments of the Environment and Heritage and Agriculture, Fisheries and Forestry have worked closely to develop an integrated process for the assessment of specimens. This reduces duplication and streamlines the assessment processes, both for the Australian Government and for the applicant (or potential importer). The agreement of both Departments is required before a live specimen can be imported.¹⁹

2.18 DEH and DAFF jointly administer the Natural Heritage Trust (NHT) which has the aim of ensuring that the continued sustainable management of Australia's environment is achieved through cooperative input by the whole community to mitigate existing problems and improve land use.²⁰ The NHT is administered by the Natural Heritage Ministerial Board, which comprises the Minister for the Environment and Heritage and the Minister for Agriculture, Fisheries and Forestry. There are also a number of committees and organisations that oversee and support the Natural Heritage Trust.

16 Department of Environment and Heritage, *Submission 61*, p. 4.

17 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 3.

18 *ibid*, p. 3.

19 Department of Environment and Heritage, *Submission 61*, p. 7.

20 Natural Heritage Trust, *Annual Report 2001-2002*, p. 2.

2.19 The three key legislative instruments relating to invasive species are:

- *Environment Protection and Biodiversity Conservation Act 1999*;
- *Quarantine Act 1908*; and
- *Natural Heritage Trust of Australia Act 1997*.

These are described in turn below.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

2.20 The EPBC Act is the principal piece of Commonwealth legislation in relation to environmental protection and biodiversity conservation. It came into effect on 16 July 2000 and, upon its commencement, it replaced a number of Commonwealth statutes which had dealt with aspects of environmental protection and biodiversity conservation but in a less holistic and integrated manner.

2.21 The key purpose of the EPBC Act was to clarify the matter of Commonwealth environmental jurisdiction. The EPBC Act focuses on 'matters of national environmental significance' and seeks to promote the conservation of biodiversity by providing protection for:

- listed species and communities in Commonwealth areas (this includes listed threatened species and ecological communities, listed migratory species and listed marine species);
- cetaceans (all whales, dolphins and porpoises) in Commonwealth waters and outside Australian waters;
- protected species in the Territories of Christmas Island, Cocos (Keeling) Islands and Coral Sea Islands; and
- protected areas (World Heritage properties; Ramsar wetlands; Biosphere reserves; Commonwealth reserves; and conservation zones; and
- wildlife species and wildlife products subject to international trade.²¹

2.22 The EPBC Act provides for:

- the identification of key threatening processes;
- the protection of critical habitat;
- the preparation of recovery plans; threat abatement plans; wildlife conservation plans; bioregional plans; and conservation agreements;
- the issuing of conservation orders; and
- the regulation of exports and imports of live animals and plants, wildlife specimens, and products made or derived from wildlife.²²

21 Department of Environment and Heritage website, www.deh.gov.au/epbc/about/index.html, accessed 31 August 2004.

2.23 The EPBC Act provides a framework for the management of invasive species by providing for the listing of key threatening processes and the creation of national threat abatement plans (TAPs). Under the EPBC Act there is the provision for threat abatement plans to be made jointly with the States and Territories or with agencies of those States and Territories.²³ Plans are developed in consultation with stakeholders and draft plans are circulated for public consultation for a three month period.²⁴ Key threatening processes and TAPs are discussed in Chapter 5.

2.24 Section 301A of the EPBC Act also provides for the development of regulations for the control of non-native species.²⁵ Under the EPBC Act regulations may provide for the establishment and maintenance of a list of species, other than native species, whose members threaten or would likely threaten biodiversity. Regulations may also regulate or prohibit trade in members of a species between Australia and other countries, between States and Territories, and by constitutional corporations.²⁶ As will be discussed in Chapter 5, evidence presented to the Committee indicated that the Commonwealth has lacked the political will to implement this section of the Act.

2.25 The EPBC Act also establishes a process for the assessment of proposed actions by either private persons, corporations or government and its agencies, that have, will have or are likely to have a significant impact on matters of national environmental significance. These matters are set out in Part 3 of the EPBC Act and include:

- World heritage properties;
- Wetlands of national importance (i.e. declared Ramsar wetlands);
- Listed threatened species and communities;
- Listed migratory species;
- Nuclear actions;
- Commonwealth marine areas; and
- any further matter prescribed by regulation.

2.26 The Department of the Environment and Heritage submitted:

The EPBC Act established a list of specimens suitable for live import (the live import list) and prohibits the import of any species not on this list. The legislation provides for the possibility of a live import being permitted under exceptional circumstances where the Minister is satisfied there is no

22 *ibid.*

23 *Environment Protection and Biodiversity Conservation Act 1999*, s270B(3).

24 Department of Environment and Heritage, *Submission 61*, p. 8.

25 *Environment Protection and Biodiversity Conservation Act 1999*, s301A.

26 *ibid.*

risk to the environment. The live import list is divided into two parts – Part 1 is a list of specimens that may be imported without a permit and Part 2 is a list of specimens that may only be imported with a permit, often with conditions attached. It is an offence to import a specimen that does not appear on the list, or a specimen on Part 2 without a permit.

An applicant wishing to add a species to this live import list must prepare an assessment report examining the potential impacts on the environment of the proposed import. The draft terms of reference for the report and the draft report are published on the Department's website for public comment, an email to registered stakeholders is sent out inviting comment on both documents, and a letter is sent to the appropriate State, Territory and Australian government Ministers requesting comment on the draft report. A species will be added to the live import list only when the Minister is satisfied that it will not impact on the Australian environment....

Currently there are 62 applications which are being progressed by the applicant (eg development of the assessment report, collating further information relating to their application etc), 36 applications are being progressed by the Department, 11 have been completed, 2 withdrawn and 1 internal amendment to the list relating to the listing of plants has also been completed.²⁷

Quarantine Act 1908

2.27 Under the Quarantine Act the Commonwealth Government has responsibility in relation to pre-border and border monitoring, detection and control arrangements in respect of humans, animals and plants. Measures in the Quarantine Act are implemented by the Australian Quarantine and Inspection Service (AQIS), an operating group within DAFF. AQIS provides quarantine inspection for the arrival of international passengers, cargo, mail, animals, and plants or their products into Australia, and inspection and certification for a range of animal and plant products exported from Australia.

2.28 Border protection is also supported by the Northern Australian Quarantine Strategy (NAQS) which was established 14 years ago. It is also managed by AQIS. The aim of NAQS is to protect Australia from exotic pests, weeds and diseases that could enter Australia from countries to the north. NAQS is discussed in detail in Chapter 6.

2.29 DAFF's involvement in pre-border and border protection is designed to fulfil the Commonwealth's constitutional responsibilities in relation to quarantine matters as well as the provisions of the Quarantine Act. The three key elements to DAFF's border protection regime are:

27 Department of Environment and Heritage, *Submission 61*, pp. 7-8.

- assessing risks and identifying the policies and measures necessary to address those risks (through the Import Risk Analysis and Weed Risk Assessment processes) managed by Biosecurity Australia;
- implementing those measures at the border (Border Protection) managed by the Australian Quarantine and Inspection Service (AQIS); and
- developing surveillance systems and complementary measures in neighbouring countries (Northern Australia Quarantine Strategy), together with off-shore and overseas inspections, managed by AQIS.²⁸

2.30 In its submission DAFF advised that:

The objective of Australian Government biosecurity policies is to prevent or control the entry, establishment or spread of pests and diseases that will or could cause significant damage to human beings, animals, plants, other aspects of the environment, or economic activities. For animal and plant biosecurity, import risk analysis identifies the pests and diseases relevant to an import proposal, assesses the risks posed by them and, if those risks are unacceptable, specifies what measures should be taken to reduce those risks to an acceptable level.²⁹

Natural Heritage Trust of Australia Act 1997 (NHT Act)

2.31 The NHT Act established the Natural Heritage Trust of Australia Reserve, which is dedicated to repairing and replenishing Australia's natural capital infrastructure'.³⁰ The Act allows the Trust to earn interest and allows for consolidated revenue funds to be paid into the Trust Reserve. Funds from the Reserve are then allocated to projects and programs aimed at providing solutions to environmental issues.³¹ The Natural Heritage Trust aims to move the management of natural resources to a more integrated and cohesive approach that:

requires cooperative input by the whole community to mitigate existing problems and improve our land use now and for future generations.³²

2.32 The Trust is jointly administered by DEH and DAFF. It was established to operate for five years from 1996-97 to 2001-02. The main source of the funds in the Reserve was derived from the first partial privatisation of Telstra. Its operation was extended for a further five years from July 2002. Under the Act funding is provided for programs and projects for natural resource management. The Commonwealth aims to use funding from the Trust as a catalyst, to attract additional and ongoing

28 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 3.

29 *ibid.*, p. 4.

30 Natural Heritage Trust, *Annual Report 2001-02*, p. 3.

31 *ibid.*

32 *ibid.*

investment for environmental and resource management projects and to instigate institutional change which provides the framework for ongoing sustainable use.³³

2.33 Partnership agreements exist between the Commonwealth and each State and Territory government. Under section 19 of the NHT Act the partnership agreements establish the terms and conditions under which financial assistance is provided from the Trust. It also establishes a framework for cooperation in environmental protection, natural resource management and sustainable agriculture.

The partnership agreements also aim to ensure that state policies and regulatory arrangements for environmental protection and sustainable development are consistent with national objectives and priorities.³⁴

2.34 There has been a fundamental shift in the NHT since its extension. It has moved towards a more targeted approach to environmental and natural resource management in Australia, with the second phase of the NHT seeking to deliver:

Important resource condition outcomes including improved water quality, less erosion, improved estuarine health, improved vegetation management and improved soil condition.³⁵

2.35 Institutional arrangements for application of the NHT are discussed in Chapter 3.

State and Territory legislation

2.36 The States and Territories have principal responsibility for environmental management. Subject to the constitutional constraints discussed earlier, the States and Territories are free to pass laws on all aspects of environmental protection and a substantial body of environmental legislation has been developed.

2.37 The States and Territories developed their legislation independently and a consequence of this is that different administrative arrangements and responsibilities have been developed in different states and territories. With regard to weed management legislation, WWF Australia submitted that:

Victorian, Tasmanian, Western Australian and the Northern Territory Acts give primary responsibilities to government agencies, whereas the focus for administrative authority in New South Wales, Queensland and South Australia, is on local government agencies³⁶

2.38 Recent legislation, such as the Queensland Government's *Land Protection (Pest and Stock Route Management) Act 2002* specifies principles for pest

33 Natural Heritage Trust, *Annual Report 2001-02*, p. 12.

34 *ibid.*

35 Natural Heritage Trust website, www.nht.gov.au/about-nht.html, accessed 30 August 2004.

36 WWF Australia, *Submission 30*, p. 37.

management, including integration, public awareness, best practice and prevention. Such a holistic approach is absent from older statutes which are focussed on protecting primary industry.

2.39 The ACT *Land (Planning and Environment) Act 1991* was noted as being:

... general planning legislation, with no specific weed management focus. For example, the Act includes no weed control categories, control areas are unspecified, and the sale and distribution of declared weeds and contaminated material is not prohibited. It may be due to this lack of strategic focus and detail that the ACT has the poorest record on preventative action.³⁷

2.40 Administrative arrangements differ between the States and Territories in relation to the declaration of pest weed and animal species. Most states share common principles in relation to legislation such as declaration mechanisms, for example provisions that allow plants to be proclaimed as 'noxious weeds', 'declared weeds' or 'pest plants'. WWF Australia submitted that:

Cumulatively, this has resulted in over 330 species of declared weeds throughout Australia. Despite this commonality, the resulting regimes differ in a number of ways. The current array of regulatory regimes are further complicated by the fact that in any one State there can be numerous Acts relevant to weeds management.³⁸

2.41 In relation to the declaration of pest animals the ACT Government noted that:

No animals have been declared as pest species in the ACT and the regulatory effectiveness in regard to enforcing compliance of controlling a declared pest species is considered to be inadequate. A review of the pest provisions of the [*Land (Planning and Environment) Act 1991*] Act has been programmed.³⁹

2.42 State and Territory legislation in relation to noxious weeds and pest animals is fragmented and the regulatory framework for invasive species varies. More contemporary legislation has the benefit of being better integrated with policy development, however, the benefit of this is hindered by the lack of uniformity between states and territories. Concern has also been expressed that there is an absence of reference to environmental protection or application of the precautionary principle in the objects of the Acts.⁴⁰

2.43 As with national legislation, the State and Territory legislation that relates to invasive species is reactive and restricted in its scope. There is lack of early

37 WWF Australia, *Submission 30*, p. 38.

38 *ibid.*

39 ACT Government, *Submission 44*, p. 9.

40 WWF Australia, *Submission 30*, p. 39.

intervention measures. The Committee received considerable evidence supporting the need to have measures in place to enable an early response because:

By the time many infestations are noticed, or by the time a plant is regarded as causing a problem, eradication is usually not feasible.⁴¹

Response options are discussed in Chapter 4.

2.44 The main intervention methods are laid out in emergency response cost sharing arrangements, which are based in cooperative agreements rather than legislation. Discussion on these measures is provided in Chapter 5.

2.45 Some of the key State and Territory legislation is detailed below.

New South Wales

2.46 **Rural Lands Protection Act 1998 and the Rural Lands Protection Amendment Act 2003** – The Act sets out the provisions under which animals, birds and insects can become declared pests. It provides the processes and mechanisms for the control of declared pest species. The Rural Lands Protection Boards are responsible for regulatory aspects of the control of declared pests. The RLP Act imposes legal obligations on owners and occupiers of land to eradicate pest animals declared under the Act. Public land managers are also required to eradicate pest animals. The RLP Boards also assist land holders in relation to vertebrate pests subject to voluntary control.

2.47 **National Parks and Wildlife Act 1974** – Provides the legislative basis for the control of vertebrate pests in NSW.

2.48 **Threatened Species Conservation Act 1995** – The Act lists key threatening processes. European red foxes, feral cats and the invasion of native plant communities by exotic perennial grasses are currently listed as threatening processes.⁴² The development and implementation of threat abatement plans to manage key threatening processes with a view to their abatement, amelioration or extension are prescribed in the Act.

2.49 **Noxious Weeds Act 1993** – The Act provides the legislative basis for the control of weeds in NSW. All weed species listed are classified as Weeds of National Significance under the national weeds program. State and local government funds are applied to control measures at a local level. National Heritage Trust grants have been used on a small number of individual projects.

41 Department of Conservation and Land Management, *Submission 67*, p. 5.

42 *Threatened Species Conservation Act 1995, Schedule ...3*

Victoria

2.50 Catchment and Land Protection Act 1994, Catchment and Land Protection Regulations 2002:

This Act sets up a framework for the integrated management and protection of catchments, establishes processes to encourage and support community participation in the management of land and water resources, and provides for a system of controls on noxious weeds and pest animals. The Act also establishes the Victorian Catchment and Land Protection Council, Regional Catchment and Land Protection Boards and the Pest Animal Advisory Committee.⁴³

2.51 The objective of the Act is to establish a framework for the integrated and co-ordinated management of catchments, to establish processes for the assessment of the State's land and water resources and the effectiveness of land protection measures, to establish processes to encourage and support land holders, resource managers and other members of the community in catchment management and land protection and to provide for the control of noxious weeds and pest animals.⁴⁴ Responsibility for the prevention and management of noxious weeds and pest animals rests with land owners. Part 8 of the Act prescribes the measures under which noxious plants and pest animals may be declared and outlines measures for the control of noxious weeds and pest animals. Section 59(2) of the Act states that the Secretary cannot recommend for declaration under Part 8 fish or invertebrate animals. The sale, distribution and interstate movement of declared weeds is prohibited under Section 71. Under Section 63 the Minister may declare a restricted weed if it is a serious threat in another State or Territory, and has the potential to spread within Victoria, and if sold or traded in Victoria would pose an unacceptable risk. Limitations and penalties for the importation, trading, keeping and releasing of pest animals is prescribed in Section 75. The objective of the Regulations is to prescribe the purposes for which an established pest animal may be kept without a permit and the conditions under which an established pest animal may be kept.

2.52 **Flora and Fauna Guarantee Act 1988** - The *Flora and Fauna Guarantee Act 1988* is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes. Predation by red foxes, feral cats (*felis catus*) and the invasion of native vegetation by environmental weeds are listed as threatening processes in Schedule 3.

43 Victorian Government, Department of Sustainability and Environment, website at: www.dse.vic.gov.au/web%2Froot%2Fdomino%2Fcm_da%2Fnrence.nsf/frameset/NRE+Conservation+and+Environment?OpenDocument.

44 Victorian Government, *Catchment and Land Protection Act 1994, Section 4*.

Queensland

2.53 Land Protection (Pest and Stock Route Management) Act 2001 and the Land Protection (Pests and Stock Route Management) Regulations 2003 – Under the Act all Weeds of National Significance are prevented from sale in Queensland and from transportation from interstate into Queensland.⁴⁵ The Queensland Weeds Strategy 2002-2006 and the Queensland Pest Animal Strategy 2002-2006 are enshrined in the Act and they create an agreed framework to improve invasive species and native pest management in Queensland. The strategies are subject to 5-yearly review.⁴⁶ Land managers have responsibility for managing invasives on their land. Under the Act all local governments must develop a Local Government Area Pest Management Plan (LAGPMP). This is to be done in consultation with state government agencies and other stakeholders by 1 July 2004. The LAGPMP covers all land within the boundaries of the local government area, including land owned or controlled by individuals, industry or the state.

2.54 Fisheries Act 1994 – Provisions in the Act cover the possession and release of noxious and non-indigenous fisheries resources. It also provides for the protection and conservation of fish habitats and the declaration of management plans to regulate taking, possessing or selling regulated fish.

2.55 As discussed later Queensland has almost uniquely delegated pest management to local government which, in part, explains why its key state statute is of an economic nature rather than environmental.

Western Australia

2.56 **Agricultural and Related Resources Protection Act 1976** - This law is intended to be augmented by the proposed Biodiversity Conservation Bill. The objective of the Act is to protect primary industry and resources related to primary industry.⁴⁷ Under Section 35 and 36 of the Act plants and animals may be declared and assigned to different categories. Section 37 of the Act allows that once a year the State publishes a list in the Gazette setting out every class of plants and animals that is subject to a declaration under Section 35. Under the Act state government, local government and private land owners are responsible for the control of declared plants and animals on and in relation to their land.⁴⁸

South Australia

2.57 **Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986**. The Act provides for the control of animals and plants for the protection of

45 Queensland Government, *Submission 43*, p. 6.

46 *ibid*, p. 6.

47 Western Australia, *Agricultural and Related Resources Protection Act*, Section 3.

48 *ibid*, Section 39, 42, 49.

agriculture and the environment, for the safety of the public and for other purposes. The Animal and Plant Control Commission (APCC) is responsible for administering and implementing the *Animal and Plant Control Act 1986* by funding research into pest problems, the development of State-wide and local policies and providing technical advice and enforcement activities. Local control and policy development is provided through Animal and Plant Control Boards. The Boards are based on Council boundaries and comprise one or more Council areas. Boards are responsible for ensuring that the provisions of the Act are carried out and enforced within their locality by monitoring and inspecting to determine the distribution and abundance of proclaimed animals and plants. Landowners are responsible to control proclaimed animals and plants on their own land. Boards have the power to ensure that non-compliant landowners undertake pest control.⁴⁹

Tasmania

2.58 Inland Fisheries Act 1995 – Conditions for the entry into Tasmania of any fish species capable of living or breeding in Tasmanian waters is prescribed in the Act. This includes imports for fish bait, aquarium pets and aquaculture. As some fish species have the potential to seriously damage the environment and displace native species, they have been declared controlled fish under the Act. Under the Act it is illegal to import, release, transfer or have possession of yabbies or carp in Tasmania. Furthermore, provisions under the Act allow the Inland Fisheries Service (IFS) to regulate all freshwater fish, crustaceans, amphibian, mollusc, invertebrate and aquatic plant imports. All imports, whether for recreational, hobby or commercial purposes, must have the written authority of the IFS.

2.59 Weed Management Act 1999 – The purpose of the Act is to minimise the effect of weeds on Tasmania's sustainability of productive capacity, natural ecosystem and biodiversity, to promote a strategic and purposeful approach to weed management, to encourage community involvement in weed management and to promote shared responsibility for weed management.⁵⁰ The Weed Management Act provides for the development of a management plan for a specific weed prior to its proclamation as a noxious weed. This is essential if the proclamation of a weed is to result in its long term management.⁵¹ A person must not sell or otherwise distribute any declared weed or anything carrying a declared weed if prohibited to do so by a weed management plan. A person must not import or allow to be imported into the State any declared weed if prohibited to do so by a weed management plan. Under Section 13 notices can be served on land owners requiring them to take measures in regards to specified declared weeds.

49 South Australian Government website at:
www.environment.sa.gov.au/reporting/biodiversity/introduced.html.

50 South Australian, *Weed Management Act 1999*, Section 5(a)(i-iv).

51 Tasmanian Department of Primary Industry, Water and Environment, www.dpiwe.tas.gov.au, *The Weed Management Act 1999*.

2.60 **Threatened Species Protection Act 1995** – Under the Act threat abatement plans may be developed in respect of any process which is a threatening process. Plans may be made for flora and fauna and are developed in consultation with the public.⁵² The plans must be reviewed within a period of 5 years after being made.⁵³

Australian Capital Territory

2.61 **Land (Planning and Environment) Act 1991** – The Act prescribes management objectives for areas designated as public land and requires the development of associated management plans. Authority for the administration of leased rural land is also provided. Under the Act an animal, including a native animal, may be declared as a pest species. However:

No animals have been declared as pest species in the ACT and the regulatory effectiveness in regard to enforcing compliance of controlling a declared pest species is considered to be inadequate. A review of the pest provisions of the Act has been programmed.⁵⁴

2.62 The Act is general planning legislation and it does not have specific weed management focus. The Act does not include weed control categories, control areas are unspecified, and the sale and distribution of declared weeds and contaminated material is not prohibited.⁵⁵

2.63 **Nature Conservation Act 1980** – This Act protects native plants and animals and controls the handling of vertebrate animals. A licence is required to import, keep or sell an animal other than an animal prescribed as exempt. A licence is also required to release an animal from captivity or to import, export, sell or release live fish. The Conservator of Flora and Fauna is required to prepare an Action Plan in response to each declaration of a threatened species or ecological community. The objective is the long term maintenance of viable, wild populations of each species or samples of the ecological community as components of the biological resources of the ACT. If the impact of pest plants and animals is considered to be a threatening process their control is identified as a key management strategy in Action Plans.⁵⁶

2.64 **Fisheries Act 2000** – The Act protects fish species of conservation concern and established authority for fisheries management. It provides for the declaration of noxious fish species. No species has been declared noxious but potential species for inclusion are currently being reviewed.⁵⁷

52 Tasmanian, *Threatened Species Protection Act 1995*, Section 27.

53 *ibid*, Section 28.

54 ACT Government, *Submission 44*, p. 9.

55 World Wildlife Foundation, *Submission 30*, p. 38.

56 ACT Government, *Submission 44*, p. 9.

57 *ibid*.

2.65 **Animal Welfare Act 1992** – The Act controls activities that impose suffering on animals, including the use of poisons and traps. The Animal Welfare Advisory Committee is established by the Act to provide advice and participate in the development of codes of practice. The codes of practice are of direct relevance to vertebrate pest management as they relate to the destruction of kangaroos and the control of foxes.⁵⁸

Northern Territory

2.66 **Weeds Management Act 2001** – Provides for the prevention of the spread of weeds in, into and out of the Territory and establishes the management of weeds as an integral component of land management. The Act provides for community involvement in the creation of weed plans and ensures that there is community responsibility in implementing weed management plans.⁵⁹ The Minister may declare a plant to be a weed or a potential weed. The Minister has the authority to classify a weed as necessary to eradicate, necessary to prevent growing or necessary to prevent introduction of the plant into the Northern Territory.⁶⁰ The management of weeds is the responsibility of the land owner or occupier. The Minister has the authority to declare an area as a quarantine area.

2.67 **Territory Parks and Wildlife Conservation Act 2001** – Management of feral animals is prescribed in the Act. The Act states that they are to be managed in a manner that

(a) reduces their population and the extent of their distribution within the Territory; and

(b) controls any detrimental effect they have on wildlife and the land.⁶¹

Provisions for cooperation with the Commonwealth or a State or another Territory of the Commonwealth or with an authority of the Commonwealth or of a State or another Territory of the Commonwealth in the formulation and implementation of management programs for the control and management of feral animals are prescribed in the Act.⁶² The land owner or occupier is responsible for the management of feral animals on their land,⁶³ however they may receive assistance from the Commission to

58 ACT Government, *Submission 44*, p. 10.

59 Northern Territory, *Weeds Management Act 2001*, Section 3.

60 *ibid*, Section 7(4)(a)(b)(c).

61 Territory Parks and Wildlife Conservation Act 2001, Section 31(3.)

62 *ibid*.

63 *ibid*, Section 4.9.

assist them in fulfilling their obligations.⁶⁴ Vertebrates that are not indigenous to the Territory are prohibited entrants unless prescribed not to be by the Regulations.⁶⁵

Local government

2.68 Due to the breadth and volume of local government legislation, policy and programs relating generally to land use, this section only seeks to provide an overview of the scope of power and role of local governments in managing invasive species.

2.69 Local government is the third tier of government in Australia however, it is not recognised in the Constitution.⁶⁶ Its power derives from a State Local Government Act:

which generally outlines the system of local governance and grants local authorities certain powers.⁶⁷

2.70 The role of local governments has expanded beyond their traditional role of rates, roads and rubbish to include greater general competence powers.⁶⁸ Core amongst these is local government involvement in environmental management.

2.71 Local government is the sphere of government closest to the community. It is responsible for good governance and the care and protection of local communities within a framework of sustainable development. As managers of public land and land use planners, local government is responsible for policy development and implementation of land use planning, as well as regulating a wide range of activities that may impact upon natural resource management.

2.72 The Australian Local Government Association states that:

Local Governments functions, powers and responsibilities are not prescriptive in each State. Local Government must implement statutory responsibilities and operate within State/Territory legislative frameworks and as a land manager in their own right. Councils do have the responsibilities to make policies, undertake planning and deliver services to meet their community's needs. Furthermore, Councils are actively involved in policy delivery, planning and delivery of services, but their specific investment can not be taken for granted.⁶⁹

64 *ibid*, Section 50.

65 *ibid*, Section 52.

66 Cripps, Binning and Young (1999), *Opportunity Denied, Review of the legislative ability of local government to conserve native vegetation*, p. 19.

67 Australian Local Government Association, *National Local Government Biodiversity Strategy*, p. 14.

68 *ibid*.

69 Australian Local Government Association website at:
<http://www.alga.asn.au/policy/environment/resourceManagement.php>.

Local government has a key role in translating the policies of Commonwealth and State governments into on-ground projects.⁷⁰ Local government performs this role amongst the myriad of legislation from all three tiers of government.

2.73 Local governments have been responsible for a large number of applications for Natural Heritage Trust grants. Many of the:

activities perceived as being non-core activities are only undertaken when Federal or State payments provide the resources under specific purpose programs⁷¹

2.74 There are a range of functions, powers and responsibilities at the disposal of local governments that can be applied to natural resource management and therefore the management of invasive species. These include:

- *strategic planning* through land use zoning and statutory controls on all freehold land and locally managed open space;
- *administrative responsibility* for state agency coordination through integrated planning, licensing and development concurrence;
- pest, plant and animal *risk control measures*;
- influence over land clearance patterns through *incentive programs* (planning amendments, rate differentials, levies, rural fire management and developer contributions);
- *management of local open space* to restore remnant vegetation and recreate habitat; and
- primary advocate for and *coordinator of local community groups* and interests.⁷²

2.75 Local government in Queensland has the broadest powers of any State or Territory. Its powers are as broad as the State Government, although State legislation overrides local government laws and actions.⁷³

2.76 In Queensland the management of most established invasive species is the responsibility of land owners. Local government has legislative responsibility for overseeing most of these activities, although state agencies have a compliance role for

70 Australian Local Government Association website at:
<http://www.alga.asn.au/policy/environment/resourceManagement.php>.

71 Australian Local Government Association, *National Local Government Biodiversity Strategy*, p. 15.

72 Australian Local Government Association website at:
<http://www.alga.asn.au/policy/environment/resourceManagement.php>.

73 Cripps, Binning and Young (1999), *Opportunity Denied*, Review of the legislative ability of local government to conserve native vegetation, p. 19.

some species.⁷⁴ Local governments have responsibility for keeping their shire or city/town free of declared pests. Local government is responsible for monitoring and enforcement on private land and land it manages. Their power is demonstrated through the fact that under the *Local Government Act 1993* a local government may locally declare a pest species if it is not declared by the state or requires a greater level of control in the local government area.⁷⁵

Discussion

2.77 As was discussed above, Commonwealth, State and Territory responsibilities in relation to environmental matters generally, and in respect to invasive species in particular, are underpinned by the notion of cooperative federalism. However, cooperative federalism is a consensual approach that is reliant on all parties putting agreements into effect within their own jurisdictions in a timely manner.

2.78 The failure of the States and Territories to implement uniform national prohibition on the sale of the 20 Weeds of National Significance; as discussed in Chapter 4, highlights the pitfalls of this approach. WWF Australia submitted that:

Certain jurisdictions, namely the ACT, has legislation that does not even allow the sale of declared weeds to be prohibited.⁷⁶

2.79 While, by comparison, NSW Agriculture submitted that:

State legislation has been, or is in the process of being, changed to fully support these strategies [Weeds of National Significance etc] and local control programs are being applied where the weeds occur. State and local government funds are applied to these control measures at the local level.⁷⁷

2.80 WWF Australia summarised its views as follows:

Given it is over 5 years since the adoption of the National Weeds Strategy which included calls for increased consistency between State laws, WWF Australia has very strong doubts about whether the States have the political will to reform their laws within a reasonable period to construct a solid, nationally consistent, preventative, post-border statutory framework to prevent and control invasive plants.⁷⁸

2.81 The Committee observes that any weak link in the national program of prohibition on trading in pest species represents a major constraint to the effectiveness of the program as a whole. It is self-evident that, to improve their effectiveness, legislation and strategies for managing invasive species need to be better harmonised.

74 Queensland Government, *Submission 43*, p. 6.

75 *ibid*, p. 8

76 WWF Australia, *Submission 30*, p. 3.

77 NSW Agriculture, *Submission 70*, p. 1.

78 WWF Australia, *Submission 30*, p.4.

Evidence confirms that the lack of coherent and coordinated State, Territory and national controls on the sale of invasive plant species is identified as a major invasion pathway for new weeds.⁷⁹ This is discussed in Chapter 4.

2.82 While there is a reasonable level of cooperation between States and Territories on some issues, there is no national approach to dealing with most pest species. In relation to pest animals, the Western Australian Department of Conservation and Land Management submitted that:

The State and Territory agencies have varying amounts of legislation to support their capacity to manage invasive species that might enter each State or Territory or to manage feral populations of species already in the country.⁸⁰

2.83 Management problems are compounded by the fact that in some States and Territories management is the responsibility of primary industry departments while in others conservation departments have carriage of the issue. In relation to pest animals, the Western Australian Department of Conservation and Land Management submitted that:

While there is a reasonable level of cooperation between adjacent States and Territories on some issues, there is no national approach to dealing with most species. This is partly a function of differing priorities (e.g. a pest in one State is of little concern in another, or beyond control already). The problem is also complicated by the nature of the agencies in each State currently responsible for invasive species management – primary industry departments have carriage of this issue in some States, while in others it is the conservation agencies. The level of networking and quality of those networks is affected by these circumstances. Coordinated, national approaches to managing invasive species would be a worthy goal.⁸¹

2.84 Invasive species do not acknowledge state and territory borders, yet an absence of measures to limit the interstate transport of invasive species, and a lack of nationally coordinated invasive species management legislation, impacts on the ability of States and Territories to effectively manage pest species and also aids the dispersal and potential of species to become noxious in other states.

2.85 Western Australia is perhaps a model for the others to follow in this respect. It has legislated to address the risk posed through items posted from interstate. However, this is currently being challenged. The Department of Conservation and Land Management submitted that:

In the past Western Australian Quarantine Inspection Service has scanned interstate mail for quarantine risk material (QRM) with great success. For example, in 1999/2000 WAQIS inspected 39,410 packages with quarantine

79 WWF, *Garden Plants that are Invasive Plants of National Importance, Australia Report*, p vi.

80 Western Australia Department of Conservation and Land Management, *Submission 67*, p 19.

81 *ibid.*

risk material (QRM) and made 182 seizures (honey, seeds, fruit, vegetables, plant cuttings, cannabis, etc). 31,743 parcels were also scanned with 2,664 parcels found to contain QRM.⁸²

However, there is an inconsistency between Western Australia's *Plant Diseases Act 1914* (PDA) and the Commonwealth *Australian Postal Corporations Act 1989* (APCA). The PDA states that WAQIS can inspect any vessel or package imported into the State and that we can enter any premises to do so, while APCA states that no-one can open and inspect mail other than customs, federal police and AQIS. Because APCA is a Commonwealth act it overrides the PDA and Australia Post is now refusing to allow inspection of parcel and express post. This matter has been taken up between the Western Australian State government and the Commonwealth government but currently remains unresolved.⁸³

2.86 A common theme amongst State and Territory legislation is the responsibility of landowners to manage noxious weeds and pest animals. Yet, penalties for failing to act are not comparable to the cost of management of actions when species become invasive.

2.87 Adding to the complexity of managing invasive species is that the States and Territories have developed local weed and pest animal lists. Such lists are in addition to national lists that have been developed through the National Weeds Strategy, Vertebrate Pests Committee and the like. A lack of synthesis of these lists undermines the ability of the States and Territories to effectively manage invasive species and limits cross border awareness of pests that have the potential to become invasive if they cross borders. Poor legislative coordination hinders the ability to effectively manage invasive species.

2.88 Given that the statutory controls of the States and Territories continue to be inconsistent some years after agreement had been reached on a uniform national approach, the question arises whether Australia would be better served by a more comprehensive and consistent approach under Commonwealth leadership. The main forum in which intergovernmental agreement on invasive species management occurs is in ministerial councils; primarily the Natural Resource Management Ministerial Council and the Primary Industry Ministerial Council. These forums seek to obtain consensus on environmental matters across a spectrum of regulatory and policy matters. An assumption behind the national environmental strategies that have been developed is that State and Territory Governments will ensure that the strategies are implemented. However, there is no mechanism, except for public pressure, to ensure that agreed actions are implemented. Given that moral pressure is proving unsuccessful, the Committee notes that another approach may be required to gain a higher level of compliance. This is discussed further in Chapter 5.

82 Department of Conservation and Land Management, *Submission 67*, p. 26.

83 *ibid.*

International legislation and conventions

2.89 In its submission the Department of Agriculture, Fisheries and Forestry stated that:

Australia is involved in international activities regarding invasive species arrangements to ensure that Australia's procedures conform with current international standards and best practice and importantly do not jeopardise our trade in primary products.⁸⁴

2.90 DAFF submitted that this involves dealing with:

- The World Trade Organisation Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement);
- The United Nations Food and Agricultural Organisation International Plant Protection Convention;
- International Maritime Organisation – International Convention for the Control and Management of Ships Ballast Water and Sediments in relation to invasive marine pests; and
- The Office International de Epizooties (the world animal health organisation) to the extent that it deals with animal diseases and invertebrate pests that infect animals or that act as vectors for microbial diseases of animals.⁸⁵

2.91 The Convention on Biological Diversity is another international agreement that Australia is party to. Its focus is on the use and conservation of biodiversity rather than trade.

2.92 The international agreements and legislation mentioned above are discussed in turn below.

The World Trade Organisation Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)

2.93 The SPS Agreement is the most significant international influence over Australia's ability to manage its borders to control entry of invasive species.

2.94 On 1 January 1995 the World Trade Organisation replaced the General Agreement on Tariffs and Trade as the organisation overseeing the multilateral trading system. As a member of the World Trade Organisation Australia has an obligation to manage trade across its borders within the limits not just Australian legislation but also international legislation. One of the fundamental principles of the World Trade Organisation was for member nations to dismantle their tariffs. The World Trade

84 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 3.

85 *ibid.*

Organisation's role includes providing a forum for trade negotiations, handling trade disputes and monitoring national trade policies. Concerns were raised that countries would use quarantine laws as surrogate tariffs to protect local producers. The World Trade Organisation's Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) is designed to prevent this and breaches of the SPS Agreement can be met with penalties and trade sanctions.

2.95 The SPS Agreement sets out the basic rules on food safety and animal and plant health standards. On its website the World Trade Organisation states that

...It [the SPS Agreement] allows countries to set their own standards. But it also must be based on science. They should be applied only to the extent necessary to protect human, animal or plant life or health. And they should not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail.⁸⁶

2.96 Members must base sanitary and phytosanitary measures on international standards, guidelines or recommendations, where they exist. Measures that are based on international standards, guidelines or recommendations are not presumed consistent, and therefore must be supported by sufficient scientific evidence and an import risk assessment.⁸⁷

2.97 Article 5.7 of the SPS Agreement allows the precautionary principle to be applied as a temporary measure to deal with scientific uncertainty, however, this is only a provisional measure while additional information, on which an assessment can be based, is made.⁸⁸

2.98 The focus of the SPS Agreement is to facilitate trade liberalisation. This is evidenced in Article 5.4 of the SPS Agreement which states that when making assessments on potential imports, members must take into account the objective of minimising negative trade effects. As a member of the WTO, Australia is bound by the SPS Agreement and its emphasis on the importance of free trade. Arguably this could be to the detriment of a nation's biodiversity.

International Plant Protection Convention⁸⁹

2.99 The International Plant Protection Convention (IPPC) is an international treaty with the:

86 World Trade Organisation website at:
http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm4_e.htm#top.

87 Ms Renae. Leverenz, *Submission 27*, p. 60.

88 World Trade Organisation website at:
http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm4_e.htm#tp.

89 IPPC website at: <http://www.ippc.int/IPP/En/default.htm>.

purpose is to secure a common and effective action to prevent the spread and introduction of pests and plants and plant products, and to promote appropriate measures for their control.⁹⁰

2.100 Australia signed the IPPC on 30 April 1952 and ratified it on 27 August 1952.

2.101 The IPPC plays a key role in facilitating international trade. The WTO-SPS Agreement names the IPPC as the international organisation responsible for phytosanitary standard-setting and the harmonisation of phytosanitary measures affecting trade. The IPPC plays a key role in encouraging countries to ensure that their exports are not the means through which new pests are introduced to their trading partners. Likewise, importing countries strive to ensure that measures they have in place for protection are technically justified, not protectionist measures.

2.102 The IPPC is a legally binding international agreement. WTO members are required to base their phytosanitary measures on international standards developed within the framework of the IPPC. Measures that deviate from the international standards, or that exist in the absence of international standards, must be based on scientific principles and evidence is provided through assessments on the risk to plant health or life. The precautionary principle may be used, but must be reviewed for scientific justification and modified accordingly if the claim is to be legitimately maintained.

2.103 The IPPC includes both direct and indirect damage by pests, including weeds. Provisions of the IPPC cover conveyances, containers, storage places, soil and other objects or material capable of harbouring plant pests.

2.104 One of the principles of the IPPC is that quarantine controls should not act as a quasi-barrier to trade. The least trade restrictive quarantine measures should be accepted. These measures must be scientifically based and applied in a non-discriminatory and consistent manner. If quarantine measures do not stand up to scrutiny, disputes may be taken to the WTO.

International Convention for the Control and Management of Ships Ballast Water and Sediments⁹¹

2.105 In response to the threats posed by invasive marine species, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, in its Agenda 21 called on the International Maritime Organisation (IMO) and other international bodies to take action to address the transfer of harmful organisms by ships. In support for the move for an international approach to this issue the Global Ballast website states that:

90 IPPC, at:
https://www.ippc.int/servlet/BinaryDownloaderServlet/13742_1997_English.pdf?filename=/publications/13742.New_Revised_Text_of_the_International_Plant_Protection_Convention.pdf&refID=13742.

91 Global Ballast Water Management Programme website at: <http://globallast.imo.org>.

As shipping is probably the most international industry, the only effective way to address shipping related issues is through a standardised international system.⁹²

2.106 In response to this the International Convention for the Control and Management of Ships Ballast Water and Sediments (The Convention) was adopted by consensus at a Diplomatic Conference at the International Maritime Organisation in London on 13 February 2004. The Convention is divided into Articles; and an Annex which includes technical standards and requirements in the Regulations for the control and management of ships' ballast water and sediments.

2.107 The Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage (Article 18 *Entry into force*). At the time of the Committee's inquiry Australia had not become a party to the convention.⁹³

2.108 Under Article 2 *General Obligations* Parties undertake to give full and complete effect to the provisions of the Convention and the Annex in order to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. Parties are given the right to take, individually or jointly with other Parties, more stringent measures with respect to the prevention, reduction or elimination of the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments, consistent with international law. Parties should ensure that ballast water management practices do not cause greater harm than they prevent to their environment, human health, property or resources, or those of other States.

2.109 The Convention also includes provisions that relate to scientific and technical research on ballast water management, monitoring of ballast water management, provisions for surveying and certification of ships, the provision of technical assistance to other parties and other factors.

Office International des Epizooties (OIE)⁹⁴

2.110 The OIE is the World Organisation for Animal Health. It is an international organisation established to guarantee the transparency of animal disease statues worldwide. Each Member Country undertakes to report the animal diseases that it detects on its territory. The OIE collects and analyses the latest scientific information on animal disease control. This information is then made available to the Member

92 *ibid.*

93 Department of Foreign Affairs and Trade, *Treaty Database*, 24 August 2004 website at: <http://www.info.dfat.gov.au/Info/Treaties/Treaties.nsf/AllDocIDs/D06C1FAB1733E7AFCA256EFA0007C15B>.

94 Information in this section is obtained from www.oie.int/eng/en_index.html.

Countries to help them to improve the methods used to control and eradicate these diseases.

2.111 The OIE develops normative documents relating to rules that Member Countries can use to protect themselves from the introduction of diseases and pathogens, without setting up unjustified sanitary barriers. The main normative works produced by the OIE are: the *International Animal Health Code*, the *Manual of Standards for Diagnostic Tests and Vaccines*, the *International Aquatic Animal Health Code* and the *Diagnostic Manual for Aquatic Animal Diseases*.

2.112 OIE standards are recognised by the World Trade Organisation as reference international sanitary rules. The OIE has a mandate under the WTO SPS Agreement, to safeguard world trade by publishing health standards for international trade in animals and animal products.

Convention on Biological Diversity

2.113 The Convention on Biological Diversity (CBD) was signed in 1992 at the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro and ratified in 1993.

2.114 Australia signed the CBD on 5 June 1992 and ratified the CBD on 18 June 1993.

2.115 The CBD is a comprehensive, binding agreement covering the use and conservation of biodiversity. It requires countries to develop and implement strategies for sustainable use and protection of biodiversity, and provides a forum for continuing international dialogue on biodiversity-related issues through the annual conferences of the parties (COPs).

2.116 The CBD establishes three main goals:

- the conservation of biological diversity;
- the sustainable use of its components; and
- the fair and equitable sharing of the benefits from the use of genetic resources.⁹⁵

2.117 The role of Governments is to provide leadership, particularly setting the rules that guide the use of natural resources, and by protecting biodiversity where they have direct control over the land and water. Governments are required to develop biodiversity strategies and action plans, and to integrate these into national plans for the environment and development.⁹⁶

95 Convention on Biological Diversity website at,
<http://www.biodiv.org/doc/publications/guide.asp?id=web>.

96 *ibid.*

2.118 The CBD acknowledges that there is an urgent need to address the impact of invasive alien species. Eradication, control and mitigation of their impacts combined with legislation and guidelines at international, national and regional levels are some of the ways that the CBD is addressing the issue. Article 8 of the CBD has also acknowledged the part invasive species play in the decline of biological diversity.

2.119 The Commonwealth has a responsibility in relation to meeting obligations contained in the Convention on Biological Diversity, in cooperation with the States and Territories under relevant legislation and through relevant programs. Article 8 relates to *in-situ* conservation and states the obligations of contracting parties. The obligations as set out under Article 8(h) are that each Contracting Party shall, as far as possible and as appropriate:

Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species⁹⁷

2.120 The CBD sets out a number of Guiding Principles for Parties to the CBD, other Governments and relevant organisations to follow. These are known as the *Guiding principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats and species*.

2.121 Parties are encouraged to follow the Guiding Principles. The CBD website acknowledges that contributions to the implementation of Article 8(h) is made by a number of international instruments, including the International Plant Protection Convention, the Office International des Epizooties, the Food and Agricultural Organisation of the United Nations, the International Maritime Organisation and the World Health Organisation.⁹⁸

Discussion

2.122 The increase in international trade has brought with it an increase in the movement of animals and plants, some of which have become invasive. Invasive plants and animals are now a global problem in unprecedented numbers. Ms Renae Leverenz submitted that:

Invasive species being carried in free trade facilitated by the WTO agreements present an undeniable threat to global biodiversity and cause serious damage.⁹⁹

2.123 WWF noted in its submission that international rules prevent the Commonwealth from adopting a strong preventative approach toward invasive species pre-border for species that are not yet present in Australia or not under official control. They advocate strong post-border controls on invasives that cannot be banned at the

97 Convention on Biological Diversity, Article 8(h) website at:
<http://www.biodiv.org/decisions/default.aspx?m=COP-06&id=7197&lg=>.

98 *ibid.*

99 Ms Renae. Leverenz, *Submission 27*, p. 59.

border due to international legislation and obligations. WWF also noted, however, that international rules do not impede the Commonwealth from introducing preventative provisions under the EPBC Act to control the inter-State/Territory trade of invasive species that have not yet become environmental problems.¹⁰⁰

2.124 International obligations require that quarantine laws are not used as quasi-barriers to trade. The challenge for Australia is to find measures which enable Australia to preserve its biodiversity without flouting international obligations, and therefore becoming subject to World Trade Organisation actions.

2.125 In order to maintain Australia's biodiversity and to prevent the 'McDonald's-isation of the environment'¹⁰¹ there is a need for Australia to find methods for effectively managing invasive species within the framework of legislative controls and obligations that operate both internationally and at a domestic level.

100 World Wildlife Fund, *Submission 30*, p. 34.

101 Dr Rachael McFadyen, *Committee Hansard*, 14 April 2004, p. 30.

Chapter 3

Institutional Arrangements

Exotic pest management is a shared responsibility of government, industry and community and each plays a part and bears the costs of response to the threat to consequences of it.¹

Introduction

3.1 While Chapter 1 examined the economic, environmental and social costs that invasive species pose to Australia, in this chapter the Committee examines the complex governmental arrangements which are currently in place for the management of invasive species. The Australian Constitution confers certain specific powers on the Commonwealth Government. All other powers not so conferred reside with the individual State/Territory Governments. The Committee acknowledges that while the on-the-ground management of invasive species is largely the responsibility of the State and Territory governments, the Commonwealth government plays a significant coordination and leadership role. As discussed later in this report the complex cross-jurisdictional structure does not always result in the most effective management and control of invasive species.

Ministerial Council

3.2 Ministerial Councils facilitate the national implementation of plans and proposals that would not otherwise be possible because of the limitations imposed by the division of constitutional powers between the Commonwealth, State and Territory governments.

3.3 The division of Constitutional powers, coupled with a desire on the part of the Commonwealth/State/Territory governments to discuss agricultural matters generally, was the catalyst for the creation, in 1934, of the Australian Agricultural Council. For similar reasons Ministerial Councils dealing with a wide range of issues, including natural resource matters, have been established over the years.

3.4 During 1999-2000 debate on the impact of natural resource degradation in Australia began in earnest, resulting in the establishment of the Natural Resources Management Ministerial Council (NRMMC). All natural resource management issues previously dealt with by existing Councils, such as the Australia New Zealand Environment and Conservation Council (ANZECC), the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA), were transferred to the NRMMC.

¹ Bureau of Rural Sciences, *Submission 62a*, p. 13.

3.5 The residual industry-related issues of these latter two Councils were brought together under the Primary Industries Ministerial Council (PIMC).

Natural Resources Management Ministerial Council (NRMMC)²

3.6 The NRMMC consists of the Commonwealth/State/Territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water policy. The Australian Local Government Association and Papua New Guinea are formal observers. The NRMMC is jointly chaired by the Commonwealth Government Ministers responsible for Environment and Heritage, and Agriculture, Fisheries and Forestry. Meetings of the NRMMC are held in camera; biannually and decisions of the NRMMC are arrived at by consensus.

3.7 The NRMMC is the peak government forum for consultation, coordination and, where appropriate, integration of action by governments on natural resource management issues. The objective of the NRMMC is:

to promote the conservation and sustainable use of Australia's natural resources.³

3.8 This is reflected in the terms of reference for the NRMMC which outline, amongst other things, its role in developing policies and strategies for national approaches to the conservation, sustainable use and management of Australia's land, water, vegetation and biological resources. The terms of reference include the NRMMC's role in the development and implementation of national natural resource management programs including the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT).

3.9 The Committee heard that the NRMMC recognises the threat posed by invasive species. Dr Dickson, Assistant Secretary, Natural Resource Management Policy Branch, Department of Environment and Heritage told the Committee that:

In April this year the Australian government significantly raised the profile and the importance of this issue [invasive species] for the Natural Resource Management Ministerial Council and gained agreement from their state and territory ministers to look at options for developing a robust national framework to prevent significant new invasive species establishing in Australia and reducing the impacts of the major pests and weeds already present.⁴

3.10 Dr Dickson went on to say:

They also were very cognisant of the significant and growing threat posed by invasive species and, in particular, the impact and the contribution to

2 Ministerial Council website at: www.mincos.gov.au/about_mrnmc.htm.

3 *ibid.*

4 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 56.

biodiversity loss in Australia. The standing committee to that council are investigating the options. They have just started that process now. They will be working with the primary industry standing committee and preparing a report for council on what options there may be for early consideration in 2005.⁵

3.11 The intention of the NRMCMC in initiating the development of options to improve the robustness of the national framework is to have the coordination and frameworks in place that can enable effective regional approaches to work.⁶ The Committee commends the NRMCMC and for its acknowledgement of this issue and for initiating action. It expresses its hope that the investigation will be timely and provide recommendations for action that help Australia preserve its diverse native flora and fauna from further threat by invasive species. It hopes that the creation of a coordinated framework will allow for more timely and targeted application of monies to address invasive species.

3.12 Having heard evidence about the devastating impact of cane toads on the northern quolls in Kakadu and its potential to cause biodiversity loss in areas that it is spreading into, the Committee welcomes the directive from the NRMCMC to the Vertebrate Pest Committee to investigate options for a national approach to cane toads. The Committee, however, notes the lack of timeliness in this directive. The impact of cane toads is well known and the Committee notes that there is an element of 'too little too late' in issuing this directive at such a late stage.

Natural Resource Management Standing Committee

3.13 The NRMCMC is supported the Natural Resource Management Standing Committee (NRMSC). The Standing Committee comprises the Departmental Heads/Chief Executive Officers of the relevant Commonwealth/State/Territory and New Zealand government agencies responsible for natural resource policy issues in these areas. Papua New Guinea is a formal observer. The NRMSC is jointly chaired by the Secretaries of the Departments of Environment and Heritage and Agriculture, Fisheries and Forestry.

3.14 The NRMSC's main objectives are to support the NRMCMC in the achievement of its objectives and to develop cooperative and coordinated approaches to matters of concern to the NRMCMC. The NRMSC:

- Directs the work of its subordinate committees;
- Secures cooperation between members; and
- Advises Council on the initiation, review and development of Standing Committee activities.

5 ibid, p. 56.

6 ibid, p. 64.

3.15 Two major advisory committees underpin the work of the NRMSC. They are the Natural Resource Policies and Programs Committee and the Marine and Coastal Committee.

3.16 The Natural Resource Policies and Programs Committee (NRPPC) was created in early 2004 through the amalgamation of the previous Programs Committee and the Land, Water and Biodiversity Committee. High priority issues selected to set the direction for the NRPPC work plan for the 12 months to March 2005 are:

- NRM decision-making;
- biodiversity decline;
- soil and water quality decline;
- water policy – developing a complementary role to several multi-jurisdictional issues;
- climate change and adaptation;
- effectiveness of regional NRM delivery; and
- invasive species.⁷

3.17 NRPPC also liaises with the Marine and Coastal Committee and other relevant bodies as appropriate on matters relevant to the NRPPC.

3.18 The role of the Marine and Coastal Committee includes advising and supporting the NRMSC on issues of national significance relating to the conservation and ecologically sustainable development of marine and coastal ecosystems and resources.

3.19 The National Introduced Marine Pest Coordination Committee reports to the NRMSC and the Australian Transport Ministerial Council through this committee.

Primary Industries Ministerial Council (PIMC)

3.20 The Primary Industries Ministerial Council (PIMC) consists of the Commonwealth/State/Territory and New Zealand government ministers responsible for agriculture, food, fibre, forestry, fisheries and aquaculture industries/production and rural adjustment policy. The PIMC results from the amalgamation of the previous ministerial councils, ARMCANZ and MCFFA, that dealt with elements of these issues.

3.21 The PIMC is the peak government forum for consultation, coordination and, where appropriate, integration of action by governments on primary industries issues. It first met in May 2002. The objective of the PIMC is:

7 Ministerial Council website at: www.mincos.gov.au/nrm_sc_committees.htm.

to develop and promote sustainable, innovative and profitable agriculture, fisheries/aquaculture, and food and forestry industries⁸

Primary Industries Standing Committee

3.22 The PIMC is supported by the Primary Industries Standing Committee (PISC). The Standing Committee comprises the chief executive officers of the relevant Commonwealth/State/Territory and New Zealand government agencies responsible for policy in these areas.

3.23 The PIMC is more of a peripheral player on issues of invasive species than the NRMCC, however, it has the scope to become involved in invasive species issues that have an affect on primary production.

National Strategies and Committees

3.24 The management of established pests is fundamentally the responsibility of State, Territory and Local Governments as well as landholders and industry. However, the Commonwealth plays a major role in developing the strategic framework that stakeholders implement.

The Commonwealth strongly encourages cooperation and partnerships between community organisations and government at all levels so that all Australians take joint responsibility for the environment.⁹

3.25 Cooperative arrangements also exist between the Commonwealth, States and Territories to assist in identifying and responding to invasive species.

Australian Weeds Committee

3.26 The Australian Weeds Committee (AWC) provides an inter-governmental mechanism for identification and resolution of weed issues at a national level. The AWC has existed in various forms since 1996 and in September 2002, following the restructuring of the Ministerial Councils, the AWC members became responsible for all weeds in their jurisdiction (primary industries, forestry and environmental).

3.27 The AWCs purpose is:

To provide an inter-Governmental mechanism for identification and resolution of weed issues at a National level for Australia.¹⁰

3.28 The role of the Australian Weeds Committee is to develop policy and programs for a national response to weeds to ensure an integrated approach to all aspects of weed management. In its submission the ACT Government notes that the

8 *ibid.*

9 Natural Heritage Trust, *Annual Report 2001-02*, p 12.

10 Australian Weeds Committee website at: www.weeds.org.au/awc.htm -.

success of the Australian Weeds Committee is, in part, due to the level of support that it receives and the fact that there is a funded secretariat.¹¹

3.29 The AWC has developed the National Weeds Strategy and established a Weeds of National Significance list. The National Weeds Strategy provides the framework to reduce the impact of weeds on the sustainability of Australia's productive capacity and natural ecosystems, through the establishment of a number of goals, objectives for action and outcomes.

3.30 To be successful, the Strategy requires a cooperative approach between all levels of government, industry, land holders and land and water managers, community groups and the general public.

3.31 The Strategy is implemented by governments and industry on advice from the Australian Weeds Committee.

Vertebrate Pests Committee

3.32 The Vertebrate Pests Committee is a sub-committee of the NRPPC, under the Natural Resource Management Standing Committee.¹²

3.33 The Vertebrate Pests Committee comprises one member from each Australian State/Territory, and New Zealand. The CSIRO, Bureau of Rural Sciences, Department of Environment and Heritage and Biosecurity Australia also provide one member each. The breadth of the issues considered by the Vertebrate Pests Committee requires a whole of government approach from each jurisdiction. This is achieved through a range of inter-agency communications and through more formal processes such as the NSW Pest Animal Council.¹³

3.34 The Vertebrate Pests Committee identifies nationally significant vertebrate pest issues, recommends appropriate management actions, and develops principles, national policies, strategies and programs relating to vertebrate pests to ensure the conservation, sustainable use and management of Australia's land, water and biological resources.¹⁴

3.35 In its submission the ACT Government noted that the ability of the Vertebrate Pests Committee to coordinate and disseminate information is hindered by the absence of a funded secretariat.¹⁵

11 ACT Government, *Submission 44*, p. 7.

12 Bureau of Rural Sciences, *Submission 62a*, p. 14.

13 E. Davis, *The roles of the Vertebrate Pests Committee in improving the humaneness of pest animal control*, RSPCA Australian Scientific Seminar, 2003, p. 6.

14 Department of Environment and Heritage, *Submission 61*, p. 9.

15 ACT Government, *Submission 44*, p. 8.

3.36 The Vertebrate Pests Committee monitors research in each jurisdiction but is not resourced to conduct research. The Vertebrate Pests Committee strongly supports research to develop new or improved control techniques and understanding of vertebrate pest biology and ecology.¹⁶

3.37 At the public hearing on 18 June 2004 the Committee was advised that a national vertebrate pest strategy is being initiated by the Vertebrate Pests Committee.¹⁷ The Committee heard that the intention is for the national strategy to address the impact and management of invasive animal species and will have a similar approach to that developed for weeds under the National Weeds Strategy.

National Introduced Marine Pests Coordination Group (NIMPCG)¹⁸

3.38 The NIMPCG and the Coordinating Committee for Introduced Marine Pest Emergencies (CCIMPE) were established in 2000 as an interim mechanism pending the development of a comprehensive national system for the Prevention and Management of Introduced Marine Pest Incursions. NIMPCG is developing a national strategy for managing introduced marine pests. The national strategy will cover potential introductions via all vectors, including vessels, aquaculture and the aquarium trade.¹⁹

3.39 The NIMPCG was established to recommend detailed reforms to implement a national system for the Prevention and Management of Introduced Marine Pest Incursions. The NIMPMC reports to the NRMMC, through the NRMSC, and to the Australian Transport Council (ATC). The ATC is a Ministerial forum for Commonwealth, State and Territory consultations and provides advice to governments on the coordination and integration of all transport and road policy issues at a national level including. The scope of the NIMPCG includes:

- Prevention systems operating at the pre-border, border and post-border levels;
- Coordinated emergency response to new incursions (implemented through CCIMPE under interim arrangements);
- Ongoing control of introduced marine pests already in Australia;
- Supporting components for research and development, community preparedness, education and training; and
- Explicit agreement on the statutory framework of the National System, and secure funding arrangements.

16 E. Davis, *The roles of the Vertebrate Pests Committee in improving the humaneness of pest animal control*, 2003 RSPCA Australian Scientific Seminar, p. 7.

17 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 56.

18 Department of Environment and Heritage, *Submission 61*.

19 Queensland Government, *Submission 43*, p. 21.

3.40 Preliminary work on the national system has included identifying the requirements for a system to regulate the ballast water of both international and coastal shipping, and on a framework for the management of hull fouling pests. Further development is contingent on finalising the agreement between governments on the legislative and financial framework.

3.41 In late 2002 a High Level Officials Group (HLG) was formed by the NRMCC to provide advice on appropriate legislative, governance and funding approaches for the implementation of the national system. The HLG has conducted extensive consultation with stakeholders, including the shipping, aquarium, aquaculture, fishing and tourism industries and its report was submitted to the NRMSC for discussion at its October 2003 meeting.²⁰ It was also considered by the Australian Transport Council.

3.42 Dr Bax, Senior Research Scientist, CSIRO Marine Research, told the Committee that the national system will be a fully costed model, with costs being shared by government and industry. Consequently, an intergovernmental agreement needs to be developed before a national system can be put in place.²¹

3.43 The CSIRO submission stated that the impact of measures, to all stakeholders, recommended in the HLG report, would be \$40m per annum. The shipping industry is expected to bear a cost of approximately \$21m per annum, a significant portion of which it is already carrying in relation to ballast water management and anti-fouling measures.²² The CSIRO noted that industry is already bearing significant costs in relation to managing marine pests, such as through ballast water exchange, anti-fouling of vessels and the cleaning of aquaculture equipment. However, it also noted that industry is likely to be significant beneficiaries of measures to address the threat posed by marine pests.²³

3.44 An area that is not covered in the budget laid down by the HLG is ongoing management and control research of marine pests. At the public hearing in Adelaide Dr Bax, Senior Research Scientist, CSIRO Marine Research, stated that:

Most of the national systems is directed to prevention and therefore there are management standards and protocols; legislation will be introduced to reduce the risk of further spread of the species around Australia and also more species coming into Australia. The area which I see as lacking is the response to those species which are already here. Could we, for example, develop techniques to reduce their abundance and therefore reduce their spread around the rest of the country?²⁴

20 CSIRO, *Submission 34*, p. 27.

21 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 33.

22 CSIRO, *Submission 34*, p. 27.

23 *ibid*, p. 28.

24 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 33.

3.45 One of the key reasons why Australia is able to implement a national strategy for marine invasives is due to the significant body of research in this area that has been conducted by the CSIRO since the Centre for Research on Introduced Marine Pests was established in 1994.²⁵ This research has been funded through the CSIRO, shipping industry, NHT grants and other sources. It has conducted research to establish the extent of the marine pest problem and has assisted in developing tools for preventing further introductions. An example of these tools is the adoption of ballast water management practices by AQIS in July 2001. The Committee heard that it took seven years to develop the science that went into the ballast water risk assessment for the ballast water management plan that was introduced in July 2001. The rest of the world has followed Australia's lead through the *International Convention for the Control and Management of Ships Ballast Water & Sediments* which was adopted by consensus at the Diplomatic Conference at the IMO in London in February 2004.

3.46 The need for action to be taken to address marine pests was highlighted by Dr Bax, Senior Research Scientist, CSIRO Marine Research, who told the Committee that:

The management of marine pests has the opportunity to provide major environmental benefits to both industry and other areas. An interesting thing in the marine environment is that a lot of effort now is being put in to establishing marine protected areas around the country as a way of protecting biodiversity. But if those marine protected areas get invaded by marine pests, as some of them are already, then that significantly reduces their environmental value. So marine pests need to be one of the suite of management actions which occur in the marine environment.²⁶

3.47 Developing on this point, Dr Bax told the Committee that:

my perspective as a scientist is that it took us seven years to produce the science which went into the ballast water risk assessment for the ballast water management plan introduced in July 2001. It is going to take us equally long to develop management and control techniques for existing species, and we really need to start now if we want to have a response in the next 10 years or so.²⁷

3.48 The Committee hopes that national strategy will recognise this issue and support research to help preserve and protect marine biodiversity from invasive species.

25 CSIRO, *Submission 34*, p. 28.

26 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 30.

27 *ibid*, p. 33.

Coordinating Committee for Introduced Marine Pest Emergencies (CCIMPE)²⁸

3.49 The CCIMPE was established in 2000 as an interim mechanism pending the development of a comprehensive national system for the Prevention and Management of Introduced Marine Pest Incursions. CCIMPE consists of relevant agencies of the Australian Government, including CSIRO, and the States and Northern Territory.

3.50 CCIMPE oversees a national emergency response network for marine pests and considers State and Northern Territory requests for access to a national contingency cost-sharing arrangement. Up to \$5 million may be made available to combat an introduced marine pest outbreak of major concern, that meets certain criteria, including being amenable to eradication.

3.51 Dr Bax, Senior Research Scientist, CSIRO Marine Research, advised the CCIMPE has responded to six invasions since 2001. These include Caribbean tube worm in Cairns, caulerpa taxifolia in New South Wales and South Australia and the Northern Pacific Sea Star when it reached Inverloch in Victoria.²⁹

3.52 An example of the emergency cost sharing arrangement being accessed is when an infestation of Asian Green Mussels (*Perna viridis*) were identified during cleaning of a seized foreign vessel in Trinity Inlet, Cairns. CCIMPE determined that the first, investigatory, stage of an emergency response was appropriate. This was implemented by the Queensland Government, with the support of \$50,000 from the contingency cost sharing arrangement, and involved the inspection of high-risk vessels, and the removal of any Asian Green Mussels found, as well as ongoing monitoring. A total of 16 mussels were found during March - June 2002, and a further 21 mussels have been subsequently discovered.

Oversights

3.53 Currently there are no management committees for some species, such as invertebrates or exotic pest fish. The Vertebrate Pests Committee is currently undergoing a review and is considering the inclusion of invasive freshwater fish species as part of their terms of reference.³⁰ This raises the issue of whether there would be more benefit to the protection of biodiversity if an Exotic Fish Committee was established that looked at fresh water and marine fish, and was not limited to vertebrates.

3.54 In light of the eradication campaigns for the yellow crazy ants on Christmas Island and the Red Imported Fire Ants in Brisbane, another issue that the Committee considers deserves consideration is that of how best to address invertebrate pests.

28 Department of Environment and Heritage, *Submission 61*.

29 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 29.

30 ACT Government, *Submission 44*, p. 8.

Natural Heritage Trust

3.55 The Natural Heritage Trust (NHT) was established in 1997 with a funding budget of \$1.249 billion. It was to operate from the 1996/97 to the 2001/02 financial year. The main source of funds was from proceeds from the first partial privatisation of Telstra.

3.56 In the 2001 Federal Budget the Government announced an additional \$1 billion for the NHT, extending the funding for an additional 5 years, to 2006/07. Of this \$1 billion, the Government expects to spend at least \$350 million on measures to improve Australia's water quality.

3.57 The Natural Heritage Ministerial Board has approved funding of \$4 million per annum for strategic weed management projects for 2004-05 and 2005-06³¹. The Committee appreciates that the Natural Heritage Ministerial Board has acknowledged the problem of weeds but it notes that \$4 million per annum for strategic weed management projects pales in comparison the \$4 billion per annum that weeds cost the Australian people.

3.58 The NHT website advises:

There has been a fundamental shift in the Trust towards a more targeted approach to environmental and natural resource management in Australia. The Trust will deliver important resource condition outcomes including improved water quality, less erosion, improved estuarine health, improved vegetation management and improved soil condition.³²

3.59 Under the second phase of the NHT, known as NHT2, grant arrangements have changed. The 'Framework for the implementation of the Natural Heritage Trust extension' provides a strategic basis for investment against the NHT's objectives at national, regional and local levels and includes the basis for matching contributions from the states and territories.

3.60 NHT2 has three overarching objectives. They are:

- Biodiversity Conservation;
- Sustainable use of Natural Resources; and
- Community Capacity Building and Institutional Change.

3.61 NHT programs have been consolidated from twenty-three programs under NHT1 to four programs under NHT2.

- The **Landcare Program** will invest in activities that contribute to reversing land degradation and promoting sustainable agriculture.

31 Mr Charles Willcocks, *Committee Hansard*, Canberra, 18 June 2004, p. 55.

32 The Natural Heritage Trust website at: www.nht.gov.au/about-nht.html.

- The **Bushcare Program** will invest in activities that contribute to conserving and restoring habitat for the native flora and fauna which underpin the health of the landscape.
- The **Rivercare Program** will invest in activities that contribute to improved water quality and environmental conditions in river systems and wetlands.
- The **Coastcare Program** will invest in activities that contribute to protecting coastal catchments, ecosystems and the marine environment.

Funding arrangements

3.62 Under NHT2 funds will be delivered at three levels:

- National investments;
- Regional investments; and
- A local action component.

3.63 National investments will cover national priorities, addressing activities that have a national or broad-scale, rather than a regional or local outcome. This will include Commonwealth only activities, state-wide activities and those that cross State, Territory and regional boundaries. It also addresses matters of direct Commonwealth jurisdiction, such as those relating to Commonwealth waters. Funding for national delivery components will generally be determined by the Commonwealth Government, without calls for funding applications from the public. Proposals for statewide funding will be made by the State and Commonwealth Governments.³³

3.64 Regional investments are the principal delivery mechanism for NHT2. The model for regional investment under NHT2 is based on that used for the National Action Plan for Salinity and Water Quality. Where appropriate the model developed for the National Action Plan for Salinity and Water Quality should be followed.

Under this model, investment is made on the basis of a regional natural resource management plan, incorporating the major natural resource management issues in the area.³⁴

3.65 Agreement between the Commonwealth and State/Territory Governments is to be reached in relation to activities that are given funding at the regional level. Contributions from the Commonwealth Government are to be matched with cash or in-kind contributions from State or Territories.

3.66 The Committee is encouraged that the national competitive component and the regional competitive component recognise the fact that some natural resource issues are better addressed on a larger scale, rather than on a single region approach

33 *ibid.*

34 *ibid.*

and allow for cross-regional collaboration. Each of these components allows for cross-regional projects and also multiyear projects.³⁵

3.67 The move to provide support for multi-year projects is also welcomed by the Committee as it heard considerable evidence regarding the constraints of annual funding cycles.

3.68 At the local level community groups will be able to apply for individual grants through the Commonwealth Government Envirofund. These grants provide up to \$30,000 to address local natural resource management issues. It is aimed at groups that have had little or no previous engagement with the NHT and aims to assist groups to undertake:

- small on-ground projects tackling local problems;
- projects in areas where regional plans are not yet well developed; and
- important local projects.

3.69 As will be discussed in Chapter 4, evidence presented to the Committee indicated that there were a number of concerns regarding the Natural Resource Management approach to funding and short funding cycles.

Natural Resource Management – the local approach to funding

3.70 The 'Framework for the Extension of the Natural Heritage Trust' states that one of the ten areas of activity that define the scope of the NHT is:

preventing or controlling the introduction and spread of feral animals, aquatic pests, weeds and other biological threats to biodiversity;³⁶

3.71 It also states that:

natural resource management priorities will vary between regions and between States/Territories, as will the extent to which the areas of activity identified for Trust investment are addressed in regional plans.³⁷

3.72 As a consequence of these variations the NHT acknowledges that each regional plan will not necessarily address all the ten areas of activity of the NHT and that equal emphasis may not be applied to all components of a single area of activity within a regional plan.

3.73 Dr Pressland, General Manager, Catchment and Regional Planning, Queensland Department of Natural Resources, Mines and Energy told the Committee of the different funding structure under NHT2.

35 Mr Simon Murnane, *Committee Hansard*, Canberra, 18 June 2004, p. 61.

36 The Natural Heritage Trust website at: www.nht.gov.au/publications/framework/index.htm,

37 *ibid.*

The grants under NHT2 are very different from under NHT1. The majority of the funds go to regional bodies. For example, in Queensland we are establishing 15 regional groups throughout the state to deal with programs such as NAP and NHT. The majority of the NHT funding goes directly through those bodies to address issues of priority that are identified in NRM plans, which those groups have developed.³⁸

3.74 Mr Willcocks, General Manager, Landcare and Sustainable Industries, Department of Agriculture, Fisheries and Forestry told the Committee that:

The major investment under the Natural Heritage Trust is to address regional priorities identified in accredited regional natural resource management plans and investment strategies. Weed management may be funded through the trust and it is possible to obtain three-year funding for such priority projects.³⁹

3.75 The Committee heard evidence critical of the regional focus of the Commonwealth Governments' move to providing funding under the NHT to NRM bodies, which would then have responsibility for allocating the monies to projects they identify as priorities. A number of witnesses expressed concern that invasive species will not be addressed unless they are given priority over competing issues by the NRM bodies.

3.76 While discussing this arrangement Dr McFadyen, CEO, CRC for Australian Weed Management told the Committee that:

The other problem with the regional bodies is that the funds are given for all natural resource management. So every weed control or invasive species project is competing with water resources and quality problems, riparian issues and erosion and all sorts of other things. Again, there is very often a failure to take a strategic view, because they look at the regional issues.⁴⁰

3.77 A number of witnesses advised that the impact of the regional focus was that funds were allocated to issues that are of priority in the local area. The Committee heard that this may occur at the expense of issues such as sleeper weeds which may have a significantly greater impact on the economy and environment than issues identified by the NRM body but which may not be seen as a priority issue by the local NRM body and therefore not targeted for action.

3.78 The lack of a strategic view can mean that an issue which could have been addressed, in its initial stage, with a small outlay of money may end up costing significantly more in a few years time when it comes to the attention of the NRM body. An example of this is sleeper weeds which often do not come to the attention of

38 Dr Anthony Pressland, *Committee Hansard*, Brisbane, 14 April 2004, p. 9.

39 Mr Charles Willcocks, *Committee Hansard*, Canberra, 18 June 2004, p. 55.

40 Dr Rachel McFadyen, *Committee Hansard*, Brisbane, 14 April 2004, p. 27.

land owners until they have become a significant weed issue. Developing on this point Dr McFadyen, CEO, CRC for Australian Weed Management told the Committee that:

The problem with that [NHT funding] is that if you are a regional group such as, let us say, the Fitzroy Basin or Burnett-Mary, your weed issues are the things that are currently a serious problem and that is what you apply for money for. Something that you are told will be a serious problem in 40 years time, if you do not do anything now, does not come up.⁴¹

3.79 Dr Traill, Councillor, Invasive Species Council, told the Committee that the focus of NRMs:

tends to be on things that are already a problem—the things that are almost always, therefore, not eradicable—rather than dealing with something like cecropia, which is not yet a problem for any land-holder; it is not a problem for anyone right now, so there is no reason that any individual or any Landcare group would think to apply for it, unless they were particularly sophisticated in seeing the future.⁴²

3.80 Dr Traill went on to say:

NRM committees are usually focused on dealing with existing uneradicable pests, not sleepers or ones just starting off their life cycle.⁴³

3.81 In response to the issue of whether NRM bodies will identify new incursions of invasive species as priority issues in their area Mr Wonder, Deputy Secretary, Department of Agriculture, Fisheries and Forestry, said:

If people on the ground, familiar with their regional area, are talking to one another and conscious of the issues that they feel they need to address either now or into the future, they have every opportunity to make a judgement about what is there now, what might be there in the future, what might be threatening and the like. They can make all of those judgements. It is not confined to things reaching a particular size before they are allowed to put them forward in regional plan, so I do not agree with that characterisation. These issues can be addressed in advance if they feel that they are of such significance that they want to do something about them.⁴⁴

3.82 The Committee expresses its concern over Mr Wonder's final sentence:

These issues can be addressed in advance if they feel that they are of such significance that they want to do something about them.⁴⁵

41 *ibid*, p. 27.

42 Dr Barry Traill, *Committee Hansard*, Brisbane, 14 April 2004, p. 49.

43 *ibid*, p. 54.

44 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 63.

45 *ibid*.

3.83 The places the onus on the NRM body having sufficient knowledge to be aware of the future impact of newly establishing or sleeper invasive species and to be prepared to address the issue in its early stages. The Committee is concerned that this level of knowledge and foresight may not be present in all NRM bodies, or may not be the majority voice on the body and therefore the issue will not be adequately resourced.

3.84 The Committee heard that the regional focus of NHT2 is about empowering NRM bodies to address issues that they identify as priorities. Mr Wonder, Deputy Secretary, Department of Agriculture, Fisheries and Forestry, told the Committee that:

to go to your question of where do invasive species fit vis-a-vis the other issues facing them, yes, it would be fair to say they [NRM bodies] have to make realistic judgements about what are the issues that they can best address and take forward their natural resource management and environment aspirations. I agree that is a very relevant consideration and that we have to make some judgements about where invasive species fit vis-a-vis other matters. Sometimes I would expect it to be much higher on the list. I think it will vary, depending on the regional circumstances and the significance of weeds vis-a-vis other issues they are addressing in that particular region.⁴⁶

3.85 The Local Government Association of Queensland (LGAQ) noted that the current funding arrangements do not allow for issues not identified as priority issues by NRM bodies to be addressed. The LGAQ noted that:

if additional resources were provided it would enable those additional species to be controlled. For instance, with hymenachne it might allow control in those areas where it is not seen as a specific problem. I know from a local government point of view that they [local government] have limited resources and they make decisions as to where they are going to best spend those limited resources for that year and the next few years, and other things do not get addressed as part of that.⁴⁷

3.86 Evidence overwhelming supports the argument that one of the most cost-effective methods of managing the issue is to address problem species before they have become widely established. The Committee expresses concern that funding arrangements under NHT2 are contrary to this.

3.87 The Committee expresses concern that the funding arrangements for NHT2 may mean that invasive species become further established in Australia as, unless they are identified as priority issues by a NRM, they will not receive adequate funding to enable them to be addressed.

46 *ibid*, p. 63.

47 Mr Steve Greenwood, *Committee Hansard*, Brisbane, 14 April 2004, p. 61.

Local response to national issues

3.88 Funding through the National Weeds Program, that was established under the first phase of the NHT, contributed to the development and implementation of national strategies for the 20 individual Weeds of National Significance. A number of witnesses advised that this program had been effective at strategically addressing weed issues. Mr Walton, Senior Policy Officer, Ecology, Department of Natural Resources, Mines and Energy, Queensland Government, advised that the program:

is effectively rolling up. I believe there is an extension of a year for coordinators—it is obviously really important to have a coordinator for the species. The projects themselves will now be funded under NHT2 at a regional level.⁴⁸

3.89 Funding for the management of weeds of national significance is not guaranteed under NHT2, to receive funding the issue needs to be a priority for the NRM body. Dr Dickson, Assistant Secretary, Natural Resource Management Policy Branch, Department of Environment and Heritage advised that:

Once there is a regional plan accredited and a regional investment strategy agreed, with various components which could include managing or supporting control of weeds of national significance...⁴⁹

3.90 Concern was expressed by a number of witnesses that under NHT2 funding for national weeds, such as hymenachne, is required to be sought through NRMs for local response. The Committee heard from Mr Low, Councillor, Invasive Species Council, who argued that responding locally to national pest issues is not appropriate. He told the Committee that:

One of the problems that have been identified for me through the hymenachne management group is that they have been told that to get funding to control hymenachne they are supposed to go through the NRMs, the regional groups. This is not an appropriate process for a national weed. It depends on those groups deciding that that particular weed is a priority for them, and you are going to get an uneven approach. This is not consistent. If you are saying that this is a national weed, it needs a national response; but then you decentralise the funding.⁵⁰

3.91 The Committee heard evidence that the ability of a number of NRMs to reach agreement to adequately fund weeds of national significance in an area is difficult to achieve. The LGAQ expressed concern over the alignment of funding to NRM groups and NRMs determining funding priorities in relation to weeds, especially the management of weeds of national significance. It advised that a return to the older

48 Mr Craig Walton, *Committee Hansard*, Brisbane, 14 April 2004, p. 11.

49 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 61.

50 Mr Tim Low, *Committee Hansard*, Brisbane, 14 April 2004, p. 48.

model of funding for weeds of national significance may result in more favourable outcomes. Mr Petrie, Natural Resource Management Project Coordinator, LGAQ told the Committee that:

It was quite evident to me that the process of funding, which has now been realigned to the NRM groups, is of concern for local governments, in that getting all the regional bodies to understand the priority of weeds of national significance is going to take a lot of resources. To achieve some adequate funding across a number of regional bodies to actually deal with the problem is obviously going to be a major challenge.

It would probably be far more favourable if it went back to the older model whereby applicants received funding directly from the Commonwealth to manage weeds of national significance. There are concerns about how the process has been devolved to those regional bodies and about the lack of real support for those bodies to understand that these are high priorities, because some of them have not even reflected weeds in the context of agricultural importance. When you look at the NHT you see that weed management aligns to environmentally significant areas only, so there are limitations on where that can be impacted. Also, through the national action plan, where there is substantially more money available to the NRM groups that qualify, weeds have to relate primarily to water quality issues. It is difficult for applicants to put in a project for funding that will target an invasive species that will have an impact on environmentally significant areas.⁵¹

3.92 Further developing on the issue of weed management Mr Petrie told the Committee that:

The key issue is getting a model that effectively deals with infestation, and I do not think the current proposal is going to support that.⁵²

3.93 Another issue that witnesses identified with the NRM structure is that they reflect local concerns and as peoples' definitions of what is a weed or pest animal is not universal the outcome is that there will often be different responses to the same issue. Mr Low highlighted this when he told the Committee that:

because of differing values, you would not expect all NRMs to treat hymenachne equally as a weed; in fact, some of them are likely to refuse to take it seriously.⁵³

3.94 Mr Stewart, Vice President, AgForce Cattle, AgForce Queensland, provided support to the case against a regional funding focus when he told the Committee that:

51 Mr Malcolm Petrie, *Committee Hansard*, Brisbane, 14 April 2004, p. 64.

52 *ibid*, p. 65.

53 Mr Tim Low, *Committee Hansard*, Brisbane, 14 April 2004, p. 48.

Landcare groups obviously get funded through the NHT and so on, but Landcare groups tend to look at their own region. National Landcare probably look at the national situation, but I think that generally the Landcare groups—and I established the Townsville-Thuringowa Landcare group in 1990, so I have a bit of a background in what they look at—really concentrate on what is happening in their area. With regard to what is happening elsewhere, there is not a great deal of knowledge that passes on from one Landcare group to another. ... I suppose with regional funding, too, it depends on who has the best story or the best connection—⁵⁴

3.95 In response to claims that NRMs have broad strategic focus and that their membership is local and may not have expertise, Mr Wonder, Deputy Secretary, Department of Agriculture, Fisheries and Forestry, advised that:

In New South Wales you have catchment management boards and in Victoria you have catchment management authorities and the like. In those two instances, they are legislative and are appointed people who look at the welfare and issues facing a very considerable geographic region. I do not think it is appropriate to describe them as 'local'.⁵⁵

3.96 Mr Murnane, Director, Policy and Governance Section, Natural Resource Management Team, Department of Agriculture, Fisheries and Forestry explained the accreditation process for NRM bodies.

the regional NRM groups are asked to identify the key priorities for natural resource management within their regions, and they put those plans to the Australian and relevant state or territory governments for a process that we call accreditation. On the basis of those plans, the regions then put to us investment strategies with a three-year time horizon to allow the funding of multiyear projects. Those investment plans are reviewed annually so emerging or changing priorities can be reflected in the investment decisions the governments make.⁵⁶

3.97 Under NHT2 NRMs allocate resources to priority areas that they have identified, in their region. This is in conflict with the overwhelming evidence that the spread of pest animals and weeds is often not stopped by physical barriers and certainly not stopped by ephemeral borders such as entering a new catchment management zone. A lack of agreement on pest issues, across NRMs and more widely, can mean that pests may not be effectively managed if they are being treated in one area but not in neighbouring catchment zones. This can void the endeavours of NRMs that manage pests.

54 Mr John Stewart, *Committee Hansard*, Brisbane, 14 April 2004, p. 73.

55 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 63.

56 Mr Simon Murnane, *Committee Hansard*, Canberra, 18 June 2004, p. 61.

3.98 An example of the detrimental impact of lack of the coordination in the management of invasive species was highlighted by Mr Stewart, Vice President, AgForce Cattle, AgForce Queensland. He told the Committee that:

We have had a whole lot of land-holders who have been doing work on feral pigs and the neighbour does not do it and, therefore, in 12 months he is back just where he was before. That is why we need a national, coordinated program.⁵⁷

3.99 The establishment of NRMs and the focal role that they play as the central decision maker on funding for pest and weed management has led to the creation of a bureaucratic structure. The LGAQ told the Committee that local governments' role in managing pest animals and weeds had not changed, however, under the new NRM model local government must apply to the NRM for funds to undertake tasks which are additional to core business. The Committee heard that:

if the money goes to the bodies, it will still be local government that ends up doing the work, but they will have to apply to the bodies to get the money to do the work.⁵⁸

3.100 The Committee expresses concern regarding indications that traditional funding is being reduced as a result of new funding being received through the NHT. State Government expenditure for environmental matters has reduced as NHT funding has increased. Mr Petrie, Natural Resource Management Project Coordinator, Local Government Association of Queensland told the Committee that:

Essentially, the state agencies' support and extension services have diminished since the introduction of the regional NRM bodies. An example would be that one body is now employing a soil conservation officer, which was identified as a core service provided by a state agency that no longer occurs. That seems to be a common theme of concern throughout a lot of the regions in Queensland. So I would say that there is some correlation there.⁵⁹

3.101 There seems to be common concern amongst local governments and other stakeholders with the introduction of the regional NRM framework in Queensland.

Length of the funding cycle

3.102 Under the first phase of the NHT funds were generally provided for a 12 month period. If additional funds were required, to continue projects beyond one year, they had to be reapplied for. The short-term nature of the grant cycle meant that funds could not always be strategically applied. Evidence the Committee heard supports the

57 Mr John Stewart, *Committee Hansard*, Brisbane, 14 April 2004, p. 69.

58 Mr Malcolm Petrie, *Committee Hansard*, Brisbane, 14 April 2004, p. 65.

59 *ibid*, p. 67.

argument that the management of invasive species is a long-term issue and the provision of funds on an annual basis is problematic.

3.103 The Committee notes that this issue has been identified and addressed under NHT2 which allows for more strategic work through changed funding arrangements that accommodate for multiyear projects.

3.104 The short-term nature of funding caused problems for a number of witnesses. Issues identified as a result of this included a reduced ability to strategically plan and higher staff turnover on research projects.

3.105 Dr Peacock, CEO, Pest Animal Control CRC told the Committee that:

It is almost a study in worst practice research funding. I have done 10 years of research management. No-one funds for one year on long-term projects except EA. I do not have any other clients that do that.⁶⁰

3.106 The short-term nature of the grants also meant that organisations were required to reapply for grants on an annual basis. A number of witnesses commented that this was not an effective use of resources and resulted in a lower level of return for money spent than if funding had been received in three-year blocks.

3.107 An example of the detrimental impact of funding for a hymenachne eradication campaign ending and continued funding not being received was provided by Mr Petrie. He advised that the program was:

coming to the conclusion of that [2001/02] funding period. I believe there were a number of local governments that applied for the control of that particular species. A total of about \$470,000 was committed to, off the top of my head, three or four councils in Far North Queensland. The funding was to enable those councils with limited resources to deal with that particular species and focus on that eradication, which is what they intended to do. The interesting process was that the funding ran out when those councils had actually come very close to eradication, but, given the time frame to get additional funding for the next round of NHT, with the whole regional planning and so on, as a consequence they are actually back to where they started. So those resources were totally wasted as a result.⁶¹

3.108 Dr Morin, Senior Research Scientist, CSIRO told the Committee that:

To make a proper plan of, say, delivery over three years would be so much more efficient than every year having to rewrite the grant. What I find is that for the same amount of money that we get over the three years we deliver much less because it is so fragmented. For something like producing, let us say, a brochure, because we have only one-year funding

60 Dr Tony Peacock, *Committee Hansard*, Canberra, 26 November 2003, p. 14.

61 Mr Malcolm Petrie, *Committee Hansard*, Brisbane, 14 April 2004, p. 64.

we are going to produce just what we need for that year, but actually the year after we get more funding.⁶²

3.109 Dr Peacock also advised the Committee of the short turnaround time for applying for tenders.

For example, two tenders were let on Christmas Eve last year for a mid-January date for feral goat research. You read that and think, 'What are they thinking?'⁶³

3.110 In response to criticisms of the short-term nature of NHT funding, and its impact on research, Dr Dickson advised that:

In terms of the NHT funding of biological controls, the NHT is not a research funding program.⁶⁴

3.111 The Committee heard evidence from the Department of Environment and Heritage that most of the NHT funds that have been provided to assist some of the major research institutions, such as CSIRO, to undertake biological controls have been at the applied end of the spectrum. Dr Dickson told the Committee that:

[the] CSIRO estimate that it can be up to 10 years from the first idea through to developing a final biological control. It is clearly a long-term activity and it needs to be undertaken in a strategic way by research institutions. The NHT has certainly provided some important assistance to that work of the major research institutions, and also in state research as well, to assist the promulgation of the biological controls and further testing at the applied end.⁶⁵

3.112 Although there is scope for research organisations to apply for grants under the National Competitive Component of NHT2, Mr Murnane, reinforced the point that the NHT is not a research funding program when he said:

the Natural Heritage Trust is essentially a funding program for on-ground environmental works rather than being specifically designed to support research, but there is scope to support particular projects that may have an applied result later on.⁶⁶

3.113 Further developing on the issue of research and development, Mr Wonder noted that the Commonwealth has major funding of research and development

62 Dr Louise Morin, *Committee Hansard*, Canberra, 18 June 2004, p. 6.

63 Dr Tony Peacock, *Committee Hansard*, Canberra, 26 November 2003, p. 14.

64 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 60.

65 *ibid*, p. 60.

66 Mr Simon Murnane, *Committee Hansard*, Canberra, 18 June 2004, p. 62.

through the rural industries research and development corporations. Many of which fund invasive species projects that are conducted through the CSIRO or CRCs.⁶⁷

3.114 In June 2004 the Commonwealth Government announced that ten environmental projects would receive \$5.6 million in funding over the next three years as part of the National Competitive Component of NHT2. Funding was provided to multi-year projects that were new, innovative or pilot activities with a national approach to effectively improving natural resource management.

3.115 The Committee is please to note that invasive species were recognised in the grants cycle through the grant to the CRC for Australian Weed Management to build a national, community-based model for preventing new weed incursions. They received \$138,000 over three years.⁶⁸

3.116 The Committee heard that:

A lot of the national funding from the NHT on weeds and feral animals, as well as on the research side, has gone into communication products and improving the capacity of regional groups and other community groups to be able to identify weeds or other invasive species. The key issue is the complementarity between improving the national framework and the coordination and improving the ownership and the focus at the regional level. It is not one or the other; it is both of these things working together.⁶⁹

3.117 The Committee expresses its hope that NHT2 will be successful in achieving these goals and that it will make a positive contribution toward reducing the impact of invasive species.

67 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 62.

68 The Hon. Warren Truss, Minister for Agriculture, Fisheries and Forestry, and The Hon. David Kemp, Minister for the Environment and Heritage, *\$5.6 million for innovative environmental work*, media release, 10 June 2004.

69 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 64.

Chapter 4

Cost of responding to invasive species

Another statement that you often hear about invasive species is that managing them is just a bottomless pit of funding. We would like to counter that and say that it is potentially a very good return on investment, with biological control, for example, typically giving benefit-cost ratios in the order of 20 to one.¹

4.1 The Committee's term of reference (b) requires it to examine the estimated cost of different responses to the environmental issues associated with particular pests and weeds. The different responses nominated are: early eradication, containment, damage mitigation and inaction. As outlined in the Preface, the Department of the Environment and Heritage advised that there is no agreed model to measure the ecological cost of invasive species in economic terms,² while the Invasive Species Council argued that, in any case, rather than looking at the costs of different strategies as required by term of reference (b), a strategic approach was needed, with the focus on prioritising species and habitats according to the potential for damage to indigenous biodiversity and the likely effectiveness of effort.³

4.2 As discussed in Chapter 1 the economic, environmental and social costs of invasive species are substantial, if somewhat difficult to quantify. Many witnesses to the Committee's inquiry sought to present evidence of the benefits of expenditure on invasive species, particularly the claim that prevention or rapid responses to pest incursions provide the greatest cost-benefit ratios for managing invasive species. The Committee summarises this evidence in this chapter.

Cost benefit ratios

4.3 The Local Government Association of Queensland (LGAQ) claimed that every dollar spent on weed and pest animal management initiatives in Queensland can deliver up to \$6.40 in benefit.⁴ The AEC Group's report *Economic Impact of State and Local Government Expenditure on Weed and Pest Animal Management in Queensland*, October 2002, noted that any increase in the level of expenditure on weed and pest management would increase the net benefit to the public, with the public receiving up to \$3.70 in benefits for every dollar invested in weed and pest management initiatives. The report stated that:

1 Dr Mark Lonsdale, CSIRO Entomology, *Committee Hansard*, Canberra, 18 June 2004, p. 2.

2 Department of Environment and Heritage, *Submission 61*, p. 4.

3 Invasive Species Council, *Submission 33*, p. 3.

4 AEC Group, *Economic Impact of State and Local Government Expenditure on Weed and Pest Animal Management in Queensland*, October 2002, p i.

prevention activities provided a greater return on capital than eradication activities, which were in turn greater than containment activities undertaken after the widespread distribution of the species⁵

4.4 The CRC for Australian Weed Management submitted that early eradication of invasive plants saves 83 native species (plants and animals) from extinction for each \$1 million spent. This compares with only seven species saved per \$1 million spent on the herbicidal and mechanical control of weeds once they are widespread, or one species saved per \$1 million spent on maintaining environmental flows in rivers.⁶ Clearly, the cost-benefit ratio of action outweighs inaction. For example, Bitou bush (*Chrysanthemoides monilifera ssp. rotundata*), a species from South Africa, dominates coastal vegetation in eastern Australia and impacts on biodiversity as well as diminishing public access to beaches. The Bureau of Rural Sciences argued that a preliminary economic analysis of the cost-effectiveness of a program for the control of Bitou bush estimated that the cost of loss and damage is 20 times greater than the cost of control.⁷

4.5 The CRC for Australian Weed Management also submitted that:

- the current eradication campaign in South Australia for branched broomrape has a benefit cost ratio of 7.9 to 1;
- biological control of skeleton weed in 1970 had a benefit cost ratio of 112 to 1;
- biological control of Paterson's curse with the crown weevil had a benefit cost ratio of 52 to 1; and
- the partial control of parthenium weed in central and north Queensland by 2001 resulted in a cost benefit ratio of 18 to 1.⁸

4.6 The cost of managing invasive species varies and is difficult to quantify.⁹ The South Australian Animal and Plant Control Commission noted the need to examine the cost-effectiveness of various responses to pest management.¹⁰ The Committee considers below the response options of eradication, containment, damage mitigation and inaction.

5 *ibid*, p. 100.

6 CRC for Australian Weed Management, *Submission 22*, p. 5.

7 Bureau of Rural Sciences, *Submission 62a*, p. 10.

8 CRC for Australian Weed Management, *Submission 22*, p. 5.

9 Bendigo and District Environment Council Inc. and Bendigo Field Naturalist Club Inc., *Submission 46*.

10 Animal and Plant Control Commission, *Submission 15*, p. 8.

Early eradication

4.7 The Committee heard evidence that the early eradication of pest incursions provides significant cost-benefit ratios and provides a higher chance of success than other responses:

Costs are likely to be minimal in terms of applied resources and there is a much higher chance of success.... Value for money is probably highest at this stage, particularly if the invasive species has not established where it has impacted on the environment.¹¹

4.8 In its submission to the inquiry the Bureau of Rural Sciences noted that: eradication is an ideal response but is technically extremely difficult, if not impossible, for most invasive species.¹²

4.9 However, the benefits of early eradication were supported by the Weeds CRC which noted that the current eradication campaign against branched broomrape is estimated to have a benefit/cost ratio of 7.9 with an internal rate of return of 22%.¹³

4.10 The WWF argued that prevention and early control are the least costly and most effective approach to managing invasive species. The Prime Minister's Science, Engineering and Innovation Council (PMSEIC) report, *Sustaining our Natural Systems and Biodiversity*, concluded that limiting the spread of pests, weeds and imported diseases is one of four areas of investment above all others that is likely to return greatest impact in heading off the diminishing value of Australia's natural systems and biodiversity.¹⁴

4.11 The table below illustrates the effectiveness of a \$1 million investment over a range of intervention strategies.¹⁵

Table 4.1 – Costs and benefits of intervention strategies

OPTION		No. species secured/\$1m benefit/cost	Collateral	Maintenance or Repair
A	Prevent broadscale clearing of high ecological value communities in Queensland	26	20	M
B	Prevent broadscale clearing of communities in the MDB that have high multiple ecosystem service value	13	26	M
C	Restore ecological communities which have fallen below 10% back to 10% of their original area, in the 5 IBRA regions that have <30% native vegetation remaining.	25	0.6	R
D	Restore native vegetation in all IBRA sub-regions that have fallen below 10% back to 10% of their original area	13	0.6	R

11 Tasmanian Weed Society, *Submission 18*, p. 3.

12 Bureau of Rural Sciences, *Submission 62a*, p. 6.

13 CRC Weed management, *Submission 22*, p. 3.

14 WWF, *Submission 30*.

15 WWF, *Submission 30*, p. 21.

E	Consolidate the National Reserve System to achieve comprehensiveness targets	42	5.7	M
F	Protect the health of rivers that are least disturbed	98	13	M
G	Restore river health to rivers in poor condition	2	0.3	R
H	Ensure environmental flows are at least 15% of sustainable water yield.	1	0.3	R
I	Limit the spread of Phytophthora	35	40	M
J	Eradicate new outbreaks of naturalised plant species with weedy potential	83	1.4	M
K	Biological control of weeds of national significance	16	10	R
L	Mechanical and herbicidal control of weeds (Mimosa example)	7	0.3	R
M	Biological control of vertebrate pests	57	9	R
N	Mechanical control of feral predators (Earth Sanctuary example)	2	0.7	R
O	Strategic revegetation to prevent salinity from further affecting remnant vegetation	19	0.5	R
P	Prevent grazing of 10% of all arid and semi-arid grazing lands	4	1	R
Q	Manage grazing for conservation in threatened grasslands in South East Australia	90	0.8	R+M
R	Implement fire management regimes in native vegetation which promote a diversity of fire patterns	95	9	R+M

4.12 The Queensland Government submitted that:

Experience in Queensland has shown that prevention and early eradication are significantly more cost effective responses than containment/damage mitigation actions for invasive species.... An essential component of any system must also be an early warning monitoring and surveillance program. To date such programs have not been widely included as part of the response to incursions. At the same time strategic control programs have been carried out on established pests when it considered that this would result in significant reductions in pest impacts. Awareness and extension activities are very cost effective.¹⁶

4.13 The Committee took evidence from the Quarantine and Export Advisory Council which noted that the recent incursion in Queensland of the exotic red imported fire ant required a commitment of \$140 million to an eradication program and the papaya fruit fly detection and eradication program run over four years cost approximately \$34 million¹⁷ (see case study on fire ants in Chapter 5). The Queensland Government informed the Committee that:

A Benefit Cost Analysis was undertaken by ABARE in 2001 into the proposed eradication program. This analysis found that the cost to the community if the fire ant was not controlled would be \$8.9 billion over a 30-year period. The major costs were from loss of property values, cost of household repairs and treatment and the cost to agriculture. This study provided a BCR of 25:1 based on a \$124m, five-year program that is well above the limit where eradication is considered worthwhile. However, this

¹⁶ Queensland Government, *Submission 43*, p.10.

¹⁷ Quarantine and Export Advisory Council, *Submission 49*, p. 2.

analysis is very conservative - it did not include the costs from the loss of environmental and lifestyle values that this ant would cause.¹⁸

4.14 Achieving early eradication requires a number of conditions, these include: proper planning, commitment to complete the process, putting the entire population of the target species at risk, removing them faster than they reproduce and preventing reinvasion. Although the up front costs of early eradication programs may be significant, the cost of weed and pest control activities after the pest is widespread and established are usually significantly more costly and time consuming.

4.15 The Bureau of Rural Sciences argued that six criteria that must be met for an eradication to be successful. These are:

- 1. The rate of removal must exceed the rate of increase at all population densities
- 2. Immigration must be zero or the probability of reinvasion should be considered
- 3. Target species must be detectable at low densities
- 4. All reproductive individuals must be at risk
- 5. Discounted cost-benefit analysis must favour eradication over control; economics should favour eradication
- 6. There must be a suitable socio-political environment; adequate resources must be committed to see the eradication project through to completion; and clear lines of authority must be established.¹⁹

4.16 The following is an example of a successful eradication program which illustrates a number of the criteria outlined above.

Case study: Eradication of the Black-striped mussel²⁰

The fouling mussel, *Mytilopsis* sp., colloquially known as the black-striped mussel, are small marine bivalve mollusc originating from Central and South America. They have spread to several countries in the Indo-Pacific region, and are considered a serious pest because of their ability to rapidly establish large populations and cause significant environmental and economic impacts. This mussel is a fast growing filter-feeder that clings to boats and pilings and has the capacity to jam water intake pipes. It is closely related to the freshwater zebra mussel that costs the United States \$100 million a year to control in the Great Lakes alone.

¹⁸ Queensland Government, *Submission 43*, p. 12.

¹⁹ Bureau of Rural Sciences, *Submission 62a*, p. 13.

²⁰ CSIRO, *Submission 34*, p. 14; NSW Fisheries website, *Black-striped mussel - Mytilopsis sallei*, at: www.fisheries.nsw.gov.au/thr/species/fn-black-striped-mussel.htm.

The black-striped mussel was discovered in three loched marinas within The Port of Darwin - Cullen Bay Marina, Tipperary Waters Marina and the Frances Mooring Basin (also known as the 'duck pond') in March 1999 at densities up to 23,650 m⁻² during a opportunistic port survey. It had reached those densities in less than six months. The mussels were probably introduced into Darwin on the hull of a commercial or recreational vessel travelling from infected ports in other parts of the world.

On discovery of the invasion the Northern Territory government reacted rapidly to quarantine the infected area within three days of being informed by CSIRO of the presence of the black striped mussel in a Darwin marina. The mussel was seen as a major environmental and economic threat to the Northern Australian coastline (between Sydney to Perth) and also a major threat to the local \$40 million pa pearl oyster fishery.

The response management committee coordinated the on-ground containment and treatment actions (involving over 300 personnel). The main actions undertaken included the tracking and treatment of vessels that had left infected sites, the treatment of three sites and almost three hundred vessels in the Darwin area and the initiation of a public awareness program to meet local and national needs. Commonwealth agencies led by Agriculture Fisheries and Forestry - Australia (AFFA) established a national working group on 6 April 1999 to coordinate national action to prevent the spread of the mussel to other States. Other agencies involved included Environment Australia (EA), Commonwealth Scientific and Industrial Research Organisation's

(CSIRO) Centre for Research on Introduced Marine Pests (CRIMP), the Australian Fisheries Management Authority (AFMA), the Australian Quarantine and Inspection Service (AQIS), the Australian Maritime Safety Authority (AMSA), the Australian Customs Service (ACS), the Australian Government Solicitor (AGS) and the Department of Defence (Navy). A local scientific sub-committee comprising representatives from CSIRO CRIMP, NT Museum and Art Gallery, DPIF and the Northern Territory University developed national protocols to detect and treat the Black Striped Mussel at the Darwin sites and on vectors considered to be at risk.

Between 31 March and 19 April 1999, chlorine (calcium and sodium hypochlorite) and copper sulphate were added to the marina waters at a cost of over \$2 million in materials alone. Both treatments killed mussels but the copper sulphate proved more effective. On 23 April 1999, 100% of the exotic Black Striped Mussels were deemed successfully eradicated and , all three marinas were re-opened for normal use. Procedures were established for continued monitoring to detect possible new infestations. No further infestations have been detected to date.²¹

Chronology of response to the Black Striped Mussel outbreak²²

September 1998 Divers from CSIRO CRIMP and the NT Museum & Art Gallery surveyed Darwin Harbour and marinas, including Cullen Bay Marina, (as part of the

²¹ Mr Rob Ferguson, Department of Environment and Heritage website, *The effectiveness of Australia's response to the Black Striped Mussel incursion in Darwin, Australia*, December 2000. At: www.deh.gov.au/coasts/imps/pubs/bsmfinalreport.pdf.

²² *ibid.*

	Port of Darwin baseline survey) and did not detect any Black Striped Mussels (BSM).
27 March 1999	CSIRO divers conducted the second component of the baseline survey and detected massive infestations of BSM in Cullen Bay Marina.
29 March 1999	NT Museum & Art Gallery alerted NT Department of Primary Industry and Fisheries (DPIF) of BSM detection. The Minister and Chief Executive Officer of DPIF were b
30 March 1999	Follow-up dive surveys were coordinated by DPIF to determine the extent of the outbreak outside Cullen Bay Marina. A special meeting of the NT Cabinet to pass regulatory amendments, approved the establishment of the Taskforce and the expenditure of funds.
31 March 1999	NT Cabinet and Executive Councils convened and legislative changes were approved. A second BSM outbreak was found at Tipperary Waters Estate Marina. Six vessels were contained within Tipperary waters. An emergency management committee was convened, response teams were established, an information campaign commenced (including telephone hotline, Internet site, public meetings), and marina locks were dosed with sodium hypochlorite to create a sterile plug. One hundred and forty seven vessels were contained within Cullen Bay Marina.
1 April 1999	A vessel originally from Cullen Bay Marina moored in Frances Bay Mooring Basin was found to be carrying BSM. 70 vessels were contained within Frances Bay. An interstate alert was issued to owners of vessels from Cullen Bay Marina to check vessels and not scrape hulls. The NT Government quarantined the three infected marina sites to prevent further spread of BSM, using a combination of the powers in the NT <i>Fisheries Act 1988</i> and the Commonwealth <i>Quarantine Act 1908</i> .
2 April 1999	Four vessels from Cullen Bay Marina moored in Sadgroves Creek were found to have BSM and were removed from the water. Dive teams checked potential contamination sites around Darwin Harbour. A list of potentially contaminated vessels that had left the marinas was developed by AQIS with the support of Australian Fisheries Management Authority.
3 April 1999	Two vessels from Cullen Bay Marina lifted at Spot On Marine were found to have BSM and were removed from the water. Another contaminated vessel located at Frances Bay Mooring Basin was also removed from the water. Trial of copper sulphate treatment commenced in Tipperary Waters Marina Estate.
4 April 1999	Chlorine treatment of Cullen Bay Marina. Further copper sulphate treatment of Tipperary Waters Marina Estate was undertaken. A vessel tracking database was established and 420 vessels were identified as “at risk” of contamination (either those still in the marinas or those which had left since the infection period). Treatment of internal systems of vessels was trialled.

5 April 1999	Further chlorine treatment of Cullen Bay Marina. Fish species killed during treatment of the marinas were identified by the NT Museum. No further sign of BSM infestation were found outside the three marinas.
6 April 1999	Further chlorine treatment of Cullen Bay Marina. The National BSM Taskforce was established led by Agriculture, Fisheries and Forestry - Australia. Copper sulphate was found to have a 100% kill rate of mussels in Tipperary Waters Marina Estate. Four boats were slipped and found to be infested with BSM.
7 April 1999	Copper sulphate treatment of Cullen Bay. Vessel cleaning protocols were released. Scientific sub-committee of the National BSM Taskforce met to develop National Protocols for treatment of vessels and anchorages between Fremantle and Sydney potentially infected with the BSM. Chlorine treatment of Frances Bay Marina. Second public meeting at Cullen Bay.
8 April 1999	Copper sulphate added to Frances Bay. Gove Harbour was declared clear of BSM. NT DPIF staff commenced checking the internal systems of Cullen Bay Marina vessels with endoscopes.
9 April 1999	Further chlorine treatment of Cullen Bay Marina after heavy rain during previous 24 hours.
12 April 1999	Some cleaned vessels were allowed to leave Cullen Bay Marina after a check of monitoring areas in the marina revealed no live mussels.
15 April 1999	A recently dead mussel found on a yacht from Cullen Bay Marina when lifted at Sadgrove's Quay.
16 April 1999	Surviving mussels were detected on vessels leaving Cullen Bay Marina. Both Cullen Bay and Tipperary Waters marinas were again closed and quarantined. Intensive re-surveying and re-sampling commenced in Cullen Bay Marina. National Protocols formally released.
17-19 April 1999	Intensive sampling of Cullen Bay Marina revealed two live mussels, followed by two recently dead mussels in amongst hundreds of thousands of dead mussels. Copper sulphate was added at specific sites in Cullen Bay Marina.
20 April 1999	Cullen Bay Marina reopened at high tide for limited access in and out of the marina. Clearance dives were conducted in Tipperary Waters Marina Estate.
22 April 1999	Clearance dives were conducted in Frances Bay Mooring Basin.
23 April 1999	Quarantine conditions were lifted from Cullen Bay, Frances Bay and Tipperary Waters marinas and all were re-opened for normal use. Monitoring and sampling surveys continued.
29 April 1999	National BSM Taskforce ceased operation.

8 May 1999	21 day “all clear” issued for all three marinas. Precautionary vessel checking and treatment arrangements remained in place.
May 1999	The Aquatic Pest Management Program was established to monitor the impacts of BSM response activities and oversee a continuing program of pest surveillance and control in the Northern Territory.
July 1999	The National Taskforce for the Prevention and Management of Marine Pest Incursions was established to examine improvements to all aspects of introduced marine pest management. The Taskforce’s report was delivered to Government Ministers on 23 December 1999.

Containment/exclusion

4.17 Measures to effectively halt or minimise the spread of invasive species can involve either keeping species within a fixed area (containment) or keeping species out of an area (exclusion). Responses range from physical barriers (e.g. fences or high security facilities) to chemical barriers (e.g. poison baited buffer lines) through to virtual containment lines (e.g. mapped containment areas). The cost of these activities is often greater than prevention and it is likely that these actions will be integrated with damage mitigation for many species. The Tasmanian Weed Society argued:

Containment costs can range from minimal expenditure associated with early eradication extending to on-going high levels of cost associated with restricting an established invasive to a particular area as eradication is not considered possible or is considered too difficult or expensive. The latter reason is flawed, as containment is very expensive when applied over a long period. Additional expenses are incurred where containment provisions impact on business enterprises in the containment area and restrict movement of people and products. Environmental costs are higher as the invasive species will continue to impact on the environment to a greater or lesser extent depending on mitigation actions in the containment area. However, for many invasive species present in Australia this will be the most likely option for management.²³

4.18 As an example of the complexities of containment and the difficult in achieving successful outcomes the CSIRO submitted:

Attempts to confine spiralling whitefly to the northern tip of Cape York Peninsula proved ineffective. There were no serious attempts to combine containment with eradication and the infestation, which soon spread south to Cairns and beyond, is now too widespread to contemplate eradication. In retrospect, there was little point in bothering with a containment policy for this pest in the absence of any clearly defined commitment to fund an eradication program.²⁴

23 Tasmanian Weed Society, *Submission 18*, p. 3.

24 CSIRO, *Submission 34*, p. 14.

4.19 The following case study provides an example of the difficulty of containment with a view to eradicating established weed species.

Case study: Containment of Branched Broomrape - Orobanche ramosa

Branched Broomrape (*Orobanche ramosa*) is a parasitic weed of broad leaf crops and is found throughout many parts of Europe, Central Asia, South Africa, North and Central America. Broomrapes are root parasites that extract all their nutrient requirements from their host plants. They have no leaves or chlorophyll and do not photosynthesise. The weed is only detectable during a short flowering period and is underground for the remainder of the life cycle. Infestations have been masked by grazing and other factors, which would limit the detection of the flower stalks and seed heads. Broomrape species infest 16 million hectares world wide, which is 1.2% of the world's arable land. They affect 51% of the world's sunflower crops, 35% of the world's faba bean crops, and 45% of the world's lentil. It can directly reduce yields up to 40% in some crops.

The potential impact of broomrape in Australia is very serious in terms of both production losses and threats to export markets. The main industries at risk are oilseeds, field peas, vegetables, lupins and vetch, and in particular, the seed industry for these crops.

Branched Broomrape was first detected in Australia in 1992 near Bow Hill South Australia. Until 1997, South Australian officials have conducted an ongoing management program. In October 1998 South Australian authorities detected a further spread to over 160 ha. The Commonwealth Chief Plant Protection Officer (CPPO) was notified in February 1999 of the new infestations.

Further surveys were carried out and a national *Orobanche ramosa* consultative committee, chaired by the CPPO was convened to assess the infestation in March 1999. In early 1999 the infestation area had grown to over 100 ha and the Australian Weed Committee (AWC) and Standing Committee on Agriculture and Resource Management (SCARM) agreed on a national eradication program. A decision to eradicate was delayed until the distribution of the weed was clearly determined. A strategy to conduct a national awareness program, delimiting surveys in South Australia and research on the host range of the weed was developed.²⁵

Surveys in the springs of 1999 and 2000 established that the known infestation was contained within an area of about 70 x 70 km, northeast of Murray Bridge in south Australia. Infested Paddocks in 130 properties total about 11,000 ha. A national survey and awareness campaign has not revealed the presence of branched broomrape elsewhere in Australia.

Unlike other weeds, broomrape species are spread by millions of minute spore-like seeds and, except for a few weeks in the flowering season, grow underground. The weed is spread mainly by soil contamination through cultivation machinery and livestock. Its control

²⁵ Department of Agriculture and Fisheries and Forestry website at:
www.affa.gov.au/content/output.cfm?&OBJECTID=0BFA0A07-108E-48CB-8071D0CAED6EBA85.

requires a similar strategy to the control of a disease epidemic, that is, isolation and sterilisation of infested sites.²⁶

In South Australia the SA Government committed to a program of fumigation to eradicate Branched Broomrape and to compensate the landowners who make their living from the land hit by infestations. The fumigation and incentive program for the eradication of Branched Broomrape will cost \$7.6 million over four years.²⁷

Damage mitigation

4.20 The management of established pests generally involves reducing the impact from the species (damage mitigation). In Queensland it is estimated that these activities make up 30% of the programs funded by the Department of Natural Resources and Mines and Local Government (AEC 2002). Control activities include; chemical, mechanical or physical control, biological control or habitat modification depending on the species. The Committee heard that European foxes, feral cats and pigs, lantana and parkinsonia are all managed to some level.²⁸ The Tasmanian Weed Society submitted:

This course of action is one of the most difficult to employ as by the nature of choosing this management option it is understood the invasive species cannot be fully checked. Often not been feasible to eradicate from a site or keep from reinvading without ongoing management input. It requires the development of adequate means of control and a rationale to determine where efforts should be focused. In many instances expensive biological control programs are required to manage the impacts of weeds that fall into this category. Localised efforts at damage mitigation by manual, herbicide and other integrated techniques are similarly costly and cannot be applied on a large scale by individual landholders or governments. A targeted approach based on a strategic focus on the assets at risk is the most effective way of applying resources.²⁹

4.21 The Bureau of Rural Sciences also noted the complexity of a damage mitigation strategy in the management of invasives.

Damage mitigation through sustained control is a more complex strategy than eradication or containment. Optimal management depends on knowing when and where to intervene with optimal levels of control, and this depends on a good understanding of the relationships between vertebrate

²⁶ River Link Newsletter number 48, December 1999, website at: www.sardi.sa.gov.au/riverlink/news/rln048.htm.

²⁷ Government of South Australia, Government Achievements, website at: http://203.6.132.27/achievements_6m/group_display.asp?Group_ID=9&Commitment_ID=67.

²⁸ Queensland Government, *Submission 43*, p. 15.

²⁹ Tasmanian Weed Society, *Submission 18*, p. 3.

pest densities and resource conditions. The benefits need to be predicted or measured to optimise the management.³⁰

4.22 The following case study illustrates the use of biological control as a method of damage mitigation once an invasive species is established and eradication and other forms of control are no longer a viable option.

Case study: Biological control of bridal creeper

Bridal creeper, *Asparagus asparagoides*, is an environmental weed that was introduced from South Africa into Australia in the middle of the 19th century as an ornamental plant.

Bridal creeper is now a major weed and has become naturalised in many temperate Australian ecosystems, ranging from wet and dry sclerophyll forests to riparian and coastal vegetation systems. Its climbing vegetation smothers native plants and it forms a thick mat of underground tubers which impedes the root growth of other plants and often prevents seedling establishment. In many instances it forms dense monocultures, and is regarded as a very serious threat to biodiversity. Bridal creeper is regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts and has been declared a weed of national significance (WONS).³¹ Mr Peter Mirtschin from Venom Supplies in South Australia told the Committee that:

This weed is now at epidemic proportions in southern Australia. In South Australia it abounds on the West Coast, Eyre Peninsula, Yorke Peninsula, Adelaide Hills, Barossa valley, the southeast and parts of the Riverland ... The weed is the dominant understorey plant in many areas. Not only does it smother and replace low native plants but large trees also succumb to its advance (see pictures on Kangaroo Island and Waikerie above).

Bridal Creeper threatens to cover all of southern Australia in the next 15 years.³²

Biological control

Once invasive plants are established and widespread, the most cost-effective control method is biological control using insects or plant diseases introduced from the country of origin of the weed. Biological controls deliver high cost-benefit ratios, are sustainable in the long-term and have very few undesirable non-target effects. Biological control programs are long-term, typically requiring funding for 5 to 10 years as well as expensive quarantine infrastructures.³³

Three biological control agents of bridal creeper have been released in Australia: the leafhopper *Zygina sp.* in 1999, the rust fungus *Puccinia myrsiphylli* in 2000 and the leaf beetle *Crioceris sp.* in 2002.

30 Bureau of Rural Science, *Submission 62a*, p. 19.

31 CRC for Australian Weed Management, *Weed Management Guide: Bridal Creeper*, at: http://www.weeds.crc.org.au/documents/wmg_bridal_creeper.pdf.

32 Mr Peter Mirtshen, Venom Supplies, *Submission 6*, p. 1.

33 CRC for Australian Weed Management, *Submission 22*.

A national redistribution program established in 2002, with the financial assistance from the Natural Heritage Trust, has fast tracked the release and spread of the leafhopper and rust fungus across the entire range of bridal creeper infestations.

The bridal creeper leafhopper has been released at more than 700 sites throughout southern Australia since 1999. The adult insect is white, 2-3 mm long and lives on the underside of bridal creeper leaves. Both the adult and juvenile stages feed on the leaves of the weed, causing them to turn white and, in severe cases, fall off. The plant will continue to grow but with much less vigour. Continual damage over several years will reduce new tuber production, making it less competitive.

The bridal creeper rust fungus was released in 2000 and more than 700 releases have been made across Australia. The rust fungus attacks leaves and stems, reducing the amount of green plant material.

The bridal creeper leaf beetle (*Crioceris sp.*) was first released in 2002 in Western Australia. The grubs of the beetle can cause major damage to bridal creeper by stripping the shoots and leaves that enable the plant to climb. Stopping it climbing will stop it fruiting and spreading to new areas. Nursery sites of the leaf beetle are being established and monitored in order to support future redistribution efforts.

In June 2004 CSIRO Entomology announced it had received funding from the Natural Heritage Trust to support the continued delivery of biological control agents in collaboration with community groups and land managers.

The effectiveness of biological control

Reports in 2003 of natural spread of the rust fungus of up to 1km from release sites after one year are positive. The rust was seen to cause severe defoliation of plants in the middle of the weed's growing season. This was particularly apparent in Western Australia, New South Wales and Kangaroo Island in South Australia.³⁴

While the leafhopper has readily established at most release sites, their performance is variable. In many places they simply establish and populations stay in numbers too low to make any impact on bridal creeper. At other sites they perform extremely well, spreading considerable distances and causing early defoliation of bridal creeper.³⁵ It will take many years for the biocontrol agents to reduce the density of bridal creeper due to the huge reserves stored underground in tubers, however, it remains a cost-effective method of control.

4.23 Evidence received by the Committee strongly supported the use of biocontrol methods to address invasive species.³⁶ The Animal and Plant Control Commission submitted:

34 CSIRO Entomology website at: <http://www.ento.csiro.au/weeds/bridalcreeper/news.html>.

35 CSIRO Entomology website at: <http://www.ento.csiro.au/weeds/bridalcreeper/leafhopper/index.html>.

36 Weed Management Society of South Australia, *Submission 35*, p. 7.

Biological control remains one of the few options for controlling invasive species over large areas. However these programs are expensive and time consuming due in part to legislative and consultation requirements. Support for biological control should be reaffirmed and negotiations between Commonwealth and states should focus on simplifying these processes to minimise the costs.³⁷

4.24 Dr Rachel McFadyen, CEO of the Weeds CRC, told the Committee that:

The problem with biocontrol is that it needs long-term resources and national support and that is what it is not getting. Again, I think there needs to be some national support for biocontrol. To re-emphasise this, we are saying that coordinated weed control, if it comes in early, can make a real difference. It is important that we do something. We have made good progress on some issues but we do need long-term national resources for those points. Essentially, we are saying that it is a saving of national money.³⁸

4.25 Another method of control that is being developed for damage mitigation is gene manipulation. The funding and support mechanisms for the development of control methods using gene manipulation requires are similar to the development of biological control agents as it can take a significant period of time from inception to release of this technology. Contact with the Gene Technology Regulator is required regarding regulations that may cover more advanced stages of the project to ensure that there are no adverse impacts. Gene manipulation technology is controversial and legal, logistical, environmental and community barriers to release must be addressed prior to the release of the technology.

Case study: Daughterless Carp - Control through Gene Manipulation³⁹

Carp (*Cyprinus Carpio*), usually referred to as European Carp, are native to Central Asia. They were introduced to China, Japan and Italy in ancient times, and were first introduced into Australian waterways over 100 years ago. Since the 1960s they have bred particularly fast and now make up more than 90 per cent of the total fish population in some Murray-Darling Basin rivers.

Carp significantly degrade waterways by causing increases in water turbidity and water nutrient levels. They also damage the riverine habitat, uprooting aquatic plants and competing with the native fish for food and habitat. River conditions that have

37 Animal and Plant Control Commission, *Submission 15*, p. 9.

38 Dr Rachel McFadyen, *Committee Hansard*, Canberra, 26 November 2003, p. 7.

39 CSIRO and the Murray-Darling Basin Commission, *Carp Management in the Murray Darling Basin: Daughterless Carp Technology*.

reduced native fish numbers also favour carp. Carp prefer slow running waters and river pools, and are most common in the highly regulated waters of the Murray River and Murrumbidgee River.

Controlling Carp

A variety of methods have been tried for controlling Carp.

- Targeted fishing has the potential to significantly reduce carp numbers. In some parts of South Australia targeted fishing has reduced carp from 80% to less than 40% of the biomass.
- A number of community groups have reportedly been successful in removing carp from wetlands and preventing re-entry by screening inlet channels
- Scientists have been investigating the use of a virus known as spring viremia since the 1970s when it attacked farmed carp in Europe. However, it is not an option at this stage because introducing such a virus may affect native fish and Australia's 'clean-green' status.
- Carp have been successfully eradicated from lakes using the chemical poison rotenone. However, the use of poison in quantities large enough to affect carp is likely to have significant impact on native plants and animals.

While some of these methods can be effective in eliminating carp from enclosed water or in reducing their numbers they are unlikely to provide a permanent solution. A more promising avenue for control is the daughterless carp technology being developed by the CSIRO, with support from the Murray Darling Basin Commission.

Daughterless Carp Technology

Daughterless carp technology involves manipulating the genes of carp to produce an inheritable 'daughterless' carp. Despite breeding normally, with each succeeding generation fewer and fewer females will be produced in the wild population as this biological control method restricts all offspring to males. It is predicted that this technology will significantly reduce carp numbers in the Murray-Darling Basin within 20-30 years of release.

The daughterless gene consists of a promoter that activates the daughterless gene to express only in females. During its brief period of activation, the daughterless gene inhibits production of the key enzyme required for the fish to develop as a female – as a result the fish defaults to a male. The genetic sequence used to produce daughterless carp is found in the carp itself. This is species-specific technology and native fish will not be affected by the technology.

This technology is still in a developmental stage. For it to be effective it must be ecologically safe, socially acceptable, economically affordable and cost effective. Research into these factors must be conducted before any consideration can be given

to releasing 'daughterless' carp. A final decision on the release of carp that carry the 'daughterless' gene will not be made until 2009.

Conclusion

Gene manipulation technology opens a new avenue for controlling invasive species and it is likely that a similar approach could be effective in combating other invasive species.

Inaction

4.26 Several factors influence the decision to adopt an approach of inaction in relation to an invasive species. These include the burden placed on landowners if a species is declared, the impact of a pest, the geographic distribution of the pest, and whether the short-term management cost is greater than longer-term cost if the species does spread. Inaction on a pest may also be a valid response if no cost effective method of control is available, although this may also lead to funds being set aside for research. As the Queensland Government argued, however:

In many cases, inaction is not an option, public sentiment will require at least extension material and research to improve management.⁴⁰

4.27 The cost of inaction is often felt in the longer term when management costs and negative environmental effect maybe significantly higher.⁴¹ Failure to act can lead to a situation where control, management, and damage mitigation are no longer possible and the community has to suffer the effects of the invasion in the longer term. The Tasmanian Weed Society submitted:

Short term costs of inaction are practically nil and this is often an attractive option for jurisdictions that have limited budgets, or fail to understand the implications of invasive species. Mid-term costs of inaction are moderate where the invasive incident gradually impacts on production, trade, aesthetics, and environment. The long term costs of inaction can be immense and translate to the most expensive response to an invasive incident ... Our environmental and cultural heritage is at risk and being slowly and insidiously changed through inaction.⁴²

4.28 Cane toads are an example of what can occur as a result of a failure to address a pest species.

4.29 Cane toads, which are native to Central and South America, were released in Queensland in 1935. Within a brief period of time they became established pests. Cane toads are primarily environmental pests not agricultural, and have significant impact on biodiversity:

40 Queensland Government, *Submission* 43, p. 16.

41 Bureau of Rural Science, *Submission* 62a, p. 20.

42 Tasmanian Weed Society, *Submission* 18, p. 3.

Cane toads are seen as a major threat to biodiversity, not only because they voraciously out-compete some native species for food and consume others, but also because their skin toxins are thought to kill carnivorous predators which mistake them for local amphibians. Although the impact of cane toads on native Australian species is perceived to be detrimental, most reports so far are anecdotal, a fact recognised at the workshop [*Biological Control of Cane Toads*, held in February 2004] by a number of ecologists. Gradually, however, more quantitative data on the impacts of native species are becoming available to greatly assist in confirming the toads effects.⁴³

4.30 Dr Alex Hyatt, Senior Principal Research Scientist, Australian Animal Health Laboratory, CSIRO told the Committee that:

To see the long-term impacts, you need long-term studies. ... If you have short-term discontinuous studies over a long period of time, you are not going to derive the data whereby you can say definitely over a long period of time there is a significant impact or not. Short term, however, as my colleagues have said, there are published data to show that the impact of the cane toad is dramatic in a short-term time frame in all areas—culture as well as biodiversity.⁴⁴

4.31 A failure, across all tiers of government, to commit adequate resources to manage them and to invest in the development of an effective control method has resulted in their spread across vast areas of Queensland, the Northern Territory and New South Wales. Their range now extends to Kakadu National Park. It is estimated that they are spreading at a rate of 27 kilometres per annum.

4.32 There is a dearth of research into both the impact of, and measures to control, cane toads. Evidence indicates that they have been placed in the 'too hard basket' by many decision makers.

4.33 The case study below demonstrates what the outcome can be if a new species is released without being subjected to thorough risk assessment prior to release and the consequence of inaction once a species is identified as being invasive.

Case study - Cane Toads⁴⁵

Cane toads were deliberately introduced to Australia from Hawaii in 1935 in an attempt to stop French's Cane Beetle and the Greyback Cane Beetle from destroying sugar cane crops in North Queensland. The Australian Bureau of Sugar Experimental Stations made the release of 101 cane toads at Gordonvale in Queensland. The cane toad was unsuccessful in controlling cane beetles.

43 ECOS, *Battlelines drawn against the cane toad march*, 119 Apr-Jun 2004, p.28.

44 Dr Alex Hyatt, *Committee Hansard*, Canberra, 18 June 2004, p. 8.

45 CSIRO, *CSIRO cane toad research website* at: <http://www.csiro.au/index.asp?type=faq&id=CaneToadControl&stylesheet=sectorInformationSheet> and Australian Museum, *Fact sheets Cane Toads, Giant Toads or Marine Toads* at: <http://www.austmus.gov.au/factsheets/canetoad.htm>, accessed 11 October 2004.

In Australia, most cane toads are found in urban areas and in areas with grassland or woodland. Average adult-sized cane toads are 10-15 cm long. They are a fecund species; females lay 8,000 to 35,000 eggs at a time and usually breed twice a year. Cane toads need between 6 and 18 months to reach sexual maturity and have a lifespan, in the wild, of about 5 years. About 0.5% of cane toads that hatch from eggs survive to reach sexual maturity and reproduce.

Due to their adaptability and the fact that they have no known predator in Australia, with the possible exception of keelback snakes, cane toads have been able to become established across a vast area. Their food and habitat requirements are easily met. Cane toads eat mainly insects, but will eat any small creature that fits in their mouth, including marine snails, native frogs, small snakes, and small mammals. Adult cane toads can survive the loss of up to 50% of their body water, and in temperatures ranging from 5 - 40°C and they can tolerate salinity levels of up to 15%.

Cane toads are toxic in all stages of their life cycle. Australian native fauna, such as freshwater crocodiles, goannas, tiger snakes, dingos and western quolls have died from cane toad venom. In Australia, no humans have died from cane toad venom, however, it may cause intense pain, temporary blindness or inflammation if it is absorbed by humans.

The ecological impacts of cane toads have been hard to identify as the research required to determine the impacts is long term and multidisciplinary.⁴⁶ However, the significant impact of cane toads on biodiversity is undisputed. While some birds have learnt to turn them over and take out the intestinal contents without eating the toxic skin and evidence indicates that goannas learn to avoid them after experiencing non-lethal doses of cane toad venom, other native species, such as quolls, do not seem to learn to avoid the cane toads.⁴⁷ Although no extensive environmental monitoring studies have been undertaken, evidence indicates that there has been a decline in quoll, snake and native frog numbers in areas where large numbers of cane toads are found. The acute effects of cane toads on biodiversity, such as through the killing of freshwater crocodiles and quolls, can be readily seen in areas where they have more recently moved.⁴⁸

Despite the negative impact cane toad have on a number of species they are not officially recognised as a threatening process in Australia, because not all States consider toads to be a problem. Only animals that are of national significance are officially recognised as threatening processes.

At present there is no national strategy to address cane toads and there is no broad-scale control method that can be applied to the vast area where cane toads have spread. Current control activities for cane toads are mainly taking place through quarantine checks and public awareness campaigns. In Queensland no funds are currently expended by state agencies as current control methods and the wide distribution of cane toads suggest that funds will not effectively deliver an outcome as the species has already reached its extent in the state.⁴⁹

46 Dr Mark Lonsdale, *Committee Hansard*, Canberra, 18 June 2004, p. 8.

47 Dr Tony Robinson, *Committee Hansard*, Canberra, 18 June 2004, p. 7.

48 *ibid*, p. 7.

49 Queensland Government, *Submission 43*, p. 31.

A solution to cane toads is proving elusive. A number of options for controlling cane toads have been investigated, and the Commonwealth Government has spent \$5 million on studies of how to eradicate cane toads.⁵⁰ However, a successful control method has yet to be identified. From 1987-1989 researchers at James Cook University investigated possible controls focusing on diseases in Australia that could affect cane toads, unfortunately the research was unsuccessful. From 1989-1994 research focused on the original habitat of the cane toad, Venezuela, and looked at diseases in South America that had the potential for use in Australia. Researchers identified a potential virus, however, the virus killed one species of Australian amphibian and was therefore ruled out.

Currently hope for a solution rests with the CSIRO. In 2001 CSIRO researchers commenced a project to investigate the possibility of creating a biological control from a native amphibian virus which can interrupt the metamorphosis of the cane toad and disrupt development. It aims to develop a biological control option which could be deployed across the range of the cane toads. The goal is to identify and manipulate a critical toad gene to disrupt development and prevent the tadpole from maturing and therefore reproducing. The second goal is to develop a method for delivering the gene effectively to the toads genetics, using a viral infection.⁵¹

The CSIRO project is high-risk research, at the frontiers of research knowledge. It is expected to take 10-years from inception before results can be delivered.⁵²

Biological control agents can be the most effective method for addressing an invasive species. However, their development requires significant financial and time investments from involved parties. As has been demonstrated by previous research into control methods for cane toads, viable solutions have proved elusive. It is hoped that with the support of the Commonwealth, State and Territory Governments the CSIRO will be able to identify a solution.

On 26-27 February 2004, a workshop titled "Biological Control of Cane Toads" was held in Queensland. It was sponsored by the Australian Government Department of Environment and Heritage under the National Threat Abatement Component of the Natural Heritage Trust. The purpose of the workshop was to provide information to the Australian scientific community and public interest groups about the current CSIRO biological control project and to discuss key issues relating to the impact and control of cane toads. At the meeting it was agreed that there was a need for cane toads to be controlled through a combination of short-term, local, methods as well as long-term, nation-wide methods. It was also recognised that an effective national strategy is required and research into cane toads must be coordinated if cane toad populations are to be controlled.⁵³

50 Senator Ian Campbell, *Cane toad invasion threat - joint taskforce to defend WA*, Media Release, 29 August 2004.

51 ECOS, *Battlelines drawn against the cane toad march*, 119 Apr-Jun 2004, p. 28.

52 Dr Tony Robinson, Committee Hansard, Canberra, 18 June 2004, p. 7.

53 Department of Environment and Heritage, *Initiative for Future Research on the Control of Cane Toads in Australia*, website at: <http://www.deh.gov.au/biodiversity/invasive/ferals/canetoad-year-3/pubs/canetoad-year-3-summary.pdf>.

The general recommendations arising from the workshop were:

- establish a national cane toad group to coordinate research;
- collate and document all current knowledge on the short and long-term impacts of cane toads;
- identify gaps in impact knowledge and support further research;
- identify and implement short-term control and damage mitigation measures;
- identify research gaps in short and long-term control methods; and
- provide support for research into short and long-term control measures.

Recognition of the need for action has resulted from an increase in awareness of the threat posed by the continued spread of cane toads, and their impact on biodiversity.

At the Natural Resource Management Ministerial Council (NRMMC) meeting in April 2004 there was consensus on the need to address cane toads and the NRMMC directed its Vertebrate Pests Committee to investigate options for a national approach to eradicate them.⁵⁴ The inaugural meeting of the National Cane Toad Taskforce was held in Darwin on 21 and 22 November 2004. The taskforce will report to the Vertebrate Pest Committee.

The Minister for the Environment, Senator Campbell, also foreshadowed the development of a national cane toad group to coordinate a drive against the pest and called on the Western Australia Government to work with the Commonwealth Government to halt the migration of cane toads into Western Australia. Senator Campbell advised that:

The Australian Government will take all measures available to stop the cane toad reaching Western Australia in order to safeguard the state from the impacts of this menace.⁵⁵

4.34 Cane toads have been able to spread across Australia as a result of policies of inaction. It has only recently been recognised that the impacts of cane toads are too significant for them to continue to be ignored. The cost of this delayed response will be considerable and a solution is many years away from being realised. The Committee expresses its hope that a solution to the cane toads can be identified and implemented.

Conclusion

4.35 In 2002 the Prime Minister's Science, Engineering and Innovation Council identified invasive species as one of four areas in which addressing the decline of Australia's natural systems and biodiversity provided the greatest return on investment. The Committee acknowledges that the cost of inaction is high and the most cost effective measure for dealing with invasives is prevention. Those

54 Natural Resource Management Ministerial Council Communique, 16 April 2004, at: http://www.mincos.gov.au/pdf/nrmmc_06.pdf.

55 Senator Ian Campbell, *Cane toad invasion threat - joint taskforce to defend WA*, Media Release, 29 August 2004.

propositions are axiomatic. Early intervention and the prospect of eradication depend upon effective emergency response arrangements.

4.36 In theory, the Committee would wish to see total eradication adopted as the national goal, while recognising that such a course is not without pitfalls given evidence that some invasive species have actually proven beneficial to the survival of some native species,⁵⁶ and may take many decades to be achieved.

4.37 In conclusion, in discussion the cost of responding to invasive species, the Committee believes that the environmental impacts of invasive species are substantial, the challenges are immense and the need for action is urgent.

56 Mr Peter Tucker, *Committee Hansard*, Adelaide, 28 June, 2004, p. 76.

Chapter 5

Management of invasive species within Australia

Despite the fact that invasive species are widely regarded as a major threat to biodiversity, it is relatively rare to find much mention of them in biodiversity policy documents, except for a focus on a few high profile species. The 1996 National Strategy for the Conservation of Australia's Biological Diversity does cover alien species (at 3.3), but it and other general policy statements are not well translated into detailed practices. There are no national invasive species statutory controls.¹

Introduction

5.1 The Commonwealth's involvement in the management of established pests is limited to funds delivery for research or specific on-ground activities, some planning activities under the EPBC Act, and representation on national consultative committees.² The Commonwealth also has a role in incursion management, when an exotic pest, disease or weed that is likely to have an impact upon Australia's primary industries is detected within national quarantine borders for the first time and has spread beyond the recognised limits of quarantine operations.³ However, ultimately it is the States and Territories which have statutory responsibility for managing invasive species once they are in the country and have cleared the quarantine barrier.⁴

5.2 The Department of Agriculture, Fisheries and Forestry's (DAFF) submission outlined the fundamental position in relation to the management of invasive species within Australia:

While responsibility for the management of established pests rests fundamentally with State, Territory and local governments as well as landholders and industry, the Commonwealth plays a major role in setting the strategic framework that other stakeholders implement.⁵

5.3 In this chapter, the Committee will direct its attention at the regulation, control and management of invasive species within Australia's borders, including incursion management. This discussion reviews both State and Territory and Commonwealth action in regard to invasive species management. A detailed discussion on border control and importation issues is provided in the following chapter.

1 CSRIO, *Submission 34*, p. 23.

2 Queensland Government, *Submission 43*, p. 20.

3 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 5.

4 Government of Western Australia, *Submission 67*, p. 18.

5 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 7.

Commonwealth, State and Territory action

The National Weeds Strategy

5.4 Having established that it is substantially the States and Territories which have statutory responsibility for managing invasive species once they are in the country the Commonwealth plays a strategic role in developing national strategies and fostering national coordination and harmonisation which require cooperation from all levels of government. This is best examined in relation to the national effort to control invasive weeds through the National Weeds Strategy (NWS).

5.5 The National Weeds Strategy (NWS) was launched in June 1997, by three Ministerial Councils; the Agriculture and Resource Management Council of Australia and New Zealand, the Australian and New Zealand Environment and Conservation Council and the Forestry Ministers.

5.6 It was established with the aim of taking a strategic approach to weed management problems of national significance, and addressing environmental and agricultural weeds equally. The NWS describes the nature of the problem, discusses why existing weed management measures are not adequate, lists the roles and responsibilities of government, community, landowners and land users.

5.7 Its three goals are:

- To prevent the development of new weed problems;
- To reduce the impact of existing weed problems of national significance; and
- To provide the framework and capacity for ongoing management of weed problems of national significance.

5.8 The goals and objectives of the NWS are set out in the document titled *National Weeds Strategy: A Strategic Approach to Weed Problems of National Significance*.

5.9 The NWS sets out and categorises roles and assigns responsibility in the management of invasive weeds as follows:

Role of Individuals and Groups

Individual Landowners and Land Users Have a Role to:

- understand that weeds are an important factor in land degradation
- detect and report new weed occurrences
- understand land use systems and the cause/effect relationships which apply to weed problems
- apply their knowledge and skills to improving weed management
- integrate economic and environmental values in the management of weed problems on their land

-
- cooperate with and , where relevant, plan weed management activities jointly with neighbours
 - support and promote sustainable production practices to minimise the development of weed problems.

Communities Have a Role to:

- coordinate local group development and action on weed problems
- encourage local involvement in the management of public land
- participate in local and regional weed management programs
- raise awareness and improve education on weed issues

Community and Industry Organisations Have a Role to:

- represent members' interests on weed issues
- provide their members with information on weed management issues
- participate in the development of codes and policies which will reduce the impact of weeds.

Local Governments Have a Role to:

- assist with data collection and information exchange
- assist with the coordination of community weed management programs
- act as a community advocate on weed issues
- support the activities of local self-help groups to undertake weed management activities
- develop and apply local weed management strategies
- exercise statutory responsibilities to encourage responsible weed management
- manage weed problems on their own land responsibly, in cooperation with other landowners.

State and Territory Governments Have a Role to:

- encourage responsible weed management by:
- providing a suitable institutional and legislative framework
- developing and implementing effective policies and programs
- providing positive support through financial incentives and assistance schemes as well as appropriate standards and regulations
- provide leadership, coordination and resources for research, assessment, advisory services, education and public awareness programs on weeds
- encourage the development of effective weed management strategies at local, regional, State and national levels
- enhance cooperation and coordination of weed management at local, regional and State levels
- manage weed problems on their own land responsibly, in cooperation with other landowners.

The Commonwealth Government Has a Role to:

- manage weed problems on its own land responsibly, in cooperation with other landowners and in cooperation with the States to:
- facilitate the development of an economic, social and cultural framework that encourages weed management as an integral part of sustainable land management
- provide the appropriate legislative framework, including quarantine and environmental legislation, necessary to reduce the impact of weeds
- provide the mechanism by which weed problems of national significance can be identified and addressed
- develop and encourage national weed management policies and programs
- provide leadership, coordination and resources for research, assessment, education and public awareness on weed issues of national significance
- encourage the development and integration of effective weed management strategies at local, regional and State and national levels
- develop with stakeholders a balanced program of incentives, standards and penalties to ensure effective action to address weed problems.⁶

5.10 However, despite this framework the management of invasive weeds by the States and Territories has been largely in an *ad hoc* manner due to inconsistencies in legislation and a lack of political will. In relation to the national effort to control invasive weeds, the Invasive Species Council expressed its concerns thus:

Ultimately, nation-wide efforts to control invasive species are substantially hindered by inadequate and inconsistent state legislation. This is not ‘news’ to anyone working in the area of environmental management. The National Weeds Strategy identified the fact that “States have not always harmonised legislation to address situations where a weed in one State can affect another State or where infestations cross State borders.”⁷

5.11 The Council of Australian Weed Societies noted that both legislative and funding arrangements create a fragmented management approach which leads to greater cross-jurisdictional inconsistency.⁸ A lack of legislative synergies is discussed in Chapter 3.

Weeds of National Significance

5.12 The National Weed Strategy provides a national approach to the management of weeds through the Weeds of National Significance (WONS) list. As outlined in Chapter 2, the Australian, State and Territory governments agreed in 1999 to list 20 Weeds of National Significance from some 2,700 non-native naturalised plants

6 Mr Richard Sharp, *Submission 2*, p. 9.

7 Invasive Species Council, *Submission 33*, p. 9.

8 Council of Australian Weed Societies, *Submission 68*.

identified through a weed risk assessment process.⁹ While many factors were considered when making decisions on priorities, assessment of WONS was based on four major criteria:

- invasiveness;
- impacts;
- potential for spread; and
- socioeconomic and environmental values.

5.13 Five main data sources were used for the Weeds of National Significance analysis:

- an invasiveness and impacts questionnaire was submitted to three expert panels covering weeds for temperate, sub-tropical and tropical environments;
- observed distribution and density for each weed provided by State and Territory agencies and sourced from the literature. This data and published literature was used to predict potential distribution of weeds using climatic modelling;
- economic information on the cost of control for agricultural and forestry weeds provided by State and Territory agencies;
- environmental information on the number of threatened species, communities and IBRA regions provided by State and Territory agencies and the monoculture potential of a weed from the expert panels; and
- a qualitative assessment by the expert panels of social impacts caused by a weed (not examined by other data sources).¹⁰

5.14 A Weed of National Significance status brings a weed species under national management for the purpose of restricting its spread and/or eradicating it from parts of Australia. A central component of the strategy is the identification of Weeds of National Significance and the resultant coordinated actions across all States and Territories to ban the sale of WONS nationally. The program has increased inter-state discussion and coordination on various issues and increased synergies between agencies for delivery on some species. For example, through the development of best practice manuals for weeds such as mesquite.¹¹

9 Department of Environment and Heritage, *Submission 61*, p. 2.

10 Weeds of National Significance website at: <http://www.weeds.org.au/natsig.htm>, accessed 6 October 2004.

11 Queensland Government, *Submission 43*, p. 21.

Problems with WONS

5.15 However, while the Commonwealth is actively trying to broker a national approach to the sale of WONS, the continued sale of known weedy plants in a number of States and Territories continues to undermine weed management initiatives.

5.16 To date the program has not achieved the nationwide prohibition of the sale of the 20 Weeds of National Significance. Only Queensland and South Australia have acted to prohibit the sale of all 20 plants¹² and five or a quarter of the WONS are still available for sale in one or more States and Territories.¹³ The WWF stated in its submission that:

Commonwealth investments in the detection and eradication of serious invasive plant species is being undermined by State noxious weed laws that enable some of these nationally targeted invasive weeds to be widely traded by the nursery industry. This is an example of poor coordination between the Commonwealth and the States, is not cost-effective and is wasting tax payer dollars.¹⁴

5.17 The WWF's Andreas Glanznig added that:

You have the Commonwealth on the left hand doing good work, but you have the states still contributing to the problem on the other.¹⁵

5.18 Due to the ease with which seed and plants stock can be traded, both intra- and interstate, and the proliferation of trade over the Internet, the failure to impose a national ban on the sale of the plants compromises the work of states that have bans in place and impedes national efforts to control weeds of national significance.

5.19 Evidence received by the Committee indicated support for a review of the NWS as it had not been effective in achieving its goals and objectives. This view was supported by the Council of Australian Weed Societies which submitted that:

...the strategy needs updating, and legislative arrangement and funding is needed to enable implementation of the strategy.¹⁶

5.20 The Committee heard that:

At the last meeting of the Australian Weeds Committee they agreed to recommend for council's agreement a review of the national weeds

¹² A Glanznig and O Kessal, *Invasive Plants of National Importance and their Legal Status by State and Territory*, WWF Australia, Sydney, 2004, p. 4.

¹³ A Glanznig, K McLachlan and O Kessal, *Garden Plants that are Invasive Plants of National Importance: an overview of their legal status, commercial availability and risk status*, WWF Australia, 2004, p.v.

¹⁴ WWF Australia, *Submission 30*, p. 4.

¹⁵ Mr Andreas Glanznig, *Committee Hansard*, Canberra, 26 November 2003, p. 11.

¹⁶ Council of Australian Weed Societies Inc., *Submission 68*, p. 1.

strategy, recognising that there had been significant progress in the existing strategy, that there was an opportunity and that it was very timely to review the strategies and the effectiveness of the actions.¹⁷

5.21 Dr Dickson, Assistant Secretary, Natural Resource Management Policy Branch, Department of Environment and Heritage, told the Committee that:

There are still such things as sale of banned weeds ... Those sorts of issues have stimulated the need for both the review of the Weeds Strategy, how can it be done more effectively and having not a blank sheet but certainly being open to a range of different options for improving the robustness of the framework and that coordination.¹⁸

5.22 The Committee was advised that the Commonwealth Government has not taken a greater role in banning the trade in the 20 Weeds of National Significance as:

It is important to recognise that in the first instance the responsibility for sale of these weeds, or for that matter most such products, is a state responsibility. It is not a Commonwealth responsibility.¹⁹

5.23 The Committee is disappointed at the lack of cooperation and coordination between the States and Territories to address the invasive weed problem. The Committee appreciates that achieving the process of harmonisation and the passage of uniform regulation through six state and two territory parliaments, without amendment, is no easy task – and takes time. In relation to the WONS, after seven years that excuse is wearing thin. The WONS are agreed to be the 20 most problematic weeds in Australia. They have to be vigorously attacked on a unified basis before the country can move on to address its next priorities. The national effort to overcome invasive species is only as strong as the weakest link – and control and eradication efforts in one region are quickly undone in other regions which adopt a less aggressive regulatory stance.

5.24 The Committee draws the conclusion that weed laws at a national level are poorly harmonised because of a lack of political will on the part of the States and Territories. Dr Rachel McFadyen told the Committee:

Unfortunately, we believe that current controls are not adequate. I have cited two examples of this. I could cite you plenty more, but I have simply chosen two. One is Mexican feather grass, *Nasella (Stipa) tenuissima*. It is closely related to serrated tussock and Chilean needlegrass. They are already costing us nearly \$60 million a year, and this is a close relative. They are both major weeds of pastures in the temperate zone of eastern Australia. Mexican feather grass is in fact more drought tolerant than both of those, so it would be expected to have an even wider climatic range. It was discovered being sold as a garden ornamental in Victoria and it was

17 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 56.

18 *ibid*, p. 64.

19 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 65.

removed from sale in 1998. It was put on the prohibited import list under AQIS legislation, so import is now banned. It is a declared plant and therefore banned from sale in four states—South Australia, Victoria, New South Wales and Western Australia. However, it can still be legally sold in the Northern Territory, the ACT, Tasmania and Queensland.²⁰

5.25 The Committee supports the efforts of the Commonwealth, States and Territory Governments to work collaboratively on environmental issues. However, ultimately, it considers that if consensus and action cannot be achieved then the Commonwealth needs to have the courage to take a leadership role and apply legislation that is within its power, in order to prevent further detrimental impacts by invasive species. As the Committee heard:

Therefore, we believe that there is an urgent need for national regulations to control the sale of all known weedy species and that this is quite separate from the controls on importation into Australia. We believe that relying on the states for action is, quite simply, not working. If the states cannot get their act together for the 20 weeds on the list—the request that they forbid the sale of these plants was made in 1999, and we are now in 2004—the chance of their ever getting their act together for other plants are very small indeed. The stakes are very high. We cannot afford to have another branched broom rape or another serrated tussock which will cost us hundreds of millions of dollars in control and lost production.²¹

Recommendation

The Committee recommends that those States and Territories that have failed to legislate a prohibition on the Recommendation on the sale of WONS within their jurisdictions should act to do so as a matter of priority.

5.26 While WONS is clearly a step in the right direction, submitters highlighted a number of other weaknesses in the approach to date. Mr Tim Low from the Invasive species council highlighted a range of issues which restricted the effectiveness of WONS and the management of invasive species generally.

Then you have the spectacular conflicts of interest. *Hymenachne* was released in 1988 as a pasture grass. Eleven years later it was declared one of our weeds of national significance, implying that it was one of our 20 worst weeds. It took 11 years to go from something that people thought was a good idea to something that was decided to be a disaster. The national *hymenachne* management committee that is meant to control it was set up only two weeks ago. I am a member of that committee. I am asking the committee: why has it taken nearly four years to get action on what is a weed of national significance? You cannot explain it. But it comes back to

20 Dr Rachel McFadyen, CRC for Australian Weed Management, *Committee Hansard*, Brisbane, 14 April 2004, p. 21.

21 *ibid*, p. 22.

the lack of funding, bureaucratic inertia and the fact that farmers want the stuff—and in that time the cost of eradicating it has probably doubled.²²

5.27 The Nature Conservation Society of South Australia submitted that there is a need for a nationally integrated and regionally coordinated approach to WONS.

When controlling invasive plant species an integrated approach is also important to ensure that one invasive species is not replaced by another. To a certain extent the Weeds of National Significance (WoNS) program perpetuates this single species approach. What is missing is the relationship component between species. The WoNS program also ignores regional priorities. As most of the Commonwealth money spent on the environment (NHT) is directed through regional groups there is an apparent inconsistency between these two Commonwealth initiatives.²³

5.28 Only established weeds can be listed as WONS and this process excludes emerging and potential invasive weeds. Mr Mark Ramsey, Executive Officer of South Australia's Animal and Plant Control Commission raised this issue with the Committee:

The WONS system was based on existing damage caused by a weed, not projecting a hypothetical damage into the future. So it [Branched Broomrape] was excluded on those parameters when the original list of 20 weeds was put together.²⁴

5.29 Ms Helen Moss submitted:

The release of the National Weeds Strategy in 1996 did little to change the on-ground reality of the problem. The recognition of 20 weeds of national significance in 1999 has targeted some problematic species, but the influx of potential weeds into Australia continues unabated.²⁵

Recommendation

The Committee recommends that the species listed on the WONS list be reviewed and that other significant threatening species be included as part of a new national control list of invasive plant species.

Sleeper weeds

5.30 The National Weeds Strategy recognised the need to deal with 'sleepers'. These are cultivated exotic and native plants and minor weeds which are already in Australia and which have the potential to become major weeds. The Invasive Species Council submitted:

22 Mr Tim Low, Invasive Species Council, *Committee Hansard* Brisbane, 14 April 2004, p. 45.

23 The Nature Conservation Society of South Australia, *Submission 76*, p. 5.

24 Mr Mark Ramsey, *Committee Hansard*, Adelaide, 28 June 2004, p 7.

25 Ms Helen Moss, *Submission 48*, p. 1.

Even if Australia closed the door on all new introductions today, our pest numbers would multiply because many non-native species are already here and are simply awaiting their chance to escape, or have escaped but only in small numbers. Similarly, some native species can cause just as much damage as exotic introductions when translocated beyond their natural range, or when lacking natural limiting factors.... They are all around us, in our gardens and aviaries, on farms and plantations, in laboratories and aquaria. Australian weed experts have compiled a list of 300 sleepers that are likely to become the nation's next set of aggressive invaders. This figure is likely to be a gross underestimate.²⁶

5.31 The WWF argued that there was a lack of adequate funding for detection and eradication of sleeper species.²⁷ The Natural Heritage Trust funded a study to prioritise 'sleeper weeds' for eradication. The Committee was informed that the findings of this study would be wasted if no funds are made available, or joint Commonwealth/State funding set in place, for the actual on-ground eradication of the 10 top-priority weeds.²⁸

5.32 The Committee heard that government departments lacked the necessary resources to detect and eradicate small infestations of sleeper weeds. Despite the fact that return-on-investment models demonstrate that prevention and early detection are vastly more cost effective than neglect or late action, resources are more often invested in projects where a clear pest problem already exists. The Invasive Species Council noted that the National Weeds Strategy has to date done little to address the issue of sleeper weeds:

Although the National Weeds Strategy (NWS) acknowledges the need to recognise and eliminate sleepers during their benign phase, and institute a detection and rapid response program, authorities have been slow to act. The National Weeds Strategy has to date focussed most efforts and resources on major widespread weeds (the Weeds of National Significance), and is only belatedly starting to address high priority 'sleeper' and emerging weeds.²⁹

5.33 Additionally, the 2002 National Weed Experts Meeting found that there was no clear responsibility for 'sleeper' weeds and that no responsibility exists for national level funding of weeds with purely an environmental or social impact.³⁰

26 Invasive Species Council, *Submission 33*, p. 7.

27 WWF Australia, *Submission 30*, p. 3.

28 CRC for Weed Management, *Submission 22*, p. 9.

29 Invasive Species Council, *Submission 33*, p. 9.

30 WWF Australia, *Submission 30*, p. 13.

Recommendation

The Committee recommends that The National Weeds Strategy better clarify responsibility for funding eradication of ‘sleeper weeds’ with purely an environmental or social impact.

Recommendation

The Committee recommends that investment in early warning systems needs to increase for the detection and eradication of sleeper weeds.

National Environmental Alert List

5.34 The Commonwealth Government has taken action to identify weeds species that are in the early stages of establishment. The Department of Environment and Heritage advised that:

During 2000, the Department worked with consultants and technical experts to identify species to include on a National Environmental Alert List. The alert list identifies weed species that are in the early stages of establishment and have the potential to become a significant problem if they are not managed. This list contains 28 non-native species that are, or are likely to be, significant threats to biodiversity.³¹

5.35 The list contains 28 non-native taxa identified on the basis of their potential to become threats to biodiversity if they are not managed. A WWF Australia report, published in August 2004, identified that of the 28 listed species, 9 were able to be legally imported into Australia. It identified that 16 species are listed as naturalised garden plants in 1 or more of the states and territories, and 6 of the species are recorded for sale in one or more of the states and territories. Of the 16 naturalised garden plants, 7 are controlled at some level in one or more state or territory.³²

5.36 The Committee is concerned that when the community, who is being actively encouraged to detect and report infestations of these species through a ‘hotline’, will increasingly feel disaffection when they realise that their efforts are undermined when someone can simply go to a local nursery and buy an Alert List species and then plant it in their garden.

5.37 The Queensland Government advised:

The development of this list did not involve the agency in Queensland with major pest management responsibilities.³³

31 Department of Environment and Heritage, *Submission 61*, p. 2.

32 A Glanznig, K McLachlan and O Kessal, *Garden Plants that are Invasive Plants of National Importance: an overview of their legal status and commercial availability*, WWF Australia, Sydney 2004, p. 11.

33 Queensland Government, *Submission 43*, p. 21.

5.38 Due to the lack of a coordinated consultative process in the development of the list, the Committee questions the effectiveness of the list in its ability to achieve its goals. The Queensland Government identified this as an issue in its submission. It advised:

The current DEH “weed alert list” is not considered by Queensland to be useful for regional groups, as a number of the species identified by the state are not of concern to government agencies or the community. Queensland consider it unlikely therefore those regional groups will apply for funds to control these species under the new regional funding arrangements.³⁴

5.39 The Committee acknowledges efforts made to identify and list species that will have significant impacts if they become established. It also applauds the work of the CRC for Australian Weed Management for its work developing Weed Management Guides for all 28 species. However, the Committee considers that the relevance of the list and the value of the guides are diminished by the failure of DEH to adequately consult with key stakeholders on the development of the list, and the absence of a uniform national statutory framework to control the trade in these species. An absence of political will and community support has significant negative adversely affects any prospect of success in managing invasive species.

Recommendation

The Committee recommends that as part of developing a list of invasive plant species of national importance, the Commonwealth, States and Territories develop an agreed national Alert List.

Pest animal management

5.40 In contrast to the national approach to weeds the lack of authentic national cooperation and action becomes particularly apparent when looking at the situation in relation to pest animal management, where no national strategy is yet in place. Yet such a strategy is clearly necessary:

There is considerable variation between states and territories in policies, legislation and institutional arrangements for the formulation and delivery of pest animal management. The development of a national pest animal strategy, similar to the National Weeds Strategy is needed.³⁵

5.41 As discussed in Chapter 3 the Vertebrate Pests Committee is a sub-committee of the NRPPC, under the Natural Resource Management Standing Committee.³⁶ While the Committee identifies nationally significant vertebrate pest issues, recommends appropriate management actions, and develops principles, national

34 Queensland Government, *Submission 43*, p. 21.

35 Animal and Plant Control Commission South Australia, *Submission 15*, p. 8.

36 Bureau of Rural Sciences, *Submission 62a*, p. 14.

policies, strategies and programs relating to vertebrate pests³⁷ it does not have a funded secretariat and therefore is limited in its ability to support nationally consistent action.³⁸

5.42 Currently there is no national vertebrate pest strategy, such as with weeds, however, the Committee heard that a national strategy to address the impact and management of invasive animal species is being considered by the Vertebrate Pests Committee.³⁹

5.43 The current lack of a coordinated national strategy for vertebrate pests has meant that Commonwealth funds that are provided for vertebrate pest management programs have not had a nationally agreed strategic focus or direction. The Queensland Government noted that the National Feral Animal Control Program (NFACP) was an example of a national program that has not had a nationally agreed strategic focus or direction.⁴⁰ This was highlighted through the example of Pestplan funding.

For example Pestplan funding from the Commonwealth, developed as a national model for community engagement in pest planning used in New South [Wales]. The final product is not consistent with Queensland delivery of pest management at a local government level and so cannot be used effectively in this state.⁴¹

5.44 The NFACP has been funded by the NHT since 1996. BRS submitted: NFACP is establishing improved control techniques and institutional frameworks to reduce damage caused by nationally significant agricultural pests such as rabbits, wild dogs, feral pigs and feral goats, and will work with relevant agencies to reduce the threat of new pest species establishing and spreading.

NFACP provides input into a range of national priorities (including risk assessment for import and keeping of exotic vertebrates, exotic disease contingency, review of individual species management, national competency standards and animal welfare) with the overall intention of achieving greater coordination and uniformity of State agency activity. NFACP also assists with capacity building at State and regional levels through the development of a wide range of national 'best practice' pest animal management extension materials which are being promoted through national competency-based training.

Priorities for project funding under NFACP are identified in the national pest animal management guidelines produced by BRS. These guidelines are

37 Department of Environment and Heritage, *Submission 61*, p. 9.

38 ACT Government, *Submission 44*, p. 8.

39 Dr Rhondda Dickson, *Committee Hansard*, Canberra, 18 June 2004, p. 56.

40 Queensland Government, *Submission 43*, p. 21.

41 *ibid.*

written by expert task forces and overseen by the National Vertebrate Pests Committee. Guidelines have been developed for managing feral horses, rabbits, foxes, feral goats, feral pigs, rodents, carp and wild dogs.⁴²

5.45 The goal of the program is to develop and implement coordinated action to reduce damage to the natural environment and primary production caused by feral animals.⁴³

It aims to provide and stimulate investment in integrated, strategic and innovative management of feral animals.⁴⁴

5.46 The Queensland Government submitted that there could be benefit in the national declaration of invasive pest animals and that national leadership, with a framework of cooperation with States, may help achieve more consistent delivery of new vertebrate pest prevention.⁴⁵ This could be coordinated within the structure of a Vertebrate Pests Strategy. Mr Craig Walton from the Queensland Department of Natural Resources, Mines and Energy told the Committee:

Unfortunately, there is no national plan for, say, vertebrate pests. So it is going to be very hard under the current funding arrangement to get strategic actions on vertebrate pests if there is no idea already of what a strategic action may be because there is no plan for what could happen. We are a bit concerned that, because we do not have a national vertebrate strategy or even a bigger national invasive strategy, it would be hard to have those regional activities being strategic and delivering as well as they can, because there is no overseeing of that process.⁴⁶

5.47 The ACT Government stated that the focus of the Vertebrate Pests Committee is on the impact of vertebrate pests on rural production.⁴⁷ It proposed a change in focus to include the impact of invasive vertebrate pests on the environment, with reference to their impact on native species, as it would be beneficial to the protection on biodiversity.

5.48 However, if the current inconsistencies across jurisdictions is not resolved, and the States and Territories do not show the necessary political will to harmonise legislation, the impact of invasive vertebrate pests will continue to have a devastating impact on both the environment and biodiversity. The Nature Conservation Society of South Australia argued:

42 Bureau of Rural Sciences, *Submission 62a*, p. 8.

43 Environment Australia, *Natural Heritage Trust Annual Report 2001-02*, Canberra 2003, p. 38.

44 *ibid.*

45 Queensland Government, *Submission 43*, p. 21.

46 Mr Craig Walton, Queensland Department of Natural Resources, Mines and Energy, *Committee Hansard*, Brisbane, 14 April 2004, pp. 10-11.

47 ACT Government, *Submission 44*, p. 8.

There are currently significant inconsistencies in policies and legislation between the states. A species identified as a problem in one state might not be identified as a problem in another state. However as we have seen, species are able to move around the country via various vectors. This is particularly important for commercial species. A species that might be banned in one state can be ordered over the phone or internet from another state. Such inconsistencies undermine any state measures to limit the movement of species that have been identified as being invasive.⁴⁸

Recommendation

That the Commonwealth Government place on the agenda of the Natural Resource Management Ministerial Council, as a matter of urgency, the issue of progressing development of a National Strategy for Vertebrate Pests.

Nursery and market trade in invasive species

5.49 The garden sector is the major pathway for new weeds invading Australia, through the importation and distribution of exotic plant species. Of the over 27,000 introduced plant species in Australia, 25,360 (94%) were intentionally introduced into Australia as garden or ornamental plants. Of these, over 1,360 (5%) are agricultural, noxious and natural ecosystem weeds, comprising 70% of all introduced weed species.⁴⁹ Escaped garden plants also make up the vast majority of new weeds invading the environment. Between 1971 and 1995, 65% of the 295 plant species and sub-species that naturalised in the environment were intentionally introduced into Australia as ornamental species.⁵⁰

5.50 Many serious invasive plants continue to be commercially available including one species on the Northern Australian Quarantine Strategy target list, 6 species on the national Alert List of Environmental Weeds, and 5 on the Weeds of National Significance list.⁵¹

5.51 The ongoing retail trade in invasive plants is a complex issue which is controlled through fragmented and inconsistent State and Territory government legislation. The sale of most potentially invasive plants is not restricted by any legislation. As the Weeds CRC submitted:

48 The Nature Conservation Society of South Australia, *Submission 76*, p. 6.

49 Randall cited in A Glanznig, K McLachlan, O Kessal, *Garden Plants that are Invasive Plants of National Importance: an overview of their legal status, commercial availability and risk status*, 2004, WWF Australia, Sydney.

50 R H Groves, *Recent Incursions of Weeds to Australia*, Technical Series No. 3. 1998, Cooperative Research Centre for Weed Management Systems, Adelaide.

51 A Glanznig, K McLachlan, O Kessal, *Garden Plants that are Invasive Plants of National Importance: an overview of their legal status, commercial availability and risk status*, 2004, WWF Australia, Sydney, p.v.

There is no consistent Australia-wide legislation controlling the trading and planting of listed potentially invasive plants (Randall 2001). Legislation controlling the sale and use of invasive plants is predominantly a State responsibility, is inconsistent on a national scale and is limited to prohibiting the sale and planting of declared noxious weeds. The Weeds CRC and Nursery Industry Association of Australia have produced lists of potentially invasive plant species. The sale of these potentially invasive, non-declared plants, in the nursery and market trade is not restricted by any legislation.⁵²

5.52 The Australia's nursery and garden industry is valued at over \$5.7 billion (at retail), it comprises more than 20,000 businesses, and employs over 60,000 people.⁵³ The industry's peak body, the Nursery and Garden Industry Australia (NGIA), is working to educate its members and the wider community in regard to the sale and propagation of weedy plants (for an example see the brochure entitled: *Grow me instead*). However, the association represents less than half of the industry and has no control over non-members such as large national retail chains, hardware stores and home proration businesses who trade at weekend markets. Mr Geoffrey Fuller from the Nursery and Garden Industry South Australia (NGISA) told the Committee that:

It is the non-members we have problems with. We get a lot of reports that such and such a supermarket or hardware chain is selling. The problem we have there is that they are not buying through accredited nurseries. I do not believe that the accredited or member nurseries—it would be in the minority—would be growing a problem plant.

The problem we do have is that we might speak to them and say that such and such is banned in South Australia or is proclaimed in South Australia but, because we deal with so many Victorian, New South Wales and Western Australian nurseries, they could come over in those shipments. We have no real controls on the border to stop that because we do not have a weed police officer, so to speak. So they can come in and go straight to the nurseries or the garden centres that have purchased them.⁵⁴

Recommendation

The Committee recommends that the Commonwealth, States and Territories provide funding to enable the Australian Weeds Committee to engage the CRC for Australian Weed Management to produce a scientifically credible and robust national list of invasive plant species.

52 CRC for Australian Weed Management, *Submission 22*, p. 8.

53 Nursery and Garden Industry Australia, *Submission 69*.

54 Mr Geoffrey Fuller, Nursery and Garden Industry South Australia, *Committee Hansard*, Adelaide, 28 June 2004, p. 20.

Recommendation

The Committee recommends that the Commonwealth in consultation with the States and Territories promulgate regulations under section 301A of the EPBC to prohibit the trade in invasive plant species of national importance, combined with State and Territory commitment to prohibit these same species under their respective laws.

Recommendation

Produce a list in legislation of taxa that prevents their sale and spread for each state or region. Nominations for each taxon on a state or regional basis can be developed in consultation with natural resource management agencies, state herbaria and members of the general public.

5.53 Once established managing and removing escaped garden weeds is frequently left to groups of volunteers who give their unpaid time to address this issue. The Committee heard from a number of these volunteer groups who argued the need to ban the sale of invasive plants from nurseries.

As a member of a friends group, working with our core of 15 volunteers in a suburban area, we spend our time pulling out invasive weeds. These weeds have happened here direct from adjacent home gardens. They were originally purchased from plant nurseries.... Our group firmly believes that nurseries should not be allowed to sell plants species that are invasive by nature.⁵⁵

5.54 The Bend of Islands Conservation Association called for greater local control over the illegal sale of invasive plants including the ability of local authorities to declare and enforce locally banned plants.⁵⁶ A number of submitters raised the issue of prosecution and compensation. Ms Debbie Reynolds argued:

Stop commercial nurseries from selling invasive weeds. Farmers will thank you and the consumers will hardly notice. Educate nurserymen and household as to what is a weed and issue warnings to remove the weed then fine and remove if not done. Prosecutions need to be done to make people take the weed seriously.⁵⁷

5.55 Similarly, Mr Robert Fallon argued that there was a need for greater community and nursery industry awareness with regard to costs of invasive weed species.

Awareness of the threat posed by weed invasion is still low in the community. I submit that a nationally based campaign be introduced via print and television media, promoting awareness amongst nursery owners

55 Mrs Dale Morgan, *Submission 16*, p. 1.

56 The Bend of Islands Conservation Association, *Submission 23*, p. 1.

57 Ms Debbie Reynolds, *Submission 12*, p. 1.

and customers of the true cost of the sale of an invasive plant. I further submit that penalties be considered as a way to support behavioural change amongst the sellers and buyers of invasive weed species.⁵⁸

5.56 Mr Andrew Dell, an ecologist, submitted:

Financial gains to the nursery industry from selling environmental weeds does not justify the acceptance of environmental losses that we are currently undergoing. There are also significant financial burdens to all levels of government and the private sector that can be avoided with minor changes to existing legislation.⁵⁹

5.57 The Invasive Species Council submitted:

There is no condition that importers pay for the costs of control and repair should a plant become a weed. This runs contrary to “polluter pays” principles which are generally applied to other sectors.⁶⁰

5.58 The Committee believes that the financial burden of managing invasive weeds should be borne by those who are responsible for the importation and sale of plants known to be weedy.

Recommendation

Investigate the imposition of a 'polluter pays' principle where importers pay for the cost of control and repair should a plant become a weed.

5.59 The Committee heard evidence that self-regulation and voluntary compliance by the industry has not been successful in reducing the trade in invasive plants. While there is no effective national post-border regulatory regime currently in place, a national voluntary measure, a draft *Garden Plants Under the Spotlight: an Australian strategy for invasive garden plants* was developed by the CRC for Weed Management Systems and the Nursery Industry Association of Australia in the late 1990s. The Strategy states that its program “should result in a better-informed and educated Australian gardening public, industry and government, together with an expected reduction in the sale, distribution, promotion and demand for invasive garden plants in Australia and increased sales and use of non-invasive plants.”

5.60 One element of the Strategy focussed on selecting a core list of 52 serious invasive garden plant taxa - *Garden Thugs* – in consultation with nursery industry associations and working with and educating the plant industry and horticultural media about these invasive garden plants.

58 Mr Robert Fallon, *Submission 28*, p. 1.

59 Mr Andrew Dell, *Submission 14*, p. 1.

60 Invasive Species Council, *Submission 33*, p. 6.

5.61 A WWF Australia report assessed the extent to which the Strategy program achieved 'an expected reduction in the sale' of the 52 garden thugs. It found that nationally there was absolutely no change in the number of garden thug taxa available for commercial sale from nurseries from the baseline year of 1999 to 2002: 22 garden thug taxa were recorded for sale in 1999 and while there was some turn-over of species, 22 garden thug taxa were recorded for sale in 2002. The change at a State and Territory level has been variable with the range of garden thug species available for sale increasing in South Australia, Western Australia and the Northern Territory, and decreasing in New South Wales, Queensland, Tasmania and Victoria.⁶¹

5.62 Given this evidence, WWF Australia submitted that:

Voluntary approaches to reduce the trade in invasive ornamental plants have failed both in New Zealand (where they subsequently introduced statutory controls) and Australia, where the joint CRC for Weed Management Systems and Nursery Industry Association of Australia's Australian Strategy for Invasive Garden Plants has had no impact in substantially reducing trade in invasive ornamental plants.⁶²

5.63 In response to this claim Mr Fuller, Chief Executive Officer, NGISA told the Committee:

We have recognised the problem. Nothing is going to happen overnight. The WWF is an organisation that I respect. I have been in the industry for 30 years and this is the first time that I know of that it has made a comment against the industry. I have no problems with that. But I think where they are getting their facts from needs to be looked at. I reject that notion. We have been responsible; we are working towards it. There is certainly still an enormous amount of work to go, but we are looking at it.⁶³

5.64 Mr Fuller suggested the need for a nationally consistent and coordinated listing of invasive plants.

Regarding the WWF comments, we have looked at it very seriously because it is affecting our industry. We get a lot of feedback. The gardening shows and the radio programs are very responsible in what they are doing; they have made a lot of people aware of what is invasive. They love to tell you what is wrong. We look at that; we take it very seriously. But the list side of this requires a national coordinated approach that sets guidelines on what is an invasive and what is not, and how that is looked at. We do not need something frivolous put on it for no reason; we need a list that is serious and can be worked through.⁶⁴

⁶¹ A Glanznig, K McLachlan and O Kessal, *Commercial Availability of "Garden Thug" Plants*, WWF Australia, Sydney, 2004, p. 3.

⁶² WWF Australia, *Submission 30*, p. 4.

⁶³ Mr Geoffrey Fuller, *Committee Hansard*, Adelaide, 28 June 2004, p. 26.

⁶⁴ *ibid*, p. 27.

5.65 A number of witnesses acknowledged the possible need for regulations. Dr Lonsdale, Assistant Chief, CSIRO Entomology, told the Committee that:

We can try and win hearts and minds, but in the end it is possible that the only solution will be regulation.⁶⁵

5.66 The Committee heard that one of the difficulties in regulating nursery industry is that it is not a unified industry. Dr William Lonsdale, Assistant Chief, CSIRO Entomology, told the Committee of the difficulties encountered in attempting to self-regulate the ornamental plant industry in the United States:

The US have made some good progress in working with the ornamentals industry to self-regulate, and the industry is very nervous about regulation, but the reality is ... it is just not sufficient. In the end, it is a very disorganised industry with a lot of small players. It is very hard to actually get them all to sign up to some sort of self-regulatory mechanism.⁶⁶

5.67 WWF Australia advocates increased regulations to control the trade of invasive species, and to prohibit the sale of invasive species of national importance such as those on the WONS list. Mr Glanznig told the Committee that:

... there are well-documented examples where one pot plant has led to a new invasive plant being taken from an area where it is not invasive to an area where it is invasive and then escaping into the environment. That very much underscores the reason why we are calling for national regulation. You need a level playing field to ensure that nurseries doing the right thing by not selling invasive plants of national importance are not going to be disadvantaged by the nursery down the road thinking that they have a comparative advantage by still selling these nasty weeds.⁶⁷

5.68 The Committee was told that most operators were not members of the Nursery and Garden Industry Association and therefore voluntary codes of conduct are very difficult to apply allowing:

... a lot of the operators are mums and dads—small-time operators. They do not have the administrative machinery in place to ensure due diligence. You would get a lot of breakdown with any national voluntary approach. In fact, there is the failure of, say, the previous national approach, which was ‘garden thugs’, to make any significant dent on stopping the sale of the 52 ‘garden thugs’..⁶⁸

5.69 WWF Australia argued that the dispersed nature of the industry, comprising of numerous small family operations, means that:

65 Dr William Lonsdale, *Committee Hansard*, Canberra, 26 November 2003, p 17.

66 *ibid.*

67 Mr Andreas Glanznig, *Committee Hansard*, Canberra, 18 June 2004, pp 29 - 30.

68 *ibid.*, p. 28.

From a policy point of view, that really leads you down an education and regulation approach. In Australia, I know the previous CRC worked up a draft strategy to undertake a voluntary approach, but from what I can see, it has had very little impact on restricting or reducing the sale of invasive garden plants.⁶⁹

5.70 The Committee acknowledges that the Nursery and Garden Industry (NGIA) has invested considerable resources in educating its members and non-members. The Committee applauds the NGIA development of voluntary lists and publications such as *Grow Me Instead* which recommends alternatives to native and non-native invasive plants. However, it is recognised that non-members jeopardise the NGIA's efforts. Mr Fuller told the Committee that:

We have got a huge education process happening in our nurseries, particularly the wholesale nurseries, of growing. While we can control our industry and put submissions to the nurseries who are members and to responsible nurseries, our problem is that our industry is also a cottage industry—Paddy's Market, the council markets and the whole lot—and this is where we get what we call the garden escapes.⁷⁰

5.71 The NGIA argued that any endeavour to place a blanket ban on plants could have significant consequences and therefore plants should be assessed on an individual basis.

If we go ahead and do the carte blanche banning of plants, then we have got a problem in our industry. It is one where we have got to go through it, plant by plant, and work out just how invasive it is, in which area it is invasive and in which states it is a problem. It is not going to be a short-term project.⁷¹

5.72 The Weed Management Society of South Australia took a stronger view on this issue to argue that:

A proactive approach with the garden industry to remove invasive, unproclaimed garden plants from sale needs to be funded and enforced.⁷²

5.73 Evidence overwhelming demonstrates that there is broad community support for measures to restrict the sale of invasive plants by the nursery industry. There is also consensus that self-regulation is not effective.

5.74 While, as discussed in chapter 2, responsibility for management of the environment primarily rests with the States and Territories and therefore enforcement aspects are mostly a State and Territory responsibility, the Commonwealth has a critical role to play in establishing uniform national regulatory frameworks. A good

69 *ibid*, p. 28.

70 Mr Geoffrey Fuller, *Committee Hansard*, Adelaide, 28 June 2004, p. 19.

71 *ibid*, p. 19.

72 Weed Management Society of South Australia, *Submission 35*, p. 5.

example in this regard is the Commonwealth's role in fostering a national regulatory framework for the management of threatened species.

5.75 The Committee considers that the NGIA should continue its education efforts and seek financial assistance through the NHT to assist it in its endeavours.

5.76 Mandatory labelling of plants to educate consumers about the invasive qualities of invasive plants has been proposed.

One is trying to prohibit the supply of the worst invasive species in Australia. The other is trying to reduce the demand for other species through an education—that is, mandatory labelling—approach. That has worked in a number of other areas. The Commonwealth and states and territories have developed mandatory labelling schemes for energy efficiency and water efficiency and we are saying that this is a fantastic candidate for the next cab off the rank.⁷³

5.77 The Committee notes the limited success of voluntary labelling schemes for water efficiency, and the rationale for the subsequent introduction of a mandatory labelling scheme:

A voluntary water efficiency labelling scheme has been in existence since 1988...The coverage of the existing program is limited. Because the scheme is voluntary, few suppliers have chosen to label, and those that have tend to label only their better performing products – for obvious reasons. Consequently, despite being a *comparative* labelling program it has developed some of the attributes of an *endorsement* label, which assists water utilities and their customers to identify models for rebate purposes, rather than as a purely comparative label, which encourages and enables buyers to compare the water efficiency of different models.⁷⁴

5.78 Notwithstanding the expense associated with such an activity the Committee considers that there would be benefit in such actions as they would raise awareness and educate consumers of the characteristics of the species and also encourage shifts in purchasing patterns away from invasive plant species to the many that are benign. There are also strong precedents of inclusion of useful consumer information on products for health reasons, ranging from information on cigarettes to the composition of foods, including additives.

5.79 Additionally, the Committee encourages the NGIA to take a leadership role in raising awareness. It encourages members of the industry to seek assistance in raising awareness.

73 Mr Glanznig, *Committee Hansard*, Canberra, 18 June 2004, p. 33.

74 George Wilkenfeld and Associates Pty Ltd et al. *A Mandatory Water Efficiency Labelling Scheme for Australia*. Final Report to Environment Australia. 2003. P.2.

Recommendation

The Committee recommends that the Commonwealth, States and Territories, the NGIA and other stakeholders, including conservation NGOs, establish a process under the proposed National Weeds Action Plan to examine the merits of a mandatory labelling scheme on invasive garden plants.

Recommendation

The Committee recommends that the nursery and gardening industry give consideration to labelling of all invasive plants which, while able to be sold legally, may have invasive characteristics and should be managed responsibly.

5.80 The Committee heard that the trade in invasive weedy species is encouraged and promoted by popular gardening and lifestyle television programs. Ms Renae Laverenz submitted:

Irresponsible media representation should be controlled and regulated. The February 1999 issue of Burke's Backyard magazine recommended one of Australia's worst environmental weeds, blue thunbergia ('blue trumpet vine'), as a great climber to grow in northern regions. In fact, this rampant forest-invader has been banned as noxious by the northern shires of Hinchinbrook, Cook, Cardwell, Douglas, Johnstone and Mulgrave, making it illegal to grow across much of north Queensland. Other serious weeds encouraged by the magazine include Spanish lavender - declared noxious in most of Victoria; and the Western Australian bluebell creeper (*Sollya heterophylla*) - which happens to be the most invasive weed in Arthurs Seat State Park near Melbourne. The magazine does put in the occasional warning: a January 1999 article promoting gloriosa lily (*Gloriosa superba*) warned of its weediness in north Queensland, but failed to explain that it is even more invasive in southern Queensland and northern New South Wales.⁷⁵

5.81 Similarly, Dr Rachel McFadyen from the CRC for Australian Weed Management told the Committee that:

In the March issue of Gardening Australia, which is a generally responsible gardening magazine widely sold throughout supermarkets, Mexican feather grass and two other weedy grasses were promoted as suitable plants for a water-saving, prairie style garden. The magazine quoted four nurseries in New South Wales and Victoria as possible sources for the plants. I do not mean by that that they are sources for Mexican feather grass. The article had a picture of the garden, gave the name of Mexican feather grass—*Stipa tenuissima*—among other plants and gave four nurseries where you could source plants.⁷⁶

75 Ms Renae Laverenz, *Submission 27a*, p. 84.

76 Dr Rachel McFadyen, CRC for Australian Weed Management, *Committee Hansard*, Brisbane 14 April, 2004, p. 21.

5.82 The Committee considers that every effort should be made by the media to ensure that it is providing correct information.

Recommendation

Gardening and lifestyle programs should be required to include warnings about the appropriateness of the plants suggested on there shows. Such warnings could require an indication of the country of origin of the plant, the areas it is indigenous to, and whether it has proven invasive elsewhere.

Holistic response plans

5.83 Due to the often conflicting economic, environmental and social impacts of invasive species, it is essential that plans for the management of invasive species are holistic and look at the interactions of introduced and native species before action is taken.

5.84 Every action has a reaction and the Committee heard evidence that the interaction of pest animals, such as fox-rabbit-cat interactions need to be understood if they are to be effectively managed. Dr Tony Peacock, CEO, Pest Animal Control CRC, told the Committee that:

That [the interaction of pest animals] is very important, because if you knocked out foxes, cats come up and they do not prey on the same species, so you need to understand the ecosystem effects.⁷⁷

5.85 A project to restore habitat and reintroduce native species, called Operation Bounceback, has been conducted in South Australia since 1992. It is an ecological restoration program in the Gammon and Flinders Ranges National Parks. Operation Bounceback is working towards the restoration of ecosystems to protect native species and to reintroduce some native species. The project has not focussed on addressing single species problems but taken a landscape scale approach to management and considered all elements of the ecosystem.

The goal of the program has been to link integrated feral animal control to natural recovery processes, weed control and strategic revegetation and fauna recovery initiatives.⁷⁸

5.86 The success of the program can be seen through the recovery of Yellow-footed Rock-wallaby populations, dramatic reductions in introduced animals and the return of native perennial grasses. Mr Edward MacAlister told the Committee that the reintroduction of the Yellow-footed Rock-wallaby is:

one of only nine percent of reintroduction projects for macropods on the mainland which would be regarded as being successful, and it is being used as a model for other such projects.⁷⁹

77 Dr Tony Peacock, *Committee Hansard*, Canberra, 18 June 2004, p. 17.

78 Bounceback 2000 website at: www.nrm.sa.gov.au.

5.87 A case study on Project Eden, a commendable initiative by the State Government of Western Australia, is detailed below.

Case Study: Project Eden⁸⁰

Project Eden is an arid-zone conservation program set in the Peron Peninsula of the Francois Peron National Park, which is part of the Shark Bay World Heritage Area in Western Australia. It is a project of the Western Australian Department of Conservation and Land Management (CALM).

The intention of the project is to reconstruct and rejuvenate the ecosystem, by reintroducing endangered wildlife, to the 1050 square kilometre Peron Peninsula. This area has suffered predation by foxes and cats and competition from introduced grazing animals such as rabbits, goats and sheep. While Peron's journals and other historical relics suggest that, despite its harsh and arid climate, the area had supported over 20 species of land mammals, within 200 years less than a third of these species could still be found inhabiting the degraded landscape.

The groundwork for Project Eden, which officially commenced in 1995, was the purchase in 1990 of the Peron pastoral station by CALM. Within five years, more than 15000 sheep and 11000 feral goats were removed, principally using mustering supplemented with aerial and shooting programs.

A 3.4 kilometre fence has been constructed to keep out feral animals. In its first stage, the project involved the use of many diverse and inventive techniques, including baiting with 1080 (monofluoroacetate). By the end of 2001, foxes had all but been eradicated and around 70 per cent of feral cats had been removed. Difficulties with the willingness of feral cats to take the dried baits containing 1080 led to the development of innovative lures using sound and smell. These cats are providing CALM with a database of biological information, which will be an invaluable aid to research into the lifestyle and behaviours of the feral cat.

The second stage is aimed at re-establishing, through re-introductions, long term viable populations of species lost from Peron. Woylies, bilbies and malleefowl have already been released while species such as the red-tailed phascogale, rufous hare-wallaby, western barred bandicoot and chuditch may soon be reintroduced.

The Western Australian Government is to be commended for its efforts to reverse the long process of ecological destruction and to seek to return the Peron Peninsula to a more natural state. Much will depend on the extent to which the habitats recover, but the key is that a determined start has been made.

79 Mr Edward McAlister, *Committee Hansard*, Adelaide, 28 June 2004, p. 60.

80 Information from: www.naturebase.net/national_parks/previous_parks_month/peron.html; www.sharkbay.org/terrestrial-environment/page_06.htm and www.sharkbay.org/terrestrial-environment/page_09.htm.

Commonwealth action

5.88 As noted above, the Commonwealth's role in relation to invasive species within Australia is ubiquitous, although its involvement is closely tied to the States' and Territories' primary responsibility for land management matters within their respective jurisdictions. It provides national leadership, for example in relation to WONS. It is involved in incursion management. It administers the bioconservation aspects of the EPBC Act. It provides funding for research and specific on-ground activities, and convenes national consultative committees. It is also responsible for management of Commonwealth lands, including national parks. In the sections that follow, the Committee examines each of these roles.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC)

5.89 As discussed in Chapter 2 the EPBC Act administered by the Department of Environment and Heritage, is the key Commonwealth legislation dealing with the conservation of biodiversity by providing protection for:

- listed species and communities in Commonwealth areas (this includes listed threatened species and ecological communities, listed migratory species and listed marine species);
- cetaceans (all whales, dolphins and porpoises) in Commonwealth waters and outside Australian waters;
- protected species in the Territories of Christmas Island, Cocos (Keeling) Islands and Coral Sea Islands; and
- protected areas (World Heritage properties; Ramsar wetlands; Biosphere reserves; Commonwealth reserves; and conservation zones.
- wildlife species and wildlife products subject to international trade.

5.90 The Act provides for:

- the identification of key threatening processes;
- the protection of critical habitat;
- the preparation of:
 - recovery plans;
 - threat abatement plans;
 - wildlife conservation plans;
 - bioregional plans;
- conservation agreements;
- the issuing of conservation orders and
- the regulation of exports and imports of live animals and plants, wildlife specimens, and products made or derived from wildlife.

5.91 The EPBC Act essentially comprises two parts:

- i) a process for assessing proposed ‘actions’;
- ii) biodiversity conservation through listing endangered species and communities.⁸¹

5.92 DEH told the Committee that:

The two key elements [of the Environment Protection and Biodiversity Conservation Act 1999] relevant to invasives are that the legislation allows for the identification and listing of key threatening processes and, should the minister consider it appropriate, the development of a threat abatement plan. The second part of the legislation’s most relevant provisions in relation to invasives concerns import controls, which allow for the assessment of plants or animals to be imported into Australia and placed on two schedules.⁸²

5.93 However, the Invasive Species Council stressed in its submission:

The damage to biodiversity brought about by invasive species is not expressly acknowledged as a matter of national environmental significance within the EPBC Act. Under the current EPBC Act, the Commonwealth has restricted its own ability to assertively take on an effective regulatory role in the control and management of invasive species.⁸³

Identification and listing of key threatening processes

5.94 The EPBC Act deals with biodiversity conservation principally through listing endangered species and communities. Recovery and threat abatement plans and management plans for those species listed as endangered fall under this part of the EPBC Act. DEH submitted:

The current EPBC Act arrangements concerning the development of national threat abatement plans are adequate and effective in developing the initial framework for identifying the range of research, education and on-ground control activities required to manage a national key threatening process. The EPBC Act requires that each national threat abatement plan must be reviewed within five years.⁸⁴

5.95 Section 183 of the EPBC Act allows the Minister to publish a list of key threatening processes. A process is defined as a threatening process if it threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community. A threatening process could be treated as a key threatening

81 Invasive Species Council, *Submission 33d*.

82 Mr Jonathan Miller, Department of Environment and Heritage, *Committee Hansard*, Canberra, 26 November 2004, p. 2.

83 Invasive Species Council, *Submission 33*, p.2 of Attachment 2.

84 Department of Environment and Heritage, *Submission 61*, p. 8.

process if it has an adverse impact on a native species or ecological community listed as a threatened species or ecological community.

5.96 Submitters were critical that listing only occurs when a species is close to extinction and when action to reverse this may be costly or ineffective. For example:

In doing so, however, its provisions to “protect native species” are only concerned with being able to “prevent the extinction, and promote the recovery, of threatened species”. Once again, the main focus is on remnant populations and the final extinction events. The long-term processes that have led to species rarity and vulnerability in the first place are given “no countenance”.⁸⁵

5.97 The Invasive Species Council submitted:

In other words, it is only when the threatening process puts at risk the very existence of a threatened species or ecological community will the process be recognised as a ‘key threatening process’ warranting specific action. The Minister has listed the following ‘key threatening processes’ relating to invasive species:

- Competition and land degradation by feral Goats
- Competition and land degradation by feral Rabbits
- Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)
- Predation by feral Cats
- Predation by the European Red Fox (*Vulpes vulpes*)
- Predation, Habitat Degradation, Competition and disease transmission by Feral Pigs;
- The reduction in biodiversity of Australian native fauna and flora due to the red imported fire ant (*Solenopsis invicta*).⁸⁶

5.98 All but two of the existing listed key threatening processes have approved threat abatement plans in place. The Committee believes that this approach is limited as overwhelmingly the evidence to this inquiry argues the need for early intervention in addressing invasive species or threatening processes.⁸⁷

5.99 Under this process the Minister must decide whether a ‘threat abatement plan’ should be made within 90 days of the listing of a key threatening process. However, section 270B(6) provides that the Minister must not make a threat abatement plan for a key threatening process which occurs wholly or partly outside a Commonwealth area unless the Minister can be satisfied that it is reasonably practical to make the plan jointly with each of the States and self-governing Territories in which the process

85 Ms Renae Leverenz, *Submission 27a*, p. 27.

86 Invasive Species Council, *Submission 33*, p. 3.

87 CRC for Australian Weed Management, *Submission 22*.

occurs within 3 years of deciding to develop such a plan.⁸⁸ This issue of lack of jurisdictional coordination was raised by a number of submitters:

Even if, by some stroke of luck, the Minister chose to adopt a threat abatement plan to address growing destruction caused by invasive species, there would still be a significant problem: threat abatement plans only bind the Commonwealth and Commonwealth agencies - States and Territories are not necessarily bound to co-operate.⁸⁹

5.100 The lengthy timeframes associated with listing and plan approval was seen to undermine the effectiveness of the threat abatement plans (TAP). The Queensland Government contended that:

The primary tool for co-ordinated action on environmental pests by DEH is the threat abatement planning process provided under the EPBC Act. The existing TAP framework may have limited capacity to assist in co-ordinated action for the early eradication of a pest such as the Fire Ant. In theory a TAP could have been used to establish a plan for the eradication effort agreed by funding partners. However, the capacity to co-ordinate quick action for this type of species is crucial to any attempt at eradication. The statutory timeframes associated with listing and approval of such a plan, are unworkable in these circumstances.⁹⁰

5.101 The World Conservation Union (IUCN) contended that there is a continuing lack of political will to act in a timely manner on TAP and recovery plan processes:

In 1996, the Spotted Handfish became the first marine fish to be listed as endangered by the Commonwealth, following its listing under Tasmanian Fisheries legislation the year before. In the same year, it was listed as Critically Endangered by IUCN. It is found in only three small colonies of less than 200 adult fish each....

Ms Milne (from IUCN) has called on the new federal Environment Minister, Hon. Ian Campbell to release a five-year Recovery Plan and allocate adequate funding to conduct the research, toxicity trials, survey work and public awareness needed to secure the species. The 2002-2006 Spotted Handfish Recovery Plan has been with the Commonwealth for the past two years but has yet to be implemented.⁹¹

5.102 Similarly, the Committee was informed that at a State and Territory level, government action in regard to identified threatening process is also protracted.

Current Commonwealth, state and territory statutory and administrative arrangements are failing to address the threat posed by invasive species.

88 Invasive Species Council, *Submission 33*, p. 3.

89 Ms Renae Leverenz, *Submission 27a*, p. 29.

90 Queensland Government, *Submission 43*, p. 19.

91 The World Conservation Union, *Critically Endangered Spotted Handfish May Become The First Australian Marine Fish To Go Extinct*, media release, 28 July 2004, at: http://www.iucn.org/info_and_news/press/pr-spotted-handfish.pdf.

Greater political commitment to the principles of weed related policy and legislation is required. For example, the invasion by *P.undulatum* into habitats outside its natural range in Victoria was listed as a ‘potentially threatening process’ in 1994 under Schedule 3 of the Victorian Flora and Fauna Guarantee Act 1988. An Action Statement has not yet been developed for this listing, despite the legislative requirement that this occurs as soon as possible after the listing process.⁹²

5.103 Current funding arrangements were seen as a barrier to the effectiveness of TAP in managing invasive species. Dr Cas Vanderwoude, a technical advisor to the Invasive Species Specialist Group (ISSG) of the World Conservation Union (IUCN), submitted that while regional approaches to managing invasive species are highly effective the current funding arrangements for TAP makes a regional approach difficult:

Any threat abatement plan for invasive species should start at regional levels as this is a sound method of moving risk off-shore. Current Australian legislation does not consider this strategy and as a result there is no funding mechanism through which planning and implementation of regional plans for preventing incursions of Red Imported Fire Ants and other invasive ant species can be implemented.⁹³

5.104 Similarly, the Queensland Government argued:

Treat Abatement Plans (TAPS) under the EPBC Act provide a national plan, however they are often not fully implemented. It is our perception under current Commonwealth resourcing it is likely that the development of more TAPS may result in less money for the implementation of current TAPS. Therefore if more funds are not assigned for national invasive species management less activity is likely on these species.⁹⁴

5.105 CSIRO submitted that the current Act had the potential to deal with invasive species but that regulations under the Act had not as yet been used:

The Act certainly provides for regulations to control invasive species, but it appears not yet to have been invoked to this end. The potential for development of regulations under the Act should be explored. It is also not clear whether the EPBC Act provides for dealing with potential threats such as invasive species that have not yet arrived in Australia, as opposed to more immediate threats.⁹⁵

5.106 In the Committee's view the Government is not using the TAP process in a timely manner nor adequately funding the process to address the issues of invasive species.

92 Dr Trudi Ryan, *Submission 26*, p. 3.

93 Dr Cas Vanderwoude, *Submission 19*, p. 1.

94 Queensland Government, *Submission 43*, p. 20.

95 CSIRO, *Submission 34*, p.23.

Recommendation

The Committee recommends that the Threat Abatement Process (TAP) be reviewed to enable threatening processes to be listed prior to threatened species reaching a critical stage.

Section 301A

5.107 Section 301A of the *Environment Protection and Biodiversity Conservation Act 1999* allows for the control of non-native species through the listing, prohibition of importation and prohibition of trade in members of a species included in the list.

5.108 The regulations may:

- (a) provide for the establishment and maintenance of a list of species, other than native species, whose members:
 - (i) do or may threaten biodiversity in the Australian jurisdiction; or
 - (ii) would be likely to threaten biodiversity in the Australian jurisdiction if they were brought into the Australian jurisdiction; and
- (b) regulate or prohibit the bringing into the Australian jurisdiction of members of a species included in the list mentioned in paragraph (a); and
- (c) regulate or prohibit trade in members of a species included in the list mentioned in paragraph (a):
 - (i) between Australia and another country; or
 - (ii) between 2 States; or
 - (iii) between 2 Territories; or
 - (iv) between a State and a Territory; or
 - (v) by a constitutional corporation; and
- (d) regulate and prohibit actions:
 - (i) involving or affecting members of a species included in the list mentioned in paragraph (a); and
 - (ii) whose regulation or prohibition is appropriate and adapted to give effect to Australia's obligations under an agreement with one or more other countries; and
- (e) provide for the making and implementation of plans to reduce, eliminate or prevent the impacts of members of species included in the list mentioned in paragraph (a) on biodiversity in the Australian jurisdiction.⁹⁶

5.109 The Invasive Species Council outlined the regulations under section 301A:

In relation to biodiversity conservation, section 301A gives the Commonwealth the potential to address the issue of species “other than

96 *Environment Protection And Biodiversity Conservation Act 1999* - Section 301a.

native species” which do or may threaten biodiversity in Australia or which would be likely to threaten biodiversity in Australia if brought into Australia. Section 301A provides that the Regulations may provide not only for the establishment and maintenance of a list of such non-native species, but that the Regulations could provide for the regulation or prohibition of the importation into Australia of such listed non-native species and even the regulation and prohibition of the trade in such species not only internationally but within and between the States and Territories.⁹⁷

5.110 As discussed earlier in this chapter, the Committee heard a substantial amount of evidence which was critical of the on-going trade in invasive weed species between States and Territories. The provision of s301A would allow the Commonwealth to regulate and control this trade.⁹⁸ However, the Committee heard that the Commonwealth Government had not utilised the available provisions under section 301A to manage the importation, transportation and sale of known invasive species.⁹⁹ The Queensland Government submitted:

Queensland has not formally requested the Commonwealth to use Section 301, although its possible use has been raised by Queensland and other States but rejected by the Commonwealth in officer to officer discussions.¹⁰⁰

5.111 Similarly, the Queensland Farmers Federation also questioned the apparent reluctance to use existing powers under Section 301A under the EPBC Act:

Is the Bill necessary when a current provision of the EPBC Act, section 301A, which provides for regulations to control non-native invasive species and would deliver similar outcomes as the Bill, is not being utilised?¹⁰¹

5.112 The Commonwealth Government's hesitancy to implementing section 301A to ban the trade in invasive species appears to be driven by concerns over funding responsibility and cost of monitoring and compliance. DEH's Dr Rhondda Dickson told the Committee:

Section 301A, if the government chose to, could be used to ban the trade of a list of species that would have to be established under the act. That is one of the options that could be looked at in the reviews of the national framework. It is a matter of looking at which is the most cost-effective and efficient way of doing things.... We need to consider the considerable cost as well of monitoring the compliance with any regulations that may be set

97 Invasive Species Council, *Submission 33d*, pp. 2-3.

98 Invasive Species Council, *Submission 33*, p.5.

99 Queensland Government, Department of Natural Resources, *Committee Hansard*, Brisbane, 14 April 2004, p. 8.

100 Queensland Government, *Submission 43a*, p. 1.

101 Queensland Farmers Federation, *Submission 42*, p. 6.

up under the EPBC Act. So, in considering the various options, a key issue is the most effective way of doing things....

The responsibility for compliance and monitoring then would fall to the Australian government. It has also been looked at under the intergovernmental agreement on marine pests and is one of the options for how you might effectively have coordinated state and territory action. But, again, I think it is something that the Australian government needs to work through with the states—to decide whether that is the most efficient option or whether working cooperatively, with the states fulfilling their commitments, might be another way. All these things are open for discussion, but certainly that is one of the options we would be looking at.¹⁰²

5.113 In its report titled, *Invasive Plants of National Importance and their Legal Status by State and Territory*, WWF Australia stated that there is:

strong evidence of the need for national controls, under the Environment Protection and Biodiversity Conservation Act, 1999, to prohibit the sale of invasive plants of national importance. Without such regulations, efforts by the NRM Ministerial Council and the Primary Industries Ministerial Council to establish "a national framework for preventative action" will be severely compromised.¹⁰³

5.114 The Committee strongly urges the Commonwealth Government to pursue its environmental obligation in regard to invasive species and to continue discussions with the States and Territories to better utilise section 301A of the EPBC Act.

Funding for management

5.115 The Commonwealth provides funds for specific on-the-ground management of invasives species through the NHT. Mr Murnane of the Department of Agriculture, Fisheries and Forestry said:

the Natural Heritage Trust is essentially a funding program for on-ground environmental works rather than being specifically designed to support research, but there is scope to support particular projects that may have an applied result later on.¹⁰⁴

5.116 It was submitted that the Commonwealth is under-funding invasive species management in Australia:

102 Dr Rhondda Dickson, Department of the Environment and Heritage, *Committee Hansard*, Canberra, 18 June 2004, p. 65.

103 A Glanznig and O Kessal, *Invasive Plants of National Importance and their Legal Status by State and Territory*, WWF Australia, Sydney, 2004, p. 4.

104 Mr Simon Murnane, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, Canberra, 18 June 2004, p. 66.

The level of national investment to abate the invasive species threat is grossly inadequate relative to current and projected costs. Although there are no estimates of aggregate national expenditure, the Federal government only spends about \$3 million per annum on weed control. The Federal government of the USA invests over a billion dollars per year on invasive species prevention and control.¹⁰⁵

5.117 Similarly, Dr Barry Traill of the Invasive Council told the Committee:

I have an overarching comment which goes to funding. I am sure that as professional politicians you hear ‘more money’ all the time. But this is a case where there are demonstrated benefits from acting early and quickly. The recent paper by the weed CRC ... really emphasised the economic cost. That is just the economic cost; if we had the resources we could do a similar paper on the environmental cost, which you cannot quantify in terms of a billions of dollars figure but you could quantify in terms of hectares of habitat lost or species lost and so forth, which would be equally scary. Money spent on eradication saves our economy, saves our environment and is an investment that works. It is not a drip-feed forever if we are talking about eradicating new invaders.¹⁰⁶

5.118 Inadequate funding and poor on the ground coordination were raised as major weaknesses in the development of a coordinated national approach to weed management. The CRC for Weed Management told the Committee that:

The National Weed Strategy and the focus on the 20 Weeds of National Significance (WONS) is an excellent initiative of this Government but needs better on-ground coordination and continuity. For example, the agreed National Management Strategy (2001) for pond apple, one of the WONS that is rapidly invading swampy areas of far north Queensland, calls for its eradication over a 20 year period. Yet virtually no Commonwealth funds were allocated for pond apple control or management during 2001 or 2002, and as a result its spread is continuing unchecked except where some locally funded groups are functioning. It is still not clear whether funding for management of the WONS will continue after 2004, and there are no alternative sources of Commonwealth funds available for management of environmental weeds. Money for management of the 20 WONS is also allocated to Regional Bodies or community groups on a short-term basis (maximum 3 years) and this does not promote long-term nationally coordinated action to manage even the most serious weeds.¹⁰⁷

5.119 The CSIRO argued that funding for the management of invasive species is inadequate and that this issue is compounded by the fact that funds delivery via the Natural Heritage Trust (NHT), under the first phase (1996/7 – 2001/02), was generally provided year-to-year or for 18 months at a time, which did not allow for long term

105 Invasive Species Council, *Submission 33*, pp. 10 – 11.

106 Dr Barry Traill, Invasive Species Council, *Committee Hansard*, Brisbane, 14 April 2004, p. 49.

107 CRC for Australian Weed Management, *Submission 22*, p. 9.

strategic control measures to be planned.¹⁰⁸ Dr McFadyen argued that funding for the Weeds of National Significance program was also negatively effected by the year-by-year or 18 month Natural Heritage Trust funding cycle:

It is completely ineffective for any strategic work whatsoever. Take, for example, the issue I mentioned of the mimosa pigra outbreak in Queensland. If that is to be effectively managed, money has to be put into it now and kept going for the next five years and possibly 10 years. The WONS system, with year-by-year funding, simply does not allow that. It is not about a year-by-year review; no-one would have a problem with that. It is about committing the funds for five years, even if they are reviewed every year.¹⁰⁹

5.120 The Committee heard that WONS has been funded for three to four years at about \$20 million in total—a million dollars per weed and that the funding is fairly static and often poorly directed. This arrangement appears to narrow the focus and effectiveness of WONS and less populated States claim to have been disadvantaged. Mr Noel Richards from the Weed Management Society of South Australia argued that WONS:

... has been concentrated in higher population states, as you might expect. But the weed problems are no less severe here. Of course, WONS are limited to those species. Natural Heritage Trust funding, for example, must be addressing WONS or the Commonwealth government's environmental alert list species. So it is quite limited in its focus. Whilst there are a number of WONS species that are an issue here, there are many others that are not WONS that are major issues.¹¹⁰

5.121 Similarly, the State Council of Rural Lands Protection Board submitted that:

Commonwealth funding for feral animal management and control administered through the Bureau of Rural Sciences has significantly declined over the past few years, with the exception of the \$1 million Pest Animal Management Grant Program announced as part of the Commonwealth Government's drought assistance contribution in November 2002. Today more than ever, funds need to be made available to assist in coordinated control efforts and to further refine and develop pest and feral animal control techniques.¹¹¹

5.122 The Committee heard that strategic approaches to invasive management are hampered by jurisdictional conflict over forward commitments for funding.¹¹² And

108 CSRIO, *Submission* 34, p. 23.

109 Dr Rachel McFadyen, *Committee Hansard*, Canberra, 26 November 2003, p. 13.

110 Mr Noel Richards, Weed Management Society of South Australia, *Committee Hansard*, Adelaide, 28 June 2004, p. 57.

111 State Council of Rural Lands Protection Board, *Submission* 32, p. 5.

112 Tasmanian Weed Society, *Submission* 18, p. 5.

that, as discussed in Chapter 3, current NHT funding arrangements through regional authorities encourages a focus on widespread established weeds which have already damaged the environment and for which eradication cannot be achieved.¹¹³ Mr Tim Low, highlighted the problem associated with decentralising funding to regions which fragments possible responses to national problems:

One of the problems that have been identified for me through the hymenachne management group is that they have been told that to get funding to control hymenachne they are supposed to go through the NRMs, the regional groups. This is not an appropriate process for a national weed. It depends on those groups deciding that that particular weed is a priority for them, and you are going to get an uneven approach. This is not consistent. If you are saying that this is a national weed, it needs a national response; but then you decentralise the funding.¹¹⁴

Funding for research

5.123 Commonwealth funding for research is delivered through funded research institutions such as CSIRO. These research institutions are increasingly being required to seek co-investment from external investment to match core funding. The Committee heard that over the past decade funding to research institutions has been steadily decreasing and is extremely inadequate.

Despite the huge economic and environmental costs of invasive species, several reviews (including the national State of the Environment report) highlight the grossly inadequate funding being invested in preventing and controlling invasive species problems. In particular, far more committed funding is required for eradication of serious sleeper weed and feral pest species, and committed long term funding (at least 10 years) for the development of new integrated biocontrols for additional serious widespread invasive species.¹¹⁵

5.124 The short term nature of research funding cycles was raised as a significant issue. A number of witnesses argued that short funding cycles disallowed the development of new research projects. Dr Nicholas Bax told the Committee:

This is quite a new area of research. We are looking at potential biological control. We have also considered the option of genetic control of this species [Northern Pacific Sea Star]. At the moment long-term funding has been rather restricted for management and control, so we have not progressed that very far.¹¹⁶

5.125 Similarly the Committee heard:

113 Council of Australian Weed Societies, *Submission 68*.

114 Mr Tim Low, Invasive Species Council, *Committee Hansard*, Brisbane, 14 April 2004, p. 49.

115 WWF Australia, *Submission 30*, p. 57.

116 Dr Nicholas Bax, CSIRO, *Committee Hansard*, Adelaide, 28 June 2004, p. 33.

The other thing with these short-term funding arrangements is that it is a bit difficult to start a totally new program in biocontrol. It works well in a sense when we are in the delivery phase and engaging the community, but to really start from scratch you would at least need a three-year block to have an idea, for example of surveying and the initial testing and that sort of thing.¹¹⁷

5.126 The detrimental effect of short term funding cycles was raised by Dr Louise Morin from the CSIRO who argued that research could become fragment and did not represent value for money as short term funding cycles disallowed the consolidation of work previously completed:

it has been a challenge every year. To make a proper plan of, say, delivery over three years would be so much more efficient than every year having to rewrite the grant. What I find is that for the same amount of money that we get over the three years we deliver much less because it is so fragmented.¹¹⁸

5.127 Dr Peacock from the Pest Animal Control CRC told the Committee that:

It is almost a study in worst practice research funding. I have done 10 years of research management. No-one funds for one year on long-term projects except EA [Environment Australia]. I do not have any other clients that do that. If that could be fixed, that would be a major step forward in terms of saying, 'These are the important projects. We are going to go. Foxes are not going to go away next year. We need to do some national research.' Then you get buy-in from the states to join the effort.¹¹⁹

5.128 Dr Peacock advised the Committee of the effects of short turnaround time for applying for tenders:

For example, two tenders were let on Christmas Eve last year for a mid-January date for feral goat research. You read that and think, 'What are they thinking?'¹²⁰

5.129 A number of witnesses highlighted that the lack of commitment to long-term funding has a detrimental impact on the ability to attract research students, resulting in a higher staff turn over. The need to encourage and maintain a pool of researcher working on the preservation of Australia's cultural and environmental heritage was highlighted by Mr McAlister who told the Committee that:

Having post-graduate students and post-doctoral fellows employed by the appropriate C.R.C.'s to undertake both applied and, what is euphemistically called, "blue-sky" research is of paramount importance.¹²¹

117 Dr Louise Morin, CSIRO, *Committee Hansard*, Canberra 18 June 2004, p. 5.

118 Dr Louise Morin, CSIRO, *Committee Hansard*, Canberra 18 June 2004, p. 6.

119 Dr Tony Peacock, *Committee Hansard*, Canberra, 26 November 2003, p. 13.

120 *ibid.*

121 Mr Edward McAlister, *Submission 75*, p. 5.

5.130 The Committee heard evidence that due to its unique environment Australia does not have much in common with the rest of the world in relation to invasive species R&D and therefore must develop its own pool of expert knowledge and possible solutions to indigenous problems. Dr Peacock told the Committee that:

even when a common problem exists, such as wild horses in the United States, the approach is significantly different that we are unlikely to get any solutions to our problems without doing a lot of work ourselves.¹²²

5.131 The Committee believes that research programs should be adequately funded and co-ordinated on at least a three-year cycle; and that greater support should be provided for research into pests that have not yet become established.

Recommendation

That the Commonwealth Government provide certainty of funding to research institutions, such as CSIRO and CRCs, to enable them to undertake long-term research projects.

Incursion management

5.132 While incursion management involves a range of jurisdictional issues, it is clear that a pest incursion arises from a failure of border control, a matter of clear Commonwealth responsibility. DAFF has developed arrangements in conjunction with state/territory and industry stakeholders to manage pest and disease incursions that have the potential to impact on Australia's primary industries. It stressed, importantly, that these arrangements are intended to provide for early and decisive intervention. DAFF provided the Committee with a series of four diagrams which outlined the management roles and responsibilities at a policy, operational and research level in regard to pest animals, pest plants, marine pests and weeds. These useful overviews are at Appendix 4.

5.133 At an operational level, the arrangements are largely directed at supporting national policy councils and advisory committees which:

...function to ensure there is a coherent, consistent and concerted national approach to the management of those invasive pests and diseases that have the potential to prejudice the competitiveness and sustainability of Australia's agriculture, fisheries and forestry industries.¹²³

5.134 Funding of emergency responses is critical. As DAFF pointed out: 'The cost of managing exotic pest species can be many millions of dollars and this can escalate

122 Dr Tony Peacock, *Committee Hansard*, Canberra, 26 November 2003, p. 8.

123 Department of Agriculture, Fisheries and Forestry, Submission 62, p. 5.

rapidly if decisive intervention is delayed'.¹²⁴ Mr Willcocks from the Department of Agriculture, Fisheries and Forestry told the Committee that:

the Commonwealth and the states do have early response arrangements in place for at least three weeds to do exactly what you are talking about, to move quickly to eradicate—for kochia, Siam weed and branched broomrape. Those programs are currently going on, certainly for Siam weed and branched broomrape.... So there is another source of funding that was agreed between the Commonwealth and states for dealing with those sorts of outbreaks quickly.¹²⁵

5.135 Similarly, Mr Roger Wickes, from the Animal and Plant Control Commission told the Committee that both the Commonwealth and States have provided funds for pest incursions:

The Commonwealth and the states have responded and have put funding on the table. They have made us jump through a lot of hoops, but then I think that is important—because it is a lot of money—in working out where you invest your money and why you should be doing that. Yes, the Commonwealth responded quite well. We had to round up a few states towards the end, but the Commonwealth were beside us all the way. We have funding from the Grains Research and Development Corporation. The Commonwealth government helped us very much in discussing with industry their funding contribution. I think if any issue is being sorted through at the moment it is the industry's response when these incursions happen. I think the state and Commonwealth governments are responding quite well.¹²⁶

5.136 The following is a case study of the effective eradication of a particularly unwanted incursion – the Red Imported Fire Ant.

Case study: Cost sharing arrangements in the eradication of Fire Ants

On 6 April 2004, the Committee visited the Wacol facility of the Queensland Department of Primary Industries and Fisheries for a comprehensive briefing on the National Fire Ant Eradication Program. The visit was undertaken with the approval of the Hon Henry Palaszczuk MP, Queensland Minister for Primary Industries and Rural Communities.

The Committee was hosted by Mr Keith McCubbin, Director of the Fire Ant Control Centre (FACC) and several of the centre's researchers. The group was joined by Mr Ron Beck, Acting Deputy Director-General, Department of Primary Industry and Fisheries. The visit consisted of oral presentations supported by reference to a series

124 *ibid*, p. 6.

125 Mr George Willcocks, Department of Agriculture, Fisheries and Forestry, *Committee Hansard*, Canberra 18 June 2004 p. 69.

126 Mr Roger Wickes, Animal and Plant Control Commission, *Committee Hansard*, Adelaide, 28 June 2004, p. 6.

of slides, followed by a Q&A session, and concluded with an inspection tour of the research facility.

Mr McCubbin briefed the Committee about all aspects of the Red Imported Fire Ant, including their potentially disastrous social and economic impacts if not eradicated. The fire ant is a native of South America, is extremely aggressive and, when disturbed, attacks en masse. It inflicts a fiery sting that will develop into a pustule. In the United States, fire ants have caused over 90 deaths and thousands have been hospitalised with allergic reactions. They prevent children from playing safely in their backyards, they can kill young animals, and impact on agricultural production.

A Benefit Cost Analysis (BCA) undertaken by the Australian Bureau of Resource Economics (ABARE) into the proposed eradication program estimated that the cost to the Australian economy over the next 30 years if the fire ant was not controlled would be \$8.9 billion, especially in relation to negative impacts on tourism and property values. As such, the ant, if not contained, had the potential to be Australia's biggest environmental disaster. The ABARE analysis was based on an eradication program of \$123.4 million over five years, providing a BCA of 25:1. This ratio is well above the limit where eradication is considered worthwhile, yet was considered conservative as it had not costed the loss of environment and lifestyle values that the ant would cause.

A key aspect of Mr McCubbin's presentation was the description of the governmental response once the ants had been discovered. The timetable was:

- February 2001 - identification (although it was believed that they could have been in the country for up to five years before discovery)
- February - March 2001 - emergency response phase, including the introduction of movement controls under the *Plant Protection Act 1989*.¹²⁷
- April – August 2001 – scoping phase, including the completion of a Social Impact assessment
- September 2001 – commencement of \$123.4 million, 5-year eradication program.

In February 2001 the Queensland Department of Primary Industries (as it was then called) raised an emergency response, having concluded that the pest needed controlling, based on its history as a serious pest of agriculture in North America. The initial emergency response involved several supporting agencies, including the Department of Natural Resources, Mines and Energy and the Environment Protection

127 Upgraded regulation of the movement of materials deemed to be high risk for transporting fire ants was subsequently introduced to take effect from 19 April 2004. The upgraded regulation was under amendments to the *Plant Protection Act 2002*. Source: *Agreement to support extra fire ant fight funding*, Media Statement by the Hon Henry Palaszczuk, 16 April 2004.

Agency. A Queensland Government interdepartmental working group was established in the scoping phase to provide whole-of-government service support.

US scientists briefed meetings of Commonwealth and State/Territory agricultural agencies in Brisbane in June 2001, and three options were considered:

- eradication;
- aggressive containment, focusing on pest suppression to minimise its impact; and
- facilitative management – as undertaken in Texas. Under this approach, the Government adopts the role of providing advice on management options based on government-funded research, but efforts to further control (but not eradicate) are funded by individuals and businesses.

An urgent response to the incursion was considered extremely important. Eradication was agreed as the preferred option, given the opinion of fire ant experts that it was technically feasible and the most cost effective. The US scientists advised that natural spread by winged queen ants would re-commence with the onset of warmer weather and a delay of months in the commencement of the campaign would result in the area of infestation extending out by two or three kilometres. Failure to commence treatments in the spring of 2001 would have effectively doubled the estimated cost of treatment for the first year and significantly reduced the chance of successful eradication.

Following the scoping phase, a National Fire Ant Eradication Program was put together with nationally cost shared funding, with QDPI as the lead agency. The then Standing Committee on Agriculture and Resource Management (SCARM) endorsed this option, and referred it to the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) for a decision on budget support for a \$123.4 million program over five years. This was given in principle support on 20 July 2001. The overall budget was subsequently increased to \$144.9 million in May 2002 to cater for an expanded area as a result of further surveillance, better delimiting the spread.

Because the impacts were recognised to include a potential impact on agriculture beyond the borders of any one State, existing national cost sharing principles were used. These arrangements – first established by the then Australian Agricultural Council in February 1977 – see the costs of approved eradication measures being shared on a 50:50 basis between the Commonwealth and the States, with the sharing of the States' contribution being assessed on the size of the industry at risk in each State.¹²⁸ In the case of the fire ant program, all States contribute on a per-capita basis recognising the impact would be on the entire community, not just agriculture or a

specific industry. Thus NSW and Victoria make a greater contribution than Queensland, despite the outbreak being contained within Queensland.

The Natural Resource Management Ministerial Council now has oversight of the program. On 16 April 2004, shortly after the Committee's visit, Mr Palaszczuk announced that the Queensland Government had secured in principle agreement for an extra \$37.5 million for the fire ant eradication campaign. On the basis that the extra funding was contingent on individual government budgetary considerations, aggregate funding would total some \$175.4 million over six years.¹²⁹ By the end of June 2004, some \$109.6 million had been expended.¹³⁰

Failure to secure national funding for the eradication program would have placed the Queensland Government under pressure to implement an ongoing facilitative management program to assist industry and the community to manage the pest. The cost of such a program was estimated at \$2 million annually, depending on the level of 'subsidisation' of control activities undertaken by industry and the community.

A 2002 study by Moloney and Vanderwoude found that if the fire ant had been allowed to spread throughout Australia unimpeded, it would occupy any land with mean annual rainfall exceeding 510 mm, excepting areas that experience extremes of cold. Predictive modelling of the expected rate of spread showed that at least 600,000 square kilometres and as much as four million square kilometres could be infested by 2035.

Outside Queensland, the National Red Imported Fire Ant Surveillance Program has been implemented, focusing on active surveillance of high-risk sites such as ports and airports. The Program is coordinated in Canberra through the Office of the Chief Plant Protection Officer. States and Territories are required to report their activities through this office.

Mr McCubbin advised the Committee that the first three years of the Program had been spent treating known infestations, detecting any new or previously unknown infestations, and minimising the risk of spread to new areas. The final two years (now extended to three) will be spent monitoring the treated areas and eradicating any remaining small infestations. The emphasis will be placed on locating and eliminating the last nest. It was estimated that 97.5% of properties in the defined treatment zones were clear and, apart from continuing physical checks by the on-the-ground surveillance workforce of some 400 personnel, techniques based on multi-spectral imaging and the like are also being employed. Modelling of fire ant habitat preferences using satellite imagery has been used to identify areas of land which are unsuitable for fire ants, identifying some 13000 hectares (or half the current

129 *Agreement to support extra fire ant fight funding*, Media Statement by the Hon Henry Palaszczuk, 16 April 2004.

130 AAP, *Fire ant fight has cost nation \$109 million so far*, 15 July 2004.

surveillance area) not needing FACC attention, at a saving of some \$4 million per annum.¹³¹

This case study is one of the most impressive examples of what can be achieved when any part of Australia is confronted with a potentially massive ecological and economic threat. It is a remarkable example of intra- and intergovernmental cooperation, demonstrating the effectiveness of the cooperative federalist system when it is confronted with a sufficiently massive threat. In response to questions from Committee members about any concerns he had held with the process, Mr McCubbin spoke of the early period of uncertainty while funding approval was awaited, especially while awaiting confirmation of the financial involvement of the other States. DPI had seen the need to take the lead but there was a reluctance to push too far ahead without guaranteed funding. He noted that there was also some element of 'Russian Roulette' in trying to recruit a large number of personnel in a hurry before funding was assured. He also emphasised the need to recruit good staff, which again limits the speed with which such programs can move from the planning to implementation stages.

Each Committee member was presented with a comprehensive publicity pack about the fire ant threat and the details of the eradication program, containing brochures, fridge magnets, and identification charts. These had been given wide distribution around residents of the affected areas. The success of the program demonstrates the benefits of quick action at a governmental level, supplemented with community education and involvement.

The Committee wishes to express its appreciation to Mr Palaszczuk for agreeing to allow the Committee to visit the Wacol facility and to Mr McCubbin and his dedicated team of staff for their hosting of the Committee and their comprehensive and informative presentations.

5.137 There are a number of common principles in responding to any invasive species regardless of taxon (plant or animal) and these can be applied to assessing the cost-benefit and feasibility of response, particularly once the quarantine barrier has been crossed.¹³² In South Australia the Animal and Plant Control Commission has developed the follow protocol to manage incursions.

The Commission has developed an Incursion Management Protocol to ensure that South Australia has appropriate measures in place to minimise the adverse effects of future incursions of exotic plant and vertebrate animals into South Australia.

In preparation for, or in the event of an incursion, South Australia will have in place measures that:

131 See also: *Satellite assists in fire ant eradication*, Media Statement by the Hon Henry Palaszczuk, 28 April 2004.

132 Bureau of Rural Science, *Submission 62a*, p. 5.

- identify the strategies and actions to be adopted in the event of an incursion;
- define the roles and responsibilities of personnel responding to an exotic vertebrate animal or plant incursion;
- outline operational procedures and plans to evaluate and co-ordinate the response;
- ensure rapid and effective decision making on what specific actions should be taken to manage an incursion;
- provide clear documentation and relevant contact details.

Provide administrative arrangements that will:

- ensure integration and co-operation between the Protocol and other national and state plans and strategies;
- provide appropriate public information and education;
- identify arrangements to ensure on-going management of incursions; define arrangements to ensure effective implementation and review of the Protocol.¹³³

5.138 The Commission submitted that:

Responses to incursions of new pests are often expensive and can be difficult to negotiate, as they require a funding commitment that often extends beyond several electoral cycles. However, the cost of eradicating a pest before it becomes widely established offers significant potential long-term savings. Cost-sharing arrangements and responsibilities between the Commonwealth, states and other stakeholders for incursion management should be clarified and standardised.¹³⁴

5.139 The need for the Commonwealth Government to take a significant role in the management of pest incursions was raised by the Tasmanian Government which submitted:

The Tasmanian Government considers that some pest incursions represent such a threat to Australia's natural heritage that they must be addressed at the national level. The processes exist to allow this to occur but I do not believe that the Australian government has accepted an appropriate share of the burden of incursion management in such matters of national importance.¹³⁵

5.140 The Nature Conservation Society of South Australia also proposed that:

It is recommended that the Commonwealth accept responsibility for the coordination of a rapid response program. Such a program would require a comprehensive database of the location of existing invasive species, and a

133 Animal and Plant Control Commission South Australia, *Submission 15*, p. 7.

134 *ibid*, p. 9.

135 Tasmanian Government, *Submission 64*, p. 1.

network of people in the field who are able to receive rapid support for eradicating any new incursions. Such a program could utilise many of the volunteer and existing paid staff currently spending much of their time in the field.¹³⁶

5.141 Plant Health Australia submitted that as a result of the absence of an agreed national emergency plan for exotic plant pests the organisation had begun negotiation with key stakeholder to develop an endorsed emergency response plan:

Plant Health Australia is currently negotiating new cost sharing agreements for the emergency eradication of exotic plant pests. These arrangements will replace the current cost-sharing arrangements between the Commonwealth, state and territory governments and will include cost sharing measures with related plant industries.¹³⁷

5.142 In June 2004 Plant Health Australia launched PLANTPLAN Australia's first national emergency preparedness and response guidelines for the plant industry. In a media release Mr Andrew Inglis the PHA Chairman said:

PLANTPLAN is a significant milestone which will introduce far greater coordination and consistency in plant pest responses. By adopting common and enhanced emergency response procedures, government, industry and individual producers will benefit from more rapid, consistent and efficient responses to harmful pest incursions.

The new Australian plan outlines the approach to responding to emergency plant pest incursions. The emergency response procedures, roles and responsibilities, and decision making processes described in PLANTPLAN are generic for all plant pest emergencies, and are triggered by detection of an emergency plant pest.

PLANTPLAN provides a description of the general procedures, management structure and information flow system for the handling of emergency plant pest incursions at the national, state/territory and district levels. This includes the operations of control centres, principles for the chain of responsibility, functions of sections within control centres, and role descriptions.¹³⁸

5.143 The Committee is reassured at the adequacy of the emergency arrangements for dealing with incursions that might adversely affect primary industries. It notes, however, that incursions of an environmental impact seem to have slipped through the cracks. Timely action against environmental pest incursions is equally important.

136 The Nature Conservation Society of South Australia, *Submission 76*, p. 5.

137 Plant Health Australia, *Submission 9*, p. 3.

138 Plant Health Australia, *PLANTPLAN endorsed to manage emergency plant pest incursions*, media release, 8 June 2004.

Recommendation

The Committee recommends that the Commonwealth place on the agenda of the Natural Resource Management Ministerial Council the need for parallel arrangements to be implemented for environmental pest incursions as are currently in place for threats to primary industries.

Cross-agency coordination

5.144 Some of the evidence to this inquiry suggests a lack of cross agency coordination in the management of invasive species. Mr Tim Low from the Invasive Species Council told the Committee that:

You find that no-one has a whole picture of this. There is no institution, expert or authority you can go to and ask: ‘What are all our exotic pests? What exotic insects do we have?’ No body is vested with the responsibility for having that information and documenting that. You can certainly find experts on weeds, but it is all compartmentalised, so there are always other pests that no-one seems to know about.¹³⁹

5.145 However, government agencies are now working in a greater coordinated manner to address the issue of invasives. At a federal level DAFF works with a range of key stakeholders including other government agencies and industry in relation to the regulation, control and management of invasive species. By way of example, DAFF submitted that:

In addition to the close working relationship developed with DEH, DAFF consults with and coordinates its activities with other government agencies in including the Australian Customs Service, the Departments of Health and Ageing (DH&A), Immigration and Multicultural and Indigenous Affairs (DIMIA), Foreign Affairs and Trade (DFAT), Transport and Regional Services (DOTARS), Defence and Australia Post on quarantine issues.

The key agencies engaged in incursion management include DFAT, (in relation to any potential trade implications), DH&A (in relation to any potential public health dimensions) and the Department of Finance (in relation to funding the Commonwealth’s contribution). In the management of invasive marine pests DAFF is extensively involved with both DOTARS and the Australian Maritime Safety Authority at a policy level. Depending on the nature of the incident, the Navy, Customs, the Australian Fisheries Management Authority and DIMIA may also be involved at an operational level.¹⁴⁰

5.146 In South Australia, the Animal and Plant Control Commission is looking at a more integrated and holistic approach to pest management:

139 Mr Tim Low, Invasive Species Council, *Committee Hansard*, Brisbane, 14 April 2004, p. 43.

140 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 8.

The Commission recognises that anything to do with pest management goes hand in hand with protecting agriculture, protecting the environment and public safety. At the moment we are looking at bringing animal and plant control issues in with other integrated natural resource management issues. Before parliament at the moment we have a bill which will bring animal and plant control, soil conservation and water resources into an integrated framework for South Australia, because you cannot deal with one of these issues without dealing with the others.¹⁴¹

5.147 The Queensland Department of Natural Resources, Mines and Energy told the Committee that despite the size and diversity of the State, the department actively works in partnership with a range of stakeholders to address weed and pest management in a coordinated way.¹⁴²

5.148 Mr Edward McAlister also raised the issue of the need for greater coordination between research bodies:

I suggested that the pest animal CRC work more closely with the weed management CRC, perhaps the tropical ecology CRC and maybe the one that is working with fire. Those are areas which seem to work together to me. If there were some way in which they could communicate more effectively, then it would be something that would be well worth our while.¹⁴³

Governments as neighbours

5.149 The Committee heard from many farmers who claimed that Federal, State and Local governments were negligent neighbours in the control of invasive weeds on Crown or public land. Mrs Denise and Mr Tony Redmond submitted:

Many Farmers have worked diligently to combat feral animals and noxious weeds however fireweed presents an enormous threat to the agricultural viability of the area. Fireweed is in the National Parks, on Crown Land and has infested land of absentee landlords.... We have witnessed a negligent attitude towards the problem at the Federal, State and Local Government levels.... The State Government has not acknowledged the problem and the roadside remains a constant source of seed.¹⁴⁴

5.150 The issue of negligent neighbours, whose poorly maintained land is responsible for the spread of noxious weeds, raises the issue of liability. As Mrs Phillipa Foster submitted:

141 Mr Roger Wickes, Animal and Plant Control Commission, *Committee Hansard*, Adelaide, 28 June 2004, p. 1.

142 Dr Anthony Pressland, Queensland Department of Natural Resources, Mines and Energy, *Committee Hansard*, Brisbane, 14 April 2004, p. 6.

143 Mr Edward McAlister, *Committee Hansard*, Adelaide, 28 June 2004, p. 62.

144 Mrs Denise and Mr Tony Redmond, *Submission 4*, p. 2.

I wish to bring to your attention the increasing possibility that someone will ultimately take another land holder or land manager to court for the costs incurred to them in the control or eradication of invasive weed species. The precedent is the success of fire damages claims, and it will soon become apparent that the costs of weeds, in control/eradication, along with the loss of pasture/native bushland, are probably considerably greater than those of fire.¹⁴⁵

5.151 In response to claims that governments are poor land managers in regard to invasive species, Mr Con Boekel from the Parks Australia South Branch of the Department of Environment and Heritage told the Committee:

In relation to Commonwealth reserves I would make quite a strong claim that we are very responsible landowners and land managers.... Where we can, we seek to cooperate with neighbouring communities. We have not been successful with the cane toad, but I would say that in most of the areas that I am personally aware of the level of weed control and the level of pest control of things like foxes and rats are at least equal to or better than what is happening on the other side of the fence from us.¹⁴⁶

Conclusion

5.152 The Committee believes that the management, funding, community understanding and political will to address the issue of invasive species already within Australia is fragmented and insufficient. Mr Edward McAlister, AO, the Chief Executive of the Royal Zoological Society of South Australia captured both the scale of the problem and the hope that it is not beyond us:

The problem seems immense and there is certainly no “silver bullet” for all, or perhaps even any, of these pest species, either animal or plant.... Accepting that the problem is immense and certainly widespread, there appears to be a number of things which can be done.¹⁴⁷

5.153 The Committee acknowledges that the Commonwealth has little direct control over the management of established pest species, however it believes that the problem is so significant that greater Commonwealth leadership and State and Territory partnerships are required. Programs should be outcome-based, they should be strategic, long-term and adequately funded:

All invasive species programs need to be considered at the landscape or ecosystem level and should be outcome based. This is important for all invasive species- flora and fauna. Simply removing one invasive species may not achieve a positive outcome for biodiversity if the controlled

145 Mrs Phillipa Foster, *Submission 1*, p. 1.

146 Mr Con Boekel, *Committee Hansard*, Brisbane, 14 April 2004, p. 36.

147 Mr Edward McAlister, *Submission 75*, p. 5.

species is replaced by another invasive species. Therefore an integrated approach that addresses all invasive species is needed.¹⁴⁸

5.154 While in chapter 7 the Committee finds against the introduction of the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 at this time, essentially because of the compact between the Commonwealth and State governments on environmental regulation as reflected in the Principal Act, the Committee calls on the several tiers of Government to address the implementation of section 301A, perhaps in a staged approach. Further recommendations will be made in Chapter 8.

148 The Nature Conservation Society of South Australia, *Submission 76*, p. 5.

Chapter 6

Management of invasive species at the coastal border

The Commonwealth has made laudable efforts to strengthen border controls, but more can and must be done.¹

Introduction

6.1 While Chapter 5 examined the somewhat complex governmental arrangements for the management of invasive species and incursions once they are within Australia, in this Chapter the Committee examines the measures that are in place at the national border to protect the Australian mainland from invasive species. It then goes on to examine issues relating to the management of the Australian marine environment, including the Great Barrier Reef Marine Park. Unlike the shared governmental responsibilities for managing invasive species within Australia, these matters are generally the responsibility of the Australian Government.

Border control

6.2 Earlier chapters of this report contained detailed descriptions of regulatory and institutional arrangements for border control. This section examines the evidence about their adequacy.

Biosecurity policies

6.3 The Australian Government has developed biosecurity policies to prevent or control the entry, establishment or spread of pests and diseases that will or could cause significant damage to human beings, animals, plants, other aspects of the environment, or economic activities. The *Import risk analysis handbook* states that:

Australia's plant and animal health status is maintained through the implementation of measures to facilitate the importation of products while protecting the health of people, animals and plants.²

6.4 Assessments are not conducted on all requests for importation:

Australia's approach to addressing requests for imports of animals, plants and their products, where there are biosecurity risks, is to draw on existing sanitary and phytosanitary measures for similar products with comparable risks. However, where measures for comparable biosecurity risks have not previously been established, a thorough assessment will be necessary to identify the risks to Australia and determine what sanitary and phytosanitary measures are needed to reduce those risks to a level

1 Conservation Council of WA, *Submission 59*, p. 2.

2 Biosecurity Australia, *Import risk analysis handbook*, Canberra, 2003, p. 5.

consistent with Australia's ALOP [appropriate level of sanitary or phytosanitary protection].³

6.5 The Committee repeatedly heard evidence that preventing the entry of invasive species that are not already in Australia is the best approach to minimising both the potential threats posed by them and the subsequent costs of eradication. In its submission the Bureau of Rural Sciences advised that:

the obvious low cost option for managing the threats posed by invasive species is to restrict and manage both accidental and intentional import pathways. Reducing the risk of invasive species incursion and/or establishing procedures where incursions can be detected.⁴

6.6 The *Quarantine Act 1908* (Quarantine Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) regulate the entry of live plants and animals into Australia. The Department of the Environment and Heritage (DEH) provided an overview of the integrated approach that it and the Department of Agriculture, Fisheries and Forestry (DAFF) have taken to assessing new importations. In its submission, DEH stated that:

Both the Quarantine Act and the EPBC Act require that live specimens be assessed for their potential impacts. The Departments of the Environment and Heritage and Agriculture, Fisheries and Forestry have worked closely to develop an integrated process for the assessment of specimens. This reduces duplication and streamlines the assessment processes, both for the Australian Government and for the applicant (or potential importer). The agreement of both Departments is required before a live specimen can be imported.⁵

Quarantine Act 1908

6.7 Australia's quarantine system was reviewed extensively in 1998. As a result of the Nairn review numerous changes were made to quarantine policy and law:

From July 1998, under revised quarantine legislation (*Quarantine Proclamation 1998*), all plants were prohibited from entering Australia until they were assessed and/or appeared on the permitted list. The WRA [Weed Risk Assessment] process was adopted at this time, following an exhaustive nine-month consultation period, to assess all new proposed plant imports.⁶

6.8 The Quarantine Act is the mechanism through which this policy operates. It sets out the Commonwealth's role in border monitoring, detection and control arrangements. The Act allows the Governor-General to make proclamations setting

3 *ibid.*

4 Bureau of Rural Sciences, *Submission 62a*, p. 13.

5 Department of Environment and Heritage, *Submission 61*, p. 7.

6 Department of Environment and Heritage and Department of Agriculture, Fisheries and Forestry, *Submission 74*, pp. 2-3.

out a range of matters including quarantinable plant diseases and quarantinable pests, and seeds which are permitted to be imported into Australia. Clause 58 of the *Quarantine Proclamation 1998* (the Proclamation) states that each disease mentioned in Schedule 4 of the proclamation is a quarantinable disease and that each pest mentioned in Schedule 4 is a quarantinable pest.

6.9 The key measures used by the Departments for assessing plants, animals, goods derived from plants or animals, micro-organisms or other commodities which might pose a biosecurity risk are Import Risk Analysis and Weed Risk Assessment. These are examined in turn below.

Import Risk Analysis

6.10 DAFF undertakes import risk analysis processes to assess the risks from pests and diseases and how those risks should be managed:

For animal and plant biosecurity, import risk analysis identifies the pests and diseases relevant to an import proposal, assesses the risks posed by them and, if those risks are unacceptable, specifies what measures should be taken to reduce those risks to an acceptable level.⁷

6.11 The *Import risk analysis handbook* states that import risk analysis is conducted on an import proposal or application if:

- there is no relevant existing biosecurity measure for the good and pest/disease combination; or
- a variation in established policy is desirable because pests or diseases, or the likelihood and/or consequences of entry, establishment or spread of the pests or diseases could differ significantly from those previously assessed.⁸

Scope of the import risk analysis process

6.12 Concerns were raised that the import risk analysis process was too limited in its scope. Many vertebrate species that are already in Australia have not had import risk analyses conducted to assess their potential for invasion if released. The Bureau of Rural Sciences noted this factor in its submission when it stated that:

Restricting trade or keeping exotic vertebrate species that are already past quarantine barriers, legitimately or otherwise is an area where threat and risk response are not fully developed nationally. These species usually have not had independent risk assessments on their potential for invasion if released.⁹

7 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 4.

8 Biosecurity Australia, *Import risk analysis handbook*, Canberra, 2003, p. 8.

9 Bureau of Rural Sciences, *Submission 62a*, p. 6.

6.13 The ACT Government also stressed that:

It is considered important that all introduced species already existing in Australia should undergo a risk assessment to provide guidance on trade and to assess whether species should be withdrawn from trade and/or private collections. The impact of new genotypes should also be considered as part of the risk assessment of existing invasive species.¹⁰

6.14 The Bureau of Rural Sciences has developed a new model for the Vertebrate Pests Committee which assesses the potential threat that exotic vertebrate species pose of becoming invasive pests that will harm Australia's environment and economy. The model is relevant to other taxa and it evaluates factors that determine the risks posed by particular exotic vertebrate species and separates those species that represent a high threat of becoming pests from those that pose a lower threat. For example:

the climate match between a species' overseas range and Australia and whether or not a species has a history of establishing exotic populations in other countries are two of the factors the model uses to evaluate the threat of a particular species establishing in the wild in Australia.¹¹

6.15 The Queensland Government acknowledged that DEH and DAFF support the process for animal risk assessment as agreed to by the Vertebrate Pests Committee. However, it raised concerns about the processes involved and put the view that those processes differ from the nationally agreed processes:

DEH has developed a system of Wildlife Trade and Conservation public notices for changes to the list of imported species under Section 303 of the EPBC Act (<http://www.deh.gov.au/biodiversity/trade-use/publicnotices/>) but the information supplied by importers does not appear to go through an internal review before posting on the DEH website. The risk assessment process used by DEH is not the nationally agreed Vertebrate Pest Committee (VPC) system. Changes to regulation controlling the importation of birds ... with the introduction of the *Environment Protection and Biodiversity Conservation Act* 1999 resulted in the need for legislative changes in Queensland.¹²

6.16 The Queensland Government also raised concerns that full risk assessments are not carried out on all species. It stated that:

both groups do not currently carry out full risk assessment processes on all species. For example some Biosecurity Australia import risk assessments have not considered the pest potential of the imported animal species e.g. recent risk assessment for deer species. This is contrary to Nairn Recommendation 45 that "import risk analysis used by AQIS include increased considerations of the potential environmental effects of proposed introductions of new species, breeds or varieties of animals and plants or

10 ACT Government, *Submission 44*, p. 7.

11 Bureau of Rural Sciences, *Submission 62a*, p. 14.

12 Queensland Government, *Submission 42*, p. 18.

their germ plasm, including their propensity to become weeds, vertebrate pests or invertebrate pests in Australia” (Nairn 1996).¹³

6.17 Risk assessment models, such as that developed for the VPC, can assist in assessing the pest potential of exotic vertebrates; however, there is a subjective component to assessment and this requires input by qualified experts. The Bureau of Rural Sciences noted that:

Although risk assessment models cannot provide definite predictions, because the ecological processes involved are so complex and available technical data is so limited for most species, models ... do help to assess the threats of new exotic vertebrates establishing pest populations in Australia, using a rigorous, science-based and transparent decision making process.¹⁴

Independence of the risk analysis process

6.18 One area of possible concern with the current processes is that the independence of import risk analysis is not assured. If an applicant seeks to import a species that needs to undergo a risk assessment, it is the applicants themselves who arrange for the assessment to be conducted. The Bureau of Rural Sciences acknowledges the lack of independence in this process. In its submission it stated that:

It is therefore absolutely essential that all risk assessments on species be conducted by appropriate experts who act independently of either those applying to import or keep them or others with a vested interest in the outcome of the risk assessment. Therefore, if the applicant pays for a risk assessment, it is desirable that this is done through an independent authority that arranges for an independent risk assessment. Such arrangements are not yet in place in Australia to ensure this independence is achieved for the import of exotic vertebrates and this can put at risk the integrity of the risk assessment process.¹⁵

6.19 The ACT Government also expressed concern over the lack of independence in this process. It stated that:

The employment of a consultant by the proponent to undertake the assessment is not considered to be independent. The preferred approach to conducting a risk assessment is that the process is coordinated by a Commonwealth agency with the cost of that assessment passed on to the proponent.¹⁶

6.20 DEH's Dr Rhonda Dickson explained the basis for the current approach:

13 Queensland Government, *Submission 43*, p. 18.

14 Bureau of Rural Sciences, *Submission 62a*, p. 14.

15 *ibid.*

16 ACT Government, *Submission 44*, p. 7.

To my understanding, it is the main vetting and assessment of the assessments that is done within the department. The department is not resourced to do risk assessments itself.¹⁷

6.21 In July 2004 the Minister for Agriculture, Fisheries and Forestry, the Hon Warren Truss MP, announced new measures to boost confidence in the rigour of the Import Risk Analysis process. The new measures included the establishment of an Eminent Scientists Group to independently examine the draft Final IRA Reports prior to their release.¹⁸

International Trade Agreements

6.22 Chapter 2 of this Report briefly outlines the international agreements and conventions, including those under the World Trade Agreement (WTO), which can have an impact on Australia's efforts to exclude and control invasive species. Australia's international trade agreements can have an impact on the import risk analysis processes where Australia's refusal to allow imports because of concerns over biosecurity are challenged under trade agreements. This became an issue in Australia's recent dispute with Canada over Australia's refusal to allow the importation of fresh salmon. In its submission the Invasive Species Council said that

Australia is effectively obliged to address the issue of diseases carried with fish and bait following a recent World Trade Organisation (WTO) decision ruling against a national ban on imported uncooked salmon. Australia tried unsuccessfully to justify the ban on the basis of disease risks, but the WTO found that Australia's quarantine policy was inconsistent, because aquarium fish and herring bait are permitted entry, both of which carry greater disease risks than salmon.¹⁹

6.23 Following the finding of the WTO Panel, Australia carried out a further import risk analysis process and introduced new measures which complied with the WTOs requirements:

The Australian Government and the State of Tasmania subsequently decided to introduce new quarantine measures, and Canada requested that the dispute be referred back to the original panel. Australia produced a new 1999 import risk analysis which was much more detailed and specific than the last one: it not only identified which fish diseases were a high priority and therefore presented an unacceptable risk, but also dealt with probabilities of risk. The Panel found that this IRA complied with Article 5.1, and that most of Australia's new quarantine requirements were based on that assessment. The new legislation tightened import restrictions on

17 Dr Rhondda Dickson, Department of Environment and Heritage, *Committee Hansard*, Canberra, 18 June 2004, p. 67.

18 Biosecurity Australia, *New Arrangements to Strengthen Import Risk Analysis*, Animal Biosecurity Memorandum 2004/15, Plant Biosecurity Policy Memorandum 2004/22, 16 August 2004.

19 Invasive Species Council, *Submission 56*, p. 6.

herring bait and live ornamental fish, and Canada was unable to show that they continued to violate Article 5.5.²⁰

6.24 Although Australia was eventually able to satisfy the requirements of the WTO in this case it highlights the potential for international agreements focussed on trade to undermine measures designed to protect Australia from invasive species. As outline later in this Chapter, Australia has played a leading role in international forums in developing measures to protect Australia from introduced marine pests. In the Committee's view, Australia should be similarly active in ensuring that international trade agreements give adequate recognition to the need for individual countries to be able to protect themselves from the effects of invasive species.

Conclusion

6.25 This discussion has highlighted some deficiencies in the import risk analysis process. While these are of concern and should be addressed, it appears to the Committee that the most significant problems in relation to invertebrate species are addressed by the current processes or arise from pest species which are already widely distributed within Australia.

6.26 A more pressing concern is that the integrity of Australia's quarantine system is being jeopardised by the lack of independence in the import risk analysis process. The current system which allows the proponent to directly select and fund the party which will carry out the assessment creates an obvious conflict of interest. One's faith in the adequacy of the current system turns on whether there is sufficient trust in the quality of the review conducted by the department. Several witnesses expressed doubts in this respect. The establishment of an Eminent Scientists Group to review IRAs is a welcome measure, but it may not go far enough.

6.27 This is a key issue. One wrong import risk assessment could have horrendous consequences. The Committee recognises that, given the uncertainties of the science, the only assured way of avoiding errors in import risk assessments is to close the borders. This is, of course, unrealistic. In the Committee's opinion a better system would see a closer involvement of Biosecurity Australia in the process of conducting import risk analyses, either by conducting them itself on a cost recovery basis, or by co-ordinating their production by a panel of approved providers, again with the cost of the assessment being borne by the proponent.

Recommendation

That the import risk assessment process be modified to guarantee greater independence in their preparation.

20 Ms Renae Leverenz, *Submission 27*, p. 66.

Recommendation

That the Commonwealth Government take a leading role in relevant international forums to seek better recognition of the environmental consequences of current trade rules.

Weed Risk Assessments (WRA)

6.28 The Weed Risk Assessment process operates in parallel with Import Risk Analysis. It is designed to enable non-invasive plant species to be imported, while preventing the importation of potentially invasive species new to Australia. Wholesale nurseries, horticultural companies, agricultural suppliers, private individuals, botanic gardens, universities, researchers, and state and territory governments use the Weeds Risk Assessment process.

6.29 The quarantine proclamation deals with the introduction of plants and plant material. Clause 63 of the Proclamation prohibits the importation of seeds unless the plant is listed in Schedule 5 (the 'permitted' list) of the Proclamation or the Director of Quarantine grants a permit. Clause 65 prohibits the importation into Australia of a plant or plant part listed in Schedule 6 (the 'prohibited' list) unless the Director of Quarantine has granted a permit.

6.30 Dr Rachel McFadyen, the Weeds CRC's Chief Executive Officer, put the WRA process in these terms:

The point is that AQIS has a prohibited list. They also do not go through the weed risk assessment. They have already been assessed and are prohibited. On the other side you have the permitted list, and it is those that fall into neither the one nor the other. It is a bit like immigration, if you like. If you are an Australian citizen and you have got a passport then you are on the permitted list. You may go to jail the moment you get here, but you are permitted.²¹

6.31 Commonwealth legislation since 1999 has ensured that all new proposed plant species imports into Australia are subjected to a Weed Risk Assessment (WRA) system, which assesses the likelihood of plants becoming weeds. The assessments are based on attributes known to be associated with invasiveness and a high probability of negative environmental impact.

6.32 The WRA process is for plants that fall neither into the 'permitted' (Schedule 5) list nor the 'prohibited' (Schedule 6) list. DAFF advised that:

there are three outcomes of the WRA assessment - the species is accepted, rejected or further evaluated. If the result is to accept, then the species is permitted importation if standard quarantine requirements are satisfied (no quarantine pests or diseases are identified during the WRA). If the result is to reject, importation of the species is prohibited (due to its high potential to

21 Dr Rachel McFadyen, *Committee Hansard*, Brisbane, 14 April 2004, p. 25.

become a weed of agriculture and/or the environment) and the species can only be imported with a permit and used under strict quarantine conditions.²²

6.33 The overall WRA process appears to enjoy general support. For example, the Weed Management Society of South Australia said in its submission that:

The Weed Risk Assessment System used by Biosecurity Australia for new plant imports is effective, scientifically-based, and accepted under international trade agreements and standards.²³

6.34 However the Society did raise a concern about the limited resourcing of the system which leads to delays in assessments.²⁴

Concerns about the WRA process

6.35 More significantly, however, there is general outrage about the exemption from the WRA system of plants on the Schedule 5 permitted list. In its submission the Invasive Species Council said:

Because it is more stringent than the systems most countries use, WRA has won much praise here and overseas.

But WRA is not operating as it should. Hundreds of weeds may be imported legally into Australia without any assessment whatever. The system is so flawed it raises serious questions about the competence and commitment of our quarantine service.²⁵

6.36 The Committee heard extensive evidence from a range of organisations about a loophole in Schedule 5, namely the inclusion of several thousand genera on the permitted list. Under the permitted list, therefore, entire genera are granted blanket approval for importation. This is the case even if not all of the species in the genera are already present in Australia:

at present there are many potentially invasive plants on the AQIS permitted list, and therefore not subject to the WRAS process. This includes instances where entire genera (related species) have been granted blanket approval for importation. There are also problems where a plant may be present in Australia but not invasive, therefore further importations would normally be permitted. If new strains are imported, the result may be development of an invasive problem.²⁶

...apparently the current practice for importing non-native plants is that a scientific name is not required for plant species that are covered by an

22 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 4.

23 Weed Management Society of South Australia Inc, *Submission 35*, p. 6.

24 *ibid*, p. 4.

25 Invasive Species Council, *Submission 33*, Attachment 3.

26 CRC For Australian Weed Management, *Submission 22*, p. 6.

exempt genus listed on Schedule 5 of the Quarantine Act. Consequently, new non-native species are entering Australia without being recorded and put on a database of non-native species in Australia, resulting in invasive species being sold without any official record of their presence in Australia, e.g. Ceylon hill cherry.²⁷

6.37 A recent study by the University of Western Australian and the CRC for Australian Weed Management found that the species of 2,916 plant genera already on the Schedule 5 permitted import list are not subject to WRA.²⁸ As of 1 December 2003 this permitted the importation of nearly half of all plant species on Earth.²⁹ This includes 125,241 plant species of which 4,003 are known agricultural and environmental weeds not yet present in Australia through 700 (24%) of the 2,916 listed genera.³⁰

6.38 This includes numerous weeds that are closely related to Weeds of National Significance (WONS), including all members (with a few exceptions) of the genera *Asparagus* (bridal creeper, *Asparagus asparagoides*), *Hymenachne* (*Hymenachne amplexicaulis*), and *Annona* (pond apple, *Annona glabra*). Further examples are presented in the table below.

Table 6.1 - List of Weeds of National Significance (WONS) nominees and the number of their weedy relatives on the Schedule 5 Permitted List that are *not yet* present in Australia³¹

WONS nominee in a permitted genus	Common name	Number of weedy relatives permitted for importation but not yet present in Australia
<i>Jatropha gossypifolia</i>	Bellyache bush	6
<i>Thunbergia grandiflora</i>	Blue thunbergia	1
<i>Schinus terebinthifolia</i>	Brazilian pepper	1
<i>Genista monspessulana</i>	Broom	4
<i>Sporobolus indicus</i> var. <i>major</i> ,	Giant Parramatta grass and Giant rat's tail grass	13

27 WWF Australia, *Submission 30*, p. 26

28 H Spafford Jacob, R Randall and S Lloyd, *Front Door Wide Open to Weeds: an examination of the weed species permitted for import without risk assessment*. WWF Australia, 2004.

29 A Glanznig, K McLachland and O Kessal, *Garden Plants that are Invasive Plants of National Importance: an overview of their legal status, commercial availability and risk status*, WWF Australia, Sydney, 2004, p. vi.

30 H Spafford Jacob, R Randall and S Lloyd, *Front Door Wide Open to Weeds: an examination of the weed species permitted for import without risk assessment*. WWF Australia, 2004.p.iii.

31 *ibid.*

S. natalensis and *S. pyramidalis*

<i>Themeda quadrivalvis</i>	Grader grass	3
<i>Hydrocotyle ranunculoides</i>	Hydrocotyl	16
<i>Hyptis suaveolens</i>	Hyptis	11
<i>Bassia scoparia</i>	Kochia	8
<i>Pennisetum polystachion</i>	Mission grass	10
<i>Cortaderia</i> spp.	Pampas grass	1
<i>Ligustrum lucidum and sinense</i>	Privet	1
<i>Cytisus scoparius</i>	Scotch broom	3
<i>Sida</i> spp.	Sida	29
<i>Stachytarpheta</i> spp.	Snake weed	2
<i>Erica lusitanica</i>	Spanish heath	1
<i>Elephantopus mollis</i>	Tobacco weed	1
<i>Reseda luteola</i>	Wild mignonette	7

6.39 The study also profiles 20 serious agricultural and environment weed species not yet present in Australia that would be prohibited from import into Australia if they were subject to a weed risk assessment, but are able to be legally imported into Australia through the weakness in the Permitted List. These include:

- **corn brome grass** (*Bromus arvensis* L.), a common weed and grain seed contaminant of cereal crops. Also a weed of orchard, fruit and vegetable crops
- **Portuguese broom** (*Cytisus striatus*), a serious environmental weed in California that displaces native plant species and produces toxic seed. The plant also burns easily and is capable of carrying a fire high into the tree canopy
- **Small geranium** (*Geranium pusillum* L.), a common weed in virtually all cropping systems in Europe that has also naturalised in North and South America and New Zealand
- **Pitted morning glory** (*Ipomoea lacunosa* L.), a weed in Japan, United Kingdom, North America and northern Europe whose seed contaminates agricultural produce, especially grain and grain products
- **Persian ryegrass** (*Lolium persicum*), a serious weed of cereal crops in North America and Europe that causes significant yield losses as well as lowering the quality and grade of the grain

- **Macaranga** (*Macaranga mappi*), planted as a garden plant in Hawaii, the weed has spread throughout much of the island's moister habitats forming dense stands that kill off all native plants
- **Broad leaved meadow grass** (*Poa chaixii*), introduced into the United Kingdom as a garden plant and naturalised 50 years later. Seed is still available from nurseries over the internet. It is a widespread agricultural weed throughout Europe.³²

6.40 The Committee believes that this quarantine law loophole presents a real and present risk to Australian agriculture and the environment. It noted that the Commonwealth Government agreed to close this loophole in 2001, under targets 4.1.1 and 4.1.2 of the *National Objectives and Targets for Biodiversity Conservation, 2001-2005*:

Target 4.1.1: By 2001, the import of all new live organisms is subject to a risk-based assessment process that identifies the conditions necessary to minimise threats to the environment

Target 4.1.2: By 2001, no new non-native species are deliberately introduced into Australia unless assessed as being of low risk to the environment.³³

6.41 WWF Australia added that, given that the current AQIS protocols do not require the official recording of unique scientific names for new non-native plant species, it is impossible to maintain an accurate master list of non-native species in Australia. It advised the Committee that the loophole in Schedule 5 also facilitates the import of new, potentially invasive, weeds:

There is a significant loophole in the current quarantine laws. That presents a very significant and unnecessary risk to both agriculture and the environment.³⁴

6.42 The listing of plants by genus has enabled known weeds, such as bridal creeper and parkinsonia, which are listed as Weeds of National Significance, to be permitted for import without any Weed Risk Assessment being conducted. WWF Australia told the Committee that:

you have the Commonwealth setting up an alert list of 28 species of environmental weeds that have been targeted for eradication in the medium term and yet nine of the 12 horsetail species that sit on that alert list - the whole genus has been listed - are still able to be legally imported into Australia. Again, that is another contradiction.³⁵

32 *ibid.*

33 Environment Australia, *National Objectives and Targets for Biodiversity Conservation, 2001-2005*, Canberra, 2001, p. 17.

34 Mr Andreas Glanznig, *Committee Hansard*, Canberra, 26 November 2003, p. 11.

35 WWF Australia, *Submission 30b*, p. 13.

These WONS species are under ‘official control’ and thus should be a prohibited import. These examples highlight the poorly coordinated Commonwealth response to preventing the potential import of new weeds and serious weeds subject to ‘official control’.³⁶

6.43 This issue was also raised by Dr McFadyen. She told the Committee that: plants should be listed on it [the Schedule 5 permitted list] by their species as well as their genus names. The genus name covers an awful lot of things. Plants should be on the list under the correct scientific name for their species alone. An awful lot of them, where people agree that their import is not justified, should be taken off the permitted list.³⁷

6.44 Dr McFadyen also used the example of bridal creeper to demonstrate the consequence of listing plants by genus:

One species of asparagus is the cultivated crop. Another species of asparagus is bridal creeper and is one of the 20 weeds of national significance. Both are permitted import because they fall into the genus *Asparagus*. What we are saying is that they should not have a whole genus; they should have individual species names.³⁸

6.45 DAFF told the Committee that:

Arrangements have been made to amend legislation to remove two weeds of national significance, bridal creeper and parkinsonia, from the permitted list. This is to occur in July.³⁹

6.46 These plants were removed from Schedule 5 in July 2004.⁴⁰

6.47 WWF Australia also highlighted the failure of the WRA process to address the issue of species which arrived in Australia before its introduction.

Thousands of seed species maintained in germplasm, banks by pasture researchers are also exempted. These seeds were imported before the introduction of WRA and many of them pose a serious weed risk, considering the past performance of new pasture plants.⁴¹

36 WWF Australia, *Submission 30*, p. 3.

37 Dr Rachel McFadyen, *Committee Hansard*, Brisbane, 14 April 2004, p. 25.

38 *ibid*, p. 26.

39 Mr Charles Willcocks, *Committee Hansard*, Canberra, 18 June 2004, p. 54.

40 Quarantine Amendment Proclamation 2004 (No 3) was made by the Governor-General on 21 July 2004.

41 Invasive Species Council, *Submission 56*, p. 5.

6.48 The Weed Management Society of South Australia similarly raised concerns about the specific exclusion of pasture grasses and ornamental plants from the WRA system.⁴²

6.49 WWF Australia recommended:

That Biosecurity Australia immediately implement measures to add outstanding Weeds of National Significance to the Prohibited List, including Parkinsonia, rubber vine, chilean needle grass, athel pine, gorse, and bridal creeper (since they satisfy ISPM “Official Control” requirements), and those weeds on the Alert List of Weeds where they satisfy ISPM “Official Control” conditions.⁴³

Biosecurity Australia implement immediate measures to ensure that all invasive plant species are excluded from the Quarantine Act “Permitted List” (Schedule 5), and/or added to the “Prohibited List” (Schedule 4, Part 2), subject to compliance with International Standards for Phytosanitary Measures (ISPM) requirements.⁴⁴

6.50 Dr McFadyen argued that:

What needs to be done is for Schedule 5 to be reviewed. It is supposed to have been reviewed - money was set aside for it to be reviewed - and I believe it should have been done by 2001. It urgently needs to be done; it is a massive loophole ...

... Money was given to them [Biosecurity Australia], I believe, in 1999 and I am fairly sure the review was to be completed by 2001.⁴⁵

6.51 When the Committee took up this matter at its hearings, it was told by DAFF's Mr George Willcocks, General Manager, Landcare and Sustainable Industries that:

Concerns have been raised over the presence of genus level listings on the permitted list, under Schedule 5 of the Quarantine Act. Two thousand genera were reviewed by a consultant some years ago. Much of this work has been validated by Biosecurity Australia and will be subject to public consultation to ensure that changes to the permitted list are soundly based in science. Biosecurity Australia has continued with assessments of a further 1,200 permitted genera as part of the long-term review of the permitted list.⁴⁶

6.52 In their subsequent joint submission, DEH and DAFF explained that:

The permitted plants list, when originally developed, contained both species and genus level listings, with the provision that the permitted list would be

42 Weed Management Society of South Australia Inc, *Submission 35*, p. 6.

43 WWF Australia, *Submission 30*, p. 8.

44 *ibid.*

45 Dr Rachel McFadyen, *Committee Hansard*, Brisbane, 14 April 2004, p. 22.

46 Mr Charles Willcocks, *Committee Hansard*, Canberra, 18 June 2004, p. 54.

finalised to species level over a period of time. Plant Biosecurity is progressing a long-term project to determine which species within the permitted genera are present in Australia, not under official control and should therefore be added to the permitted list. Those species not recorded as present in Australia will be removed from the list pending a WRA.

The removal of genus level listings from the permitted list is an important task that will take considerable time. As part of the revision of the permitted list, Biosecurity Australia will provide stakeholders with opportunities to comment on proposed changes.⁴⁷

6.53 In relation to the apparent slowness of implementation of the review, Mr Willcocks told the Committee that:

The project was approved for funding from the national component of the National Landcare Program. It was not a Natural Heritage Trust project. It was approved as a two-year project to be carried out by AQIS, to run between mid-1997 and late 1999, with total funding of \$480,000. The overall aim of the project was to implement the weed risk assessment system. When the project was completed, three of the four objectives had been met and significant progress made on the fourth.⁴⁸

6.54 The objective that had not been finalised was related to the permitted list. Mr Willcocks advised that:

...good progress had been made as the status of all species entries in the existing permitted list had been reviewed, and that of the species in over 2,000 of the genera entries in the list.

It was recognised at the time that although the bulk of the list had been reviewed as part of the project, the complete review of the permitted list to remove genera level entries was a long-term project which would be finalised as part of AQIS's ongoing activities.⁴⁹

6.55 The Committee was advised that the review by Biosecurity Australia of 1200 additional genera was largely finished in 2003. Dr Brian Stynes, General Manager of Plant Biosecurity, Biosecurity Australia, advised that:

Currently we are ground-truthing a high-priority 40 genera that we will look at for industry consultation in the first instance. We obviously need to prioritise this work; it is an ongoing job. We have identified with WWF what the priority genera are. We are working currently on those and ground-truthing those.⁵⁰

47 Department of Environment and Heritage and Department of Agriculture, Fisheries and Forestry, *Submission 74*, p. 3.

48 Mr Charles Willcocks, *Committee Hansard*, Canberra, 18 June 2004, p. 55.

49 *ibid.*

50 Dr Brian Stynes, *Committee Hansard*, Canberra, 18 June 2004, p. 57.

6.56 The review of the list involves stakeholder consultation and the permitted list must be consistent with Australia's WTO obligations. International obligations require that a species cannot be taken off of the permitted list without scientific justification.

6.57 Mr Bernard Wonder, Deputy Secretary, Department of Agriculture, Fisheries and Forestry also addressed the Committee about concerns over the time taken for the review of the permitted list to be conducted:

Looking forward, we believe that in 12 to 14 months time we will be able to have a honed permitted list and nothing could then join that list until such time as it had gone through a comprehensive risk assessment.⁵¹

6.58 The Committee shares witnesses' concerns that so many plants have been able to be freely imported into Australia while the review of the permitted list has been conducted. While it is difficult to determine the impact on Australia's environment and economy of the continued existence of this loophole in the permitted list, its continuation flies in the face of all the evidence that prevention is the best policy. As evidence has highlighted, the true impact of weedy plants listed on the permitted list may not be known for a number of years until the plants have become naturalised; especially with plants that are 'sleepers'.

6.59 The Committee also expresses its concern that to meet its international obligations, Australia cannot prohibit entry of a species unless it is not present in Australia or of limited distribution and under official control. It is one thing to oppose imports on trade grounds – as a means of setting up quasi tariff walls – and another to seek to protect the uniqueness of Australia's biodiversity, especially when eradication is the ultimate long-term goal.

6.60 The extent to which Australia will be able to prevent new species taking hold will, in part, depend upon how soon the review of the permitted list will be finalised and how many species it will be able to prohibit from entering Australia. In the Committee's view, the delay in finalisation of the review is inexcusable.

Accuracy and reliability of WRAs

6.61 The Weed Risk Assessment system is used to assess for potential weediness plants that people wish to bring into the country. During 2002-2003 Biosecurity Australia, using the weed risk assessment process, refused entry for 320 plant species as assessment of the plants showed that the species had a high potential to become a weed of agriculture and/or the environment if they were to be imported into Australia.⁵²

6.62 The Committee received conflicting evidence about the effectiveness of the process. Dr McFadyen told the Committee that the system has been criticised for not

51 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 59.

52 Department of Environment and Heritage, *Submission 61*, p. 8.

being accurate and rating too many plants as weedy. She advised that research was being done by the CRC to improve the predictive capability of the assessments.⁵³ In its submission the Invasive Species Council suggested that the WRA process may rate too few plants as being weedy:

- It is based on the assumption that most pests can be predicted in advance, a conclusion refuted by recent international research.
- There is no requirement to demonstrate that no suitable alternative, non-invasive species are already in Australia prior to considering importation. Nor is there a requirement to demonstrate any public benefit before a new species is imported
- Not all of the questions included in the assessment process need to be answered properly for a plant to pass; some questions can effectively (and conveniently) be ignored if the answer is ‘don’t know’.
- Many plants continue to win the benefit of the doubt, even though it cannot be demonstrated that they won’t become weeds. Since 1997, roughly 67% of applications to introduce foreign plants have been accepted. Some of them undoubtedly will end up on our weed lists.
- There is no condition that importers pay for the costs of control and repair should a plant become a weed. This runs contrary to “polluter pays” principles which are generally applied to other sectors.⁵⁴

6.63 Ms Anthelia Bond, from the Nature Conservation Society of South Australia, advocated that the precautionary principle should be applied during WRAs:

I look at the precautionary principle in the sense of guilty until proven innocent... it is perhaps a pretty harsh approach but if you do not have that approach and you wait until something is proven guilty then you are faced with a much more costly problem to solve. I think that is a strong argument to have the precautionary principle in this case.⁵⁵

6.64 In commenting upon the adequacy and effectiveness of the WRA system, the Tasmanian Weed Society stated that:

- The assumption that all plant imports are weeds until proven otherwise via a scientifically based weed risk assessment (WRA) is considered a valuable check.
- Import assessments and approvals should not be done at higher than the species level (ie not at genera level) for effective risk assessment to be employed.

53 Dr Rachel McFadyen, *Committee Hansard*, Canberra, 26 November 2003, p. 5.

54 Invasive Species Council, *Submission 33*, p. 5.

55 Anthelia Bond, Threatened Plant Action Group Coordinator, Nature Conservation Society of South Australia, *Committee Hansard*, 28 June 2004, p. 73.

- WRA processes need to be maintained and regularly reviewed to ensure they are maximising the latest in terms of risk analysis and international weed science developments⁵⁶

6.65 A number of submitters and witnesses expressed support for the Weed Risk Assessment process but qualified their support by noting areas that needed improvement. The Weed Society of South Australia acknowledged support for the process but noted that for it to be effective the process needs to be quick and effective. Mr Crossman, President, Weed Society of South Australia, stated that:

We want to see rapid weed risk assessments put in place. It is widely believed - and it is true - that the weed risk assessment process is a sound and accurate measure, but we want to see these processes put in place quickly and efficiently.⁵⁷

6.66 In commenting on the Weed Risk Assessment process Dr Barry Traill, Councillor, Invasive Species Council, said that:

It certainly has its benefits if done properly.⁵⁸

Circumventing WRAs

6.67 A number of witnesses raised concerns that the WRA process can be circumvented. The Committee was advised that an importer can circumvent the Weed Risk Assessment process by importing plants or seeds under outdated, incorrect or common names. In its submission the Invasive Species Council stated that:

Mexican feather grass (*Nasella tenuissima*), a weedy relative of serrated tussock (*N. trichotoma*) - one of our 20 worst weeds - was allowed in because the importer unwittingly used an old name: *Stipa tenuissima*. *Stipa* is a permitted genus, *Nasella* is not.⁵⁹

6.68 The international trade in plants via the Internet, with goods being delivered through the postal system, provides another avenue for importing plants which bypasses the weed risk assessment process. In its submission the CRC for Australian Weed Management stated that:

there is an increasing problem of international ordering of plants through the internet, where the plants are sent by post and the purchasers in Australia may not be aware that importation of that material is illegal or a weed threat.⁶⁰

56 Tasmanian Weed Society Inc., *Submission 18*, p. 5.

57 Mr Neville Crossman, *Committee Hansard*, Adelaide, 28 June 2004, p. 51.

58 Dr Barry Traill, *Committee Hansard*, Brisbane, 14 June 2004, p. 48.

59 Invasive Species Council, *Submission 33c*, p. 2.

60 CRC for Australian Weed Management, *Submission 22*, p. 4.

Conclusion

6.69 The Committee is a strong supporter of the Weed Risk Assessment process as a means to significantly minimise the risk of new invasive plants entering Australia. However, the Committee's inquiry has exposed some obvious flaws which limit the effectiveness of the border control system. The following issues need to be addressed:

- listing all entries on Schedule 5 as individual species;
- ensuring that species identified as weeds of national significance are automatically removed from Schedule 5;
- standardising all listings of plants and seeds using the scientific name of the species; and
- requiring that all applications to import plants and seeds specify the scientific name of the species.

6.70 While some of these matters are already being addressed, or are likely to be in the future, there appears to be a lack of urgency. The potential cost of not acting expeditiously on these issues is enormous and dwarfs the cost of making the WRA process operate to its full potential.

Recommendation

The Committee recommends that the Commonwealth Government act urgently to ensure that:

- **all listings on Schedule 5 are made by species, not genera;**
- **a mechanism be developed to ensure that species identified as weeds of national significance are automatically removed from Schedule 5; and**
- **all listings and applications for the import of plants and seeds be standardised using the scientific names of species.**

Northern Australian Quarantine Strategy

6.71 A small but key aspect of Australia's defence against invasive species is the Northern Australian Quarantine Strategy (NAQS) which is managed by AQIS. It was established 14 years ago and aims to protect Australia from exotic pests, weeds and diseases that could enter Australia from countries to its north. NAQS does this by identifying and evaluating quarantine risks facing northern Australia and providing early detection and warning of new pests through a program of scientific surveys and monitoring, border activities and public awareness. It also collaborates with neighbouring countries on quarantine activities of mutual benefit.⁶¹

61 Department of Agriculture Fisheries and Forestry website at:
<http://www.affa.gov.au/content/output.cfm?ObjectID=D2C48F86-BA1A-11A1-A2200060A1B00590>.

6.72 DAFF described the strategy as one of its key elements to delivering an effective border protection regime.⁶² It is an early eradication program and its objective is to ensure that new infestations are discovered and identified while still confined to small areas. It provides staff to survey northern Australia for plants and animals, and alerts Commonwealth and State authorities of the need for eradication when invasive species are found. It also operates complementary measures in neighbouring countries, together with off shore and overseas inspections.

6.73 Due to Australia's proximity to its northern neighbours pest problems are able to reach the Australian mainland through dispersal by birds, wind or human assistance. Surveys in the Torres Strait, Indonesia and Papua New Guinea have enabled the Australian Quarantine and Inspection Service to predict potential risks to northern Australia. This has made it possible to implement measures to detect the pest if it were to arrive in northern Australia or to undertake control measures in neighbouring nations, such as ongoing biological control programs.

6.74 The CSIRO provided a case study on the biocontrol of banana skipper in Papua New Guinea. It highlights the benefits of Australia taking pre-emptive action.⁶³

Case study: biocontrol of banana skipper (*Erionota thrax*) in PNG to protect Australia⁶⁴

The banana skipper butterfly, a native of South East Asia, became a major pest of bananas in Papua New Guinea (PNG) in the 1980s. It is capable of destroying, on average, 60% of banana leaves, leading to a prediction that, had the pest not been brought under control following introduction of a biological control agent in the late 1980s, production losses by 2020 would have totalled A\$302 million (Waterhouse et al, 1999).

There is good reason to believe that banana skipper could cause losses of even greater magnitude in Australia's banana industry. However the threat once posed by significant populations of the pest in PNG has now largely been removed as a result of the biological control program. Benefits deriving to Australia from this pre-emptive strike, projected over a 25 year period from 1995, have been estimated at A\$988 million. These estimates are based on the assumption that banana skipper would have arrived on the Australian mainland in 1995 had the PNG population not been controlled (Waterhouse et al, 1999).

It could be argued that the Australian research that led to control of banana skipper in PNG could have been delayed until such time as the pest was detected in Australia. This would have been a false economy. As previously indicated, by controlling the pest on our doorstep we have significantly reduced the risk of an incursion reaching Australia. Had this step not been taken and an incursion eventuated, the costs of

62 Department of Agriculture Fisheries and Forestry, *Submission 62*, pp. 3-4.

63 CSIRO, *Submission 43*, p. 15.

64 *ibid*, p. 16.

eradicating the pest (if indeed it was feasible to do so) would be much greater than the A\$0.7 million that it cost to implement biological control in PNG. There would have been inevitable delays in getting permission to introduce biological control agents to Australia and further delays whilst the agent(s) were being evaluated and mass reared for release. It is reasonable to expect an interval of 18-24 months between detection of an incursion and release of the first agents. In the meantime, the pest would have infested a much larger area, given its ability to spread at a rate of up to 500 km/year, by which time eradication may well have been unachievable.

6.75 Witnesses were strongly supportive of the program, while noting areas where it could be extended. The Queensland Government advised that:

The Northern Australian Quarantine Strategy currently provides a very good service to Queensland for terrestrial pests, assisting in new invasive species weed identifications and working with DPI [Department of Primary Industry] staff on animal health and plant disease surveys, but again, the Strategy does not currently address potential introduction of marine pests.⁶⁵

6.76 Dr Traill from the Invasive Species Council, expressed support for the Northern Australian Quarantine Strategy but commented that eradication of pests that have been identified by the Northern Australian Quarantine Strategy should be done by a national team as it is a quarantine issue. Dr Traill said:

They have proven enormously good at finding new invaders. They then pass over responsibility for dealing with those often small populations that are just sitting there, waiting to be eradicated fairly cheaply, to state agencies. ... I think there are very cogent, good reasons that the responsibility for a quick response eradication team should be a federally based bureaucracy that does the eradication on the ground, because it is a national problem and the borders in this case are arbitrary in terms of how the problem works. ... I would perhaps make a distinction between dealing with ongoing problems that are well established across a large area and dealing with what I would argue is a quarantine problem. If a species arrives in port, the quarantine service does not ring up a state bureaucrat and say, 'Can you come down to the port and eradicate this thing?' For small infestations a quickness of response is needed. Because it is a national problem, I think that is best dealt with through a standing national team. Just to go on from that, if that is judged for whatever reason as being bureaucratically or politically untenable then very strong bilaterals or MOUs are needed between state and federal agencies to get the results.⁶⁶

6.77 The success of this program has led to suggestions for it to be used as a model for similar strategies in other areas of Australia. The CRC for Australian Weed Management stated that:

65 Queensland Government, *Submission 43*, p. 18.

66 Dr Barry Traill, *Committee Hansard*, Brisbane, 14 April 2004, p. 54.

It is an excellent system, and has already saved many times its direct costs. The system needs to be maintained and extended into southern Australia.⁶⁷

6.78 The Weed Society of South Australia also commented on the benefits of extending the strategy to southern Australia. Mr Neville Crossman, President, Weed Society of South Australia said that:

There is also the possibility to have a southern Australian quarantine strategy. That would involve the formal development and maintenance of surveillance systems with trained botanists and making sure that funds were available to respond to incursions so that, when a new weed is identified and found in the landscape or in an environment, the resources are available to go out there, target that weed and, hopefully, eradicate it to prevent it from spreading any further.⁶⁸

6.79 Mr Andreas Glanznig, Biodiversity Policy Manager, WWF Australia, told the Committee that efforts of the Northern Australian Quarantine Strategy are being compromised by the fact that the Strategy is identifying plants for eradication but in some cases those plants are legally available for sale in other areas of Australia. He provided the example of Ceylon hill cherry and told the Committee that the Northern Australian Quarantine Strategy:

identified the Ceylon hill cherry as a target species for eradication, working on the assumption that it was not yet in Australia. They were going off looking here, there and everywhere for this species, but unbeknownst to them, it was for sale at various nurseries throughout the eastern seaboard. Again, because there was not an effective information system in place, Commonwealth initiatives were being undermined by the continued sale of an invasive plant by the states.⁶⁹

6.80 The Committee considers that pre-emptive action is good for maintaining Australia's reputation for high quarantine standards and is also a positive step to assist our near neighbours in maintaining their agricultural industries. The Committee recommends that the Commonwealth continue to provide support to protecting northern Australia from incursions from invasive pests.

Protection of the marine environment

6.81 In this section the Committee addresses the regulation, control and management of invasive species in the marine environment.

67 CRC for Australian Weed Management, *Submission 22*, p. 7.

68 Mr Neville Crossman, *Committee Hansard*, Adelaide, 28 June 2004, p. 51.

69 Mr Andreas Glanznig, *Committee Hansard*, Canberra, 26 November 2004, p. 12.

Responsibility for the marine environment

6.82 Responsibility for environmental issues relating to offshore waters is divided between the States and the Commonwealth. The *Seas and Submerged Lands Act 1973* declares Commonwealth sovereignty over territorial seas and certain Commonwealth rights in respect of the exclusive economic zone, continental shelf, and contiguous zone. Although the Commonwealth retains final control in these matters the Commonwealth and the States reached an agreement over the division of powers in territorial waters in the Offshore Constitutional Settlement agreement in 1997.

6.83 The *Coastal Waters (State Powers) Act 1980* and the *Coastal Waters (State Title) Act 1980* gave effect to this agreement and returned to the States jurisdiction and proprietary rights and title over territorial seas and the underlying sea-bed. The *Coastal Waters (State Powers) Act 1980* gives the States legislative power over the first three nautical miles of Australia's territorial seas. The States have the power to make:

(a) all such laws of the State as could be made by virtue of those powers if the coastal waters of the State, as extending from time to time, were within the limits of the State, including laws applying in or in relation to the sea-bed and subsoil beneath, and the airspace above, the coastal waters of the State;

(b) laws of the State having effect in or in relation to waters within the adjacent area in respect of the State but beyond the outer limits of the coastal waters of the State, including laws applying in or in relation to the sea-bed and subsoil beneath, and the airspace above, the first-mentioned waters, being laws with respect to:

(i) subterranean mining from land within the limits of the State; or

(ii) ports, harbours and other shipping facilities, including installations, and dredging and other works, relating thereto, and other coastal works; and

(c) laws of the State with respect to fisheries in Australian waters beyond the outer limits of the coastal waters of the State, being laws applying to or in relation to those fisheries only to the extent to which those fisheries are, under an arrangement to which the Commonwealth and the State are parties, to be managed in accordance with the laws of the State.⁷⁰

The threat from invasive marine species

6.84 Mr Timothy Allen, National Coordinator of the Marine and Coastal Community Network, extensively put the issue in context for the Committee. For example:

In terms of Australia's wealth...Australia has 11 per cent of the world's marine species. Over 85 per cent of the marine species found in our

70 *Coastal Waters (State Powers) Act 1980*, section 5.

southern Australia waters are found nowhere else in the world, so there are very high levels of endemism in this region...To compare that to the Great Barrier Reef, 12 per cent of the species found in northern Australia are largely endemic to that region...

The total value of Australian fisheries production is \$1.8 billion...

The general issues associated with marine pests are that they dominate space and force out native species. They can become voracious predators that consume native species. They can cause toxic algal blooms which can cause problems for human consumption of shellfish...

The impacts of many introduced species are likely to be slight, but sometimes we know that the results will be devastating.⁷¹

6.85 Assessments on the threat posed by invasive marine species is based upon available data. However, the issue of a lack of data of the impacts of invasive marine species was identified by a number of witnesses. The Invasive Species Council submitted that:

Australia does not have sufficient baseline data or monitoring data to properly assess either the state of our native biota or the existence and impacts of introduced species.⁷²

6.86 According to Dr Nicholas Bax, Senior Research Scientist, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Marine Research, there is a potentially enormous threat from new invasive species which might be introduced into Australia:

In recent work we have identified 1,600 species worldwide which, in the marine environment, have had economic and environmental impacts. Of those, between 135 and 700 have invaded Australia. Of those, we would classify about 50 to 70 as pests in that they have had economic and environmental impacts. We have also identified 36 more on the way, which we see as having severe economic or environmental impacts, which means they have had invasive impacts overseas and are in the major trading ports of our partners.⁷³

6.87 He pointed out that attempts to protect biodiversity by establishing marine protected areas may be seriously undermined if the issue of marine invasive species is not effectively addressed:

An interesting thing in the marine environment is that a lot of effort now is being put in to establishing marine protected areas around the country as a way of protecting biodiversity. But if those marine protected areas get invaded by marine pests, as some of them are already, then that significantly reduces their environmental value. So marine pests need to be

71 Mr Tim Allen, *Committee Hansard*, Adelaide, 28 June 2004, pp. 38-39.

72 Invasive Species Council, *Submission 33b*, p. 3.

73 Dr Nicholas Bax, *Committee Hansard*, Adelaide 28 June 2004, p. 28.

one of the suite of management actions which occur in the marine environment.⁷⁴

6.88 Although not all of the species which are introduced into Australia will be able to survive here, the scale of the possible threat is demonstrated by the large number of ship movements and the number of species being routinely transported:

Australia has 22,000 ship visits per year; half of them are from international sources and half are domestic. At any one time there are about 10,000 species being moved around the world in ballast water. The implication of this is that, in areas like Port Phillip Bay, the port of Melbourne, it is estimated that there is about one invasion detected every year. Not all of those are pests, of course, but it does represent an overseas species establishing in Australia. The rate of invasion is increasing.⁷⁵

6.89 A Hassall & Associates study confirmed that the rate of incursion is increasing:

Marine pest incursion risk, regardless of point source, is thought to be increasing in line with trends and changes in some of the more significant vectors. International experience suggests that the following factors could be significant:

- Increased or changing trade and thus shipping flows;
- New vectors such as oil and gas drilling platforms;
- Decreases in domestic species which may have previously acted as competitors to, or predators of, non-indigenous species; and
- Climatic changes such as global warming affecting the distribution of pest species.⁷⁶

Preventing entry

6.90 Several main vectors by which invasive marine species enter Australia were identified during the inquiry. Ballast water released in Australian coastal waters by commercial vessels may contain invasive marine organisms. Hull fouling on commercial vessels, recreational yachts and fishing boats is also a major potential source of introduced species. Aquaculture and the aquarium industry can also be responsible for the introduction of new species.⁷⁷

74 *ibid*, p. 29.

75 *ibid*, p. 28.

76 Hassall & Associates Pty Ltd, *Introduced Marine Pests – Scoping the Socio-Economic Impacts*, January 2003, p. 11-12.

77 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 28.

6.91 Although most species could be introduced by more than one vector,⁷⁸ one witness advised the Committee that:

Ballast water released in near shore Australian waters and hull fouling represent the two major sources of introduced marine pests. Most introductions are accidental. In one study, hull fouling accounted for nearly 60% of historical introductions, mariculture about 22%, semi-dry ballast less than 5%, ballast water about 15% and intentional introductions around 1%.⁷⁹

Ballast water

6.92 Pest species introduced into Australian waters by ballast water exchange have included fish, invertebrates, molluscs, worms, dinoflagellates (plankton and algae), and seaweed.⁸⁰

6.93 Australia has been active in international efforts to prevent the introduction of new invasive species via ballast water for over a decade:

Australia was one of the first countries to look at the problem of species being transmitted by ballast water and it introduced guidelines for ballast water management in 1989. Those were subsequently adopted by the International Maritime Organisation, but these were voluntary guidelines. Since that time, Australia has been very active in promoting the ballast water convention. This was signed this year, 2004. So Australia has been very active in that area.⁸¹

The other area where we have had a role is through APEC where Australia and Chile, primarily, now run two risk assessment workshops to look at the problems of marine pests in the APEC economies and try to work out what needs to be done to improve the risk assessment and the response to risk in those areas.⁸²

6.94 Mr Andreas Glanznig, Biodiversity Policy Manager, World Wildlife Foundation Australia (WWF) observed that:

To be fair to the Australian government, significant moves have been made, particularly in relation to ballast water. For example, they have developed an Australian ballast water management action plan. There has been funding for the CSIRO to look at some of the biotechnological options and to introduce new procedures—for example, discharging ballast water

78 Hassall & Associates Pty Ltd, *Introduced Marine Pests – Scoping the Socio-Economic Impacts*, January 2003, p. 11.

79 Conservation Council of WA, *Submission 59*, p. 4.

80 Hassall & Associates Pty Ltd, *Introduced Marine Pests – Scoping the Socio-Economic Impacts*, January 2003, p. 10.

81 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 35 – 36.

82 *ibid.*

offshore so that you do not do it in close proximity to the coast, enabling these invasive marine pests an opportunity to colonise and invade.⁸³

6.95 Scientists at CSIRO Marine Research are continuing to lead the world in the field of invasive marine species research, especially in the field of ballast water management. They have developed a technique, using DNA probes, to identify the presence of pest species in water. S[pecies specific probes have been developed for the Northern Pacific seastar, the Pacific oyster and the toxic dinoflagellate. This technique will enable marine pests in ballast water to be identified while at larval and juvenile stages and significantly reduces ballast water management costs for the shipping industry. The probes have been developed in partnership with shipping and port industries and the Australian Quarantine and Inspection Service and have the potential for worldwide application.⁸⁴

6.96 As outlined in Chapter 2 the International Convention for the Control and Management of Ships Ballast Water and Sediments was adopted by consensus at a Diplomatic Conference at the International Maritime Organisation in London on 13 February 2004. The convention requires participants to take steps to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. It also includes provisions that relate to scientific and technical research on ballast water management, monitoring of ballast water management, provisions for surveying and certification of ships, the provision of technical assistance to other parties and other factors. However, Australia has not yet ratified the convention.⁸⁵

5.1 Ships entering Australian waters are required to either undertake a risk assessment process to calculate the risks of transfer of marine pests in ballast water or to exchange their ballast water on the high seas. Compliance with these requirements is monitored by the Australian Quarantine and Inspection Service.⁸⁶ DEH outlined some of the more recent developments during the Committee's hearings:

Reforms introduced over 2000-2003 include the introduction of mandatory ballast water management requirements for international vessels introduced by the Australian Quarantine and Inspection Service in July 2001; the establishment and operation of the national emergency response network is overseen by CCIMPE [the Consultative Committee on Introduced Marine Pest Emergencies]; and an increased focus on scientific research aimed at

83 Mr Andreas Glanznig, *Committee Hansard*, Canberra, 18 June 2004, p. 29.

84 CSIRO Marine Research, Media Release: *New test to detect aquatic pests*, 21 April 2004, www.marine.csiro.au/media/o4releases/21apr04.html.

85 Department of Foreign Affairs and Trade, *Treaty Database*, 24 August 2004, www.info.dfat.gov.au/Info/Treaties.nsf/AllDocIDs/D06C1FAB1733E7AFCA256EFA0007C15B.

86 Department of Agriculture, Fisheries and Forestry, *Submission 62*, p. 4.

control of introduced marine pests already in Australia, notably the Northern Pacific Seastar.⁸⁷

6.97 But Dr Bax raised concerns about management of vectors other than ballast water, the need to implement a national system, and the adequacy of resources:

I can probably summarise there that the threat is worsening. Australia has a good record in international ballast water management and in emergency response, but the management of other vectors, both international and domestic, has been lacking and also the long-term management and control has been lacking. In my opinion, it is imperative that the national system gets up and is adequately resourced so it can do its job. In that regard, it is worthwhile noting that the research and the management that has been done is cutting edge as far as the world is concerned. We really lead the world in this instance in many issues. Therefore, we can put a system in but it will not be right the first time. It is going to require ongoing monitoring, evaluation and adaptation to account for the errors we make when we first implement it.⁸⁸

6.98 The issue of ballast water also involves the movement of marine species, both native and introduced, within Australian waters:

where there is intercoastal trading and shipping, there is still an issue about controls at that level because at the moment there is no comprehensive domestic ballast water management strategy. Water from, for example, Tasmania or Victoria could be discharged in the Spencer Gulf or the Gulf of St Vincent here in South Australia. So at the moment there are no national domestic ballast water controls, which I believe is a great problem.⁸⁹

6.99 It is a matter of concern that there are no measures in place to address the issue of the internal movement of ballast water. However, in 2002 a trial program in Victoria demonstrated that a domestic ballast water management strategy could work and might be supported by the shipping industry:

In 2002, in conjunction with the Commonwealth and AQIS and with the support of the shipping industry, Victoria advanced a domestic ballast water management strategy which was successfully trialled in Westernport. That trial highlighted that 83 per cent of the vessels coming to Victoria had in fact come from another port locality within Australian waters. It also highlighted that only two per cent of the vessels had not complied with the trial by the time they came to the port. What it is demonstrating is that the trial was successful and that a domestic ballast water management strategy can work and have the support of the shipping industry.⁹⁰

87 Department of the Environment and Heritage, *Submission 61*.

88 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 29.

89 Mr Tim Allen, *Committee Hansard*, Adelaide, 28 June 2004, p. 40.

90 *ibid.*

Hull fouling

6.100 Although the introduction of invasive marine species through ballast water has been the focus of much of the international response, the number of species introduced by hull fouling, which is also referred to as biofouling, appears to be greater:

The challenge of ballast water may be minor compared to the challenge presented by biofouling of boats and ships. Biofouling is the ‘fouling’ or occupation of submerged surfaces, such as hulls, intake pipes, propeller systems, sea chests, anchor wells, and fishing gear, by organisms such as barnacles and worms. Unlike ballast water, biofouling is not restricted to a certain class of vessel - it is an issue for not only international and domestic cargo ships, but fishing boats and recreational yachts moving between harbours.

Perhaps because of the complexity of the biofouling issue, it has been virtually ignored by governments and the IMO. Yet it may be the source of half or more of IMPs. Major invaders in Australia such as the North Pacific Seastar, the Brown Seaweed, and the European Fan Worm may have arrived as hull hitchhikers.⁹¹

6.101 The threat from invasive species introduced by hull fouling appears to be increasing in part because of measures taken to address the harmful effects on the environment of the most commonly used anti-fouling paint:

Until recently ship owners protected their hulls from invasive species by coating them in paints containing the very toxic tri-butyl-tin (TBT). However, the IMO has adopted the International Convention on the Control of Harmful Anti-fouling Systems on Ships, which will end use of TBT. There is already evidence of more organisms now travelling on hulls. Hull travel was probably always substantial, as anti-fouling paints are often poorly applied and maintained, especially on smaller vessels.⁹²

6.102 The issue of hull biofouling was raised by both the Invasive Species Council⁹³ and the Government of Queensland, which wrote that:

there is currently no management program for prevention of introduction of biofouling organisms.⁹⁴

6.103 At present there do not appear to be any active programs aimed at addressing the problem of species introduction and spread through hull fouling, although the issue is being examined. As discussed in Chapter 3, the National Introduced Marine Pests Coordination Group (NIMPCG) was established to recommend reforms to

91 Invasive Species Council, *Submission 33b, Attachment 1*, p. 2.

92 *ibid.*

93 *ibid.*

94 Queensland Government, *Submission 43*, p. 18.

implement a National System for the Prevention and Management of Introduced Marine Pest Incursions. According to DEH:

Preliminary work on the national system has included identifying the requirements for a system to regulate the ballast water of both international and coastal shipping, and on a framework for management of biofouling pests. Further development is contingent on finalising the agreement between governments on the legislative and financial framework. These matters are being considered by the Natural Resources Management Ministerial Council in October 2003, as well as by the Australian Transport Council.⁹⁵

Aquaculture and the aquarium industry

6.104 Although the evidence given to the Committee on the sources of introduced marine species indicated that mariculture was a significant source of introductions there do not appear to be any specific measures in place to prevent the entrance of new species through this vector. The Invasive Species Council specifically raised concerns about controls on the import of aquarium fish:

Generally speaking, Australia's approach to import approvals for animals has been more stringent than that for plants, with the noticeable exception of aquarium fish. The large number of aquarium fish species imported freely into Australia is a cause of major concern, and must be reviewed. Quarantine officers have told the ISC that the officers responsible for identifying imported fish species are often inadequately trained for the task.⁹⁶

Funding, structure and strategy

6.105 The resources available for dealing with marine invasive species, including the adequacy of the research effort, were criticised in several submissions.⁹⁷ In its submission the Queensland Government said that:

Barrier activities at a national level are generally well funded and effective, with the exception of introduced marine pests ...⁹⁸

6.106 The Invasive Species Council submitted that:

...in general, the focus and scale of resourcing by the government on the IMP problem has not been commensurate with the scale of the threats. In particular, the government has failed to address the problems posed by biofouling of vessels. In addition, although the government established a marine pest centre, it is not adequately funding it or requiring that the

95 Department of the Environment and Heritage, *Submission 61*, p. 10.

96 Invasive Species Council Victoria, *Submission 33*, p. 5.

97 Invasive Species Council Queensland, *Submission 56*; WWF Australia, *Submission 30*; Conservation Council of WA, *Submission 59*.

98 Queensland Government, *Submission 43*, p. 22.

industry primarily responsible for IMPs contribute to research to resolve or manage the problems.⁹⁹

6.107 Elsewhere in this report the Committee has reviewed the evidence it received of the problems which have arisen in the past because of the short term nature of funding through the National Heritage Trust (NHT). Mr Tim Allen from the Marine and Coastal Community Network, also drew the Committee's attention to the work done by the CSIRO on marine invasive species and the limitations on its funding:

We do know a lot more about the problem and the risk of introductions – and I highlight the good work undertaken by the CSIRO when they had the Centre for Research into Introduced Marine Pests. I would like to state on the record that there has been a diminished capacity in terms of the CSIRO, unfortunately, as a result of resources moving away from this issue in recent years. I believe there were six researchers and now there are three senior researchers. As we know, the moves for a CRC were unfortunately not supported by the shipping industry, so a CRC for ballast water and other vector research was not established.¹⁰⁰

6.108 Mr Allen also noted that the role of the CSIRO research centre into invasive marine species had apparently been subsumed into the general function of the CSIRO.¹⁰¹ The CSIRO acknowledged that securing long-term funding for its National Centre for Marine Pest Research – first established in 1994 - has, at times, been problematic.¹⁰² Dr Bax gave evidence to the Committee on the history and funding of its research on invasive marine pests which started in 1994:

We received money through both NHT and the shipping industry. Our research went through a bit of a hiatus, in a way. We reduced our research in the late 1990s as a few staff left and things like that occurred. More recently, other states have started to become involved. Victoria has been very active in this area and other states are building their capacity to respond. Now with the national system getting close to being up, there has been approximately \$3 million of NHT money set aside to implement the national system. At the moment, the funding situation for the next two years looks quite good for implementation of the national system.¹⁰³

Great Barrier Reef Marine Park

6.109 The Great Barrier Reef is controlled by the Commonwealth under *the Great Barrier Reef Marine Park Act 1975*. Although the Great Barrier Reef is one of Australia's greatest national treasures, action to date on identifying potential threats to

99 Invasive Species Council, *Submission 33b*, p. 3.

100 Mr Tim Allen, *Committee Hansard*, Adelaide, 28 June 2004, p. 41.

101 *ibid*, p. 43.

102 Dr William Lonsdale, *Committee Hansard*, Canberra, 18 June 2004, p. 4.

103 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 35.

it from invasive species has been less vigorous than the Committee would have expected. The Committee was told that:

At the moment our knowledge is reasonably limited in terms of a list of potential species which might cause concern in the park. Although there has been some work done by the CRC and research bodies at the University of Queensland and other institutes, it is not yet entirely clear which species might be the ones which are likely to be a problem. That is an area where we are encouraging and trying to focus our Reef CRC and other research providers to begin looking at these issues with more intensity.¹⁰⁴

6.110 Similarly, although mechanisms exist under the legislation to improve protection of the park:

Currently we have no regulatory controls under the Great Barrier Reef Marine Park Act 1975 or the Great Barrier Reef Marine Park Regulations 1983 that deal with the introduction of invasive marine species. In our act we do have bits talking about the discharge of waste, and the regulations have the ability to define what that is, but at the moment it is not specific.

We also have a new zoning plan that is about to come into effect on 1 July this year. This will provide for the establishment of what we call 'special management areas' to restrict access to or the use of areas of the marine park for emergency situations which might require immediate management action. We also have powers to authorise activities in virtually any zone.¹⁰⁵

6.111 The evidence the Committee heard from representatives of the Great Barrier Reef Marine Park Authority reflected the concerns of other groups about the immature nature of the Commonwealth's response to the problem of marine invasive species:

We are quite supportive of those processes which attempt to get an all-of-government approach to an administrative and response arrangement which would ensure that action is taken quickly and effectively. I think it is fair to say that, at the moment, there is an absence of that formal approach to planning, decision making and funding responsibilities.¹⁰⁶

The need for a national system

6.112 Compounding the problem of inadequate resources is the issue of the lack of a national system and strategy for dealing with marine invasive species. Although there is a proposal to develop an intergovernmental agreement which would lead to the development of a national system, as described in Chapter 3, there is no national system currently in place.¹⁰⁷ The lack of a strategy to deal with marine pests in northern Australia was raised by the Queensland Government.

104 Mr Gregor Manson, *Committee Hansard*, Brisbane, 14 April 2004, p. 80.

105 Mr John Day, *Committee Hansard*, Brisbane, 14 April 2004, pp. 79-80.

106 Mr Gregor Manson, *Committee Hansard*, Adelaide, 14 April 2004, p. 81.

107 Dr Nicholas Bax, *Committee Hansard*, 28 June 2004, p. 33.

The Northern Australian Quarantine Strategy currently provides a very good service to Queensland for terrestrial pests, assisting in new invasive species weed identifications and working with DPI staff on animal health and plant disease surveys, but again, the Strategy does not currently address potential introduction of marine pests.¹⁰⁸

6.113 WWF Australia acknowledged that development of a national system has been hindered by a lack of resources:

There has been sound progress in developing systems to prevent and manage new incursions from hull fouling and ballast water, however, the effective implementation of the National System for the Prevention and Management of Marine pests is currently constrained by inadequate funding.¹⁰⁹

6.114 Several submissions to the Committee recommended that action be taken to address these issues. The WWF Australia and the Conservation Council of Western Australia both recommended that the national system for the prevention and management of introduced marine pests be fully funded and implemented.¹¹⁰

That the Commonwealth, State and the Northern Territory governments fully fund and implement the National System for the Prevention and Management of Introduced Marine Pests developed jointly by the Commonwealth, States and the Northern Territory. The National System puts early warning and rapid response systems in place and defines clear roles and responsibilities for the Commonwealth, States and the Northern Territory. Together this ensures that new introduced marine pests will be quickly found and destroyed.¹¹¹

6.115 Dr Nicholas Bax, Senior Research Scientist, CSIRO Marine Research, told the Committee that there is a sufficient body of knowledge on invasive marine species to enable a national system to be implemented. He also noted that the national system will require change and adaptation to ensure that it achieves its objectives:

It is imperative that the national system get up and is adequately resourced so it can do its job. In that regard, it is worth while noting that the research and the management that has been done is cutting edge as far as the world is concerned. We really lead the world in this instance in many issues. Therefore, we can put a system in but it will not be right the first time. It is going to require ongoing monitoring, evaluation and adaptation to account for the errors we make when we first implement it.¹¹²

108 Queensland Government, *Submission 43*.

109 WWF Australia, *Submission 30*, p. 5.

110 Conservation Council of WA, *Submission 59*.

111 WWF Australia, *Submission 30*, p. 10.

112 Dr Nicholas Bax, *Committee Hansard*, Adelaide, 28 June 2004, p. 29.

6.116 In its submission the Invasive Species Council recommended that the costs of marine pests should be met by industry:

Institute a polluter pays system for IMPs, by imposing a ballast levy on vessels, the amount of which is based on level of assessed risk. The money collected should be used on research and management of IMPs, as listed below under a similar recommendation for the IMO. (Note that California already imposes such a tax.)¹¹³

Advocate a polluter pays system in the IMO. That is, a ballast levy for all international shipping. A levy could be incorporated into the Draft International Convention for the Control and Management of Ships' Ballast Water and Sediments before it is ratified in February next year. The money collected should be spent on:

- research into better methods of treating ballast water;
- to assist developing nations to upgrade their port inspection policies and to train biologists to conduct port surveys and test ballast water;
- better biological information gathering;
- research into biological control and other methods of controlling ballast invaders;
- funding of rapid response teams to eradicate new invaders when they first establish;
- research on hull invaders to determine the scale of the problem and the best solutions; and
- compensation payments for those who suffer from ballast invasions.¹¹⁴

6.117 In evidence to the Committee a number of suggestions were put forward for improving the barriers to entry of introduced marine species. The Invasive Species Council recommended a range of measures on both biofouling and ballast water:

Conduct a risk assessment of the threats posed by biofouling of different types of vessels to distinguish high-risk from low-risk vessels. Develop mandatory anti-fouling standards for different types of vessels. Develop a risk characterisation model to guide Quarantine staff in regular inspections of hulls and other vessel surfaces on higher-risk vessels.

Providing strong incentives for researchers to develop alternatives to toxic anti-fouling hull paints such as TBT¹¹⁵

Advocate that the IMO develop a major strategy on biofouling.

Advocate within the IMO for a much greater international investment into ballast research and for the development of international standards of an

113 Invasive Species Council, *Submission 56b*.

114 Invasive species Council, *Submission 56b*.

115 *ibid*.

acceptable level of treatment of ballast water. An investment budget of up to \$1 billion is commensurate with the scale of the problem and the value of trade involved.¹¹⁶

Managing Marine Invasive Species

6.118 Both the Invasive Species Council¹¹⁷ and WWF Australia¹¹⁸ drew the Committee's attention to the potential to use Section 301A of the Environment Protection and Biodiversity Conservation Act 1999 to support the mitigation and control of established populations of marine pests. As discussed in Chapter 2, Section 301A provides, inter alia, that regulations may be made for preventing trade in identified species and for making plans to eliminate, reduce or prevent impacts of listed species on Australia's biodiversity.

6.119 The possible use of Section 301A was considered by the Joint Taskforce on the Prevention and Management of Marine Pest Incursions (the Taskforce) in 1999. The Taskforce stated that to date there had not been extensive nationally coordinated efforts in the areas of control or mitigation of established populations of introduced marine pests.¹¹⁹ It went on to say that the existing Section 301A could:

provide an appropriate legislative framework under which national coordination of the development and implementation of introduced marine pest control plans could proceed. However, in developing such plans, the implications of using the EPBC Act need to be fully assessed.¹²⁰

6.120 The Taskforce went on to recommend that the:

Commonwealth Government explore the option of developing statutory plans to reduce, eliminate or prevent the impacts of introduced marine species on the biodiversity of Australia using Section 301A of the Environment Protection and Biodiversity Conservation Act 1999. This should be nationally coordinated by Environment Australia, as part of the National System. (Recommendation 4.20)¹²¹

Conclusion

6.121 The evidence received by the Committee has acknowledged the leading role that Australia has taken in developing a response to the threat from marine invasive

116 *ibid.*

117 Invasive Species Council, *Submission 33*, p. 11.

118 WWF Australia, *Submission 30*, p. 54.

119 Joint standing committee on Conservation (SCC)/Standing Committee on Fisheries and Aquaculture (SCFA) National Taskforce on the Prevention and Management of Marine Pest Incursions, *Report of the National Taskforce of the Prevention and Management of Marine Pest Incursions*, Revised edition October 2000, p. 56.

120 *ibid.*

121 *ibid.*, p 57.

species. The Committee supports the work that has been done to date on this issue, but clearly more can, and should, be done.

6.122 Substantial progress has already been made on limiting the threat from species transported in ballast water although it would be premature to conclude that this issue has already been adequately addressed. Some progress has also been made on developing a national framework for dealing with invasive marine species. However, no significant steps have been taken to counter the potential threats from biofouling and the mariculture industries. As a representative from the Great Barrier Reef Marine Park Authority told the Committee:

Clearly, management actions that focus solely on one vector, even if they are successful, will not stop marine invasive species. So, obviously, a national approach – preferably a global one – is required.¹²²

6.123 The progress which has been achieved to date on these matters has been painfully slow. Clearly more needs to be done and any delay increases the likelihood of a new incursion which could have a devastating effect both on the environment and industry.

Recommendation

The Commonwealth Government should take a lead role in Ministerial Councils and other appropriate forums to accelerate progress on the development, implementation and funding of a national system to deal with marine invasive species.

Recommendation

As a matter of urgency the Commonwealth Government should develop programs to minimise the threat of invasive marine species entering Australia's waters via hull fouling or as a result of the mariculture industries.

Recommendation

The Commonwealth Government should provide long term funding for research aimed at identifying and combating marine invasive species, particularly those which may threaten marine parks such as the Great Barrier Reef Marine Park, and those that are in the ports of Australia's trading partners.

122 Mr Jon Day, *Committee Hansard*, Brisbane, 14 April 2004, p. 79.

Chapter 7

Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002

7.1 The Committee's terms of reference require it to determine whether the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 (the Bill) could assist in improving the current statutory and administrative arrangements for the regulation, control and management of invasive species. This chapter provides an overview of the Bill and examines the commentary in the evidence about its strengths and weaknesses.

7.2 It should be noted that the original Bill which underpinned the principal Act, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), was subjected to a comprehensive review by the Senate's Environment, Communications, Information Technology and the Arts Legislation Committee between July 1998 and April 1999. The Committee received over 600 submissions and it conducted public hearings in Brisbane, Sydney, Hobart, Perth, Canberra, Adelaide, Darwin and Melbourne. While several submitters had argued for the Act to specifically address invasive species, the Government members' majority view was that the Government's existing policies and programs already adequately addressed the objective.¹ Neither the ALP, Australian Democrats nor the Australian Greens and The Greens (WA) raised objection to this proposition in their minority or dissenting reports. However, the Bill as examined by the ECITA Legislation Committee was subsequently subjected to substantial amendment prior to its acceptance by the Senate, including the addition of section 301A, dealing with 'Regulations for control of non-native species', as a Government amendment. 'Non-native species' are essentially defined as a species other than native species that represent a threat to Australian biodiversity.

Overview of the Bill

7.3 The Bill was introduced on 19 November 2002 as a Private Senator's bill by the Australian Democrats' Senator Andrew Bartlett to address perceived inadequacies in the current regulatory framework. Senator Bartlett also saw the Bill as a catalyst to further debate about the issue of invasive species.

7.4 The Bill's primary aim is 'to prevent the introduction of further species in Australia and to eradicate or control those already here'.² The Bill proposes to do this by inserting a new 'Division 4AA – Listed invasive species' into Part 13 of Chapter 5

1 Senate Environment, Communications, Information Technology and the Arts Legislation Committee, *Environment Protection and Biodiversity Conservation Bill 1998 and Environmental Reform (Consequential Provisions) Bill 1998*, April 1999, p. 144.

2 Senator Andrew Bartlett, Second Reading, *Senate Hansard*, 19 November 2002, p. 6741.

of the principal Act. Chapter 5 is headed 'Conservation of biodiversity and heritage', while Part 13 deals with 'Species and communities'.

7.5 The EPBC Act itself had represented the most fundamental reform of Commonwealth environment laws since the first environment statutes were enacted in the early 1970s. In particular, it improved on previous processes by setting out clear areas of responsibility, identifying specific timeframes for completion, and coordinating State, Territory and Australian Government processes. The Act focuses Commonwealth interests on matters of national environmental significance, put in place a streamlined environmental assessment and approvals process and established an integrated regime for biodiversity conservation and the management of important protected areas.

7.6 Importantly, in the context of the longstanding debate about the appropriate role of the Commonwealth in environmental matters given the omission of 'the environment' from section 51 of *The Constitution*,³ the Act follows the policy of cooperative federalism first articulated in the 1992 Intergovernmental Agreement on the Environment (IGAE) made between the Commonwealth and State governments and with representatives of local government.

7.7 A subsequent COAG meeting in November 1997 resulted in an in-principle endorsement of the *Heads of Agreement on Commonwealth/State Roles and Responsibilities for the Environment* by all Heads of Government and the President of the Australian Local Government Association. The Agreement proposed a framework for comprehensive reform of Commonwealth-State roles and responsibilities for the environment. The EPBC Bill was one result of the Agreement. The following concerns were soon expressed:

There is no question that the Bill is based on a very narrow view of Commonwealth environmental involvement. The COAG Heads of Agreement identified thirty matters of national environmental significance, and there can be no justification for restricting Commonwealth involvement in environmental assessment and approval to a mere six. The six agreed on by COAG for Commonwealth involvement exclude some of the most significant environmental challenges facing Australia today – climate

3 Section 51 of *The Constitution* sets out the legislative powers of the Commonwealth Parliament. As the Department of the Environment and Heritage stressed in its submission: 'Under the Australian Constitution, State and Territory Governments have specific and clear responsibility for the legislative and administrative framework within which natural resources are managed. The Australian Government's involvement in environmental matters focuses on [certain] matters of national environmental significance...' Department of Environment and Heritage, *Submission 61*, p. 7.

change, the clearing of native vegetation..., the loss and degradation of native forests, and the unsustainable use of water.⁴

7.8 Thus, the 'narrowness' of the EPBC Act has long been a bone of contention, based substantially on the range of views on the proper role of the Commonwealth in the modern era in Australia's federal system of government in relation to environmental assessment and approval matters. The ECITA References Committee in the 38th Parliament had undertaken a broad inquiry into the issue of the Commonwealth's environment powers, which concluded with a disjoint between senators who felt that the Constitution should be read expansively and those who felt that a more 'black letter' interpretation should apply.⁵

7.9 The intention of the current Democrats' Bill is to establish a consistent and coordinated national approach to address the problem of invasive species. It seeks to achieve this through the creation of a national structure. In his second reading speech Senator Bartlett argued that invasive species are a national issue not only because of the scope and cost of the problem, but because the majority of invasives arrive in Australia from overseas, which is an area of exclusive federal jurisdiction. He also argued that it is a national issue because it cannot be addressed adequately at a State/Territory level, because invasives know no boundaries.⁶

Provisions of the bill

7.10 For definitional purposes, under the Bill a species is an invasive species if:

- (a) it is a non-indigenous species and it has been, or may be, introduced into Australia and, either directly or indirectly, threatens, will threaten or is likely to threaten, the survival, abundance or evolutionary development of a native species, ecological community, ecosystem or agricultural commodity; or
- (b) it is a genetically modified species.⁷

The definition of a member of an invasive species is declared to include seeds and germplasms.

7.11 Under the Bill a list of invasive species is to be established by the Minister. The list is to be divided into three categories: species permitted for import, species

4 Senate Environment, Communications, Information Technology and the Arts Legislation Committee, *Environment Protection and Biodiversity Conservation Bill 1998 and Environmental Reform (Consequential Provisions) Bill 1998*, April 1999, Minority Report by the Australian Democrats, p. 204.

5 , Report of the Senate Environment, Communications, Information Technology and the Arts References Committee, *Commonwealth Environment Powers*, May 1999.

6 Senator Andrew Bartlett, Second Reading, Senate Hansard, 19 November 2002, p. 6741.

7 Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 (the Bill), clause 266AB.

prohibited from import or certain invasive species already present in Australia. The Bill categorises species currently present in Australia into the following types:

- eradicable;
- substantially containable;
- beyond eradication;
- controlled;
- disregarded as an invasive species;
- exempt from listing.

The Bill then defines what is meant by each of these categorisations.

7.12 The Bill proposes to immediately prohibit the import of the following species categories:

- pasture grasses;
- ornamental plants;
- aquarium fish; and
- any other species as determined by the Minister, if the Minister is satisfied, on the advice of the Invasive Species Advisory Committee, that a species should be deemed to be a prohibited import.⁸

7.13 The Bill goes on to declare that, for the purposes of the latter provision, it is within the discretion of the Minister to prohibit the import of a species (on the advice of the Invasive Species Advisory Committee) if the species is a threat, either directly or indirectly, to the survival, abundance or evolutionary development of a native species, ecological community, ecosystem or agricultural commodity.⁹

7.14 The Bill creates a number of strict liability offences, punishable by fines not exceeding 1000 penalty units (currently set at \$110) or up to 2 years' imprisonment, where a person imports or possesses species which are either prohibited or, without a permit, which are categorised as either eradicable; substantially containable; or beyond eradication.

7.15 Subdivision B of the Bill establishes a permit system which allows for the importation of a species for commercial sale, trade or propagation of a non-indigenous species providing that:

- it is not a prohibited import;
- it has been assessed as representing a low risk, in Australia, of threatening, either directly or indirectly, the survival, abundance or evolutionary

8 clause 26AC(2).

9 clause 266AC(3).

development of a native species, ecological community, ecosystem or agricultural commodity; and

- the Minister is satisfied, on the advice of the Invasive Species Advisory Committee, that there are adequate risk management strategies in place to prevent the species from becoming a threat, either directly or indirectly, the survival, abundance or evolutionary development of a native species, ecological community, ecosystem or agricultural commodity; and
- the Minister has granted a permit under Subdivision B for the import of the species.¹⁰

7.16 One of the Bill's key administrative proposals is the creation of an Invasive Species Advisory Committee.¹¹ The composition of the Committee is to be determined by the Minister. The function of the Committee is to advise the Minister on matters relating to the protection of native species, ecological communities, ecosystems and agricultural commodities from invasive species. It is also to advise the Minister on methods and means of protecting the welfare of animals likely to be affected by management decisions relating to invasive species.¹²

7.17 The Committee is to include at least five members who possess scientific qualifications relevant to the performance of the Committee's functions. The membership must include members appointed to represent the following:

- the Australian Quarantine and Inspection Service;
- non-government conservation organisations;
- the scientific community concerned with invasive species;
- the rural community;
- the business community;
- indigenous peoples;
- the Commonwealth; and
- animal welfare interests.¹³

7.18 The Bill stipulates that a majority of the members are not to be persons employed by the Commonwealth or Commonwealth agencies.¹⁴

10 Clause 3, proposed new section 266AC, paragraph (1).

11 Division 1A – clauses 503A to 503B.

12 S503B.

13 clause 503A(4).

14 clause 503A(6).

7.19 Under the Bill, threat abatement plans may be created to provide for the management of invasive species already present in Australia. The Invasive Species Advisory Committee is to advise the Minister on plans.¹⁵

Comment on the Bill

Commonwealth view

7.20 The Commonwealth Environment Minister administers the EPBC Act and his Department, the Department of Environment and Heritage, provided the Committee with a comprehensive submission on the key elements in the Bill. It essentially argued that the proposals were largely redundant as they appeared to duplicate existing law, in particular that the EPBC Act already provides for further regulations to be made to control non-native species:

The EPBC Act provides for strict controls on the import and possession of non-native species and the scope of s301A grants additional powers that may be established and implemented as appropriate.¹⁶

7.21 Section 301A (as discussed in Chapter 5) provides that regulations may:

- provide for the establishment of a list of non-native species which may or would be likely to threaten biodiversity in Australia
- regulate or prohibit the import of species on the list, and the trade of species on the list between Australia and other countries and between State and Territory jurisdictions within Australia
- regulate or prohibit actions involving species on the list
- provide for making plans to eliminate, reduce or prevent impacts of the listed species on Australia's biodiversity.¹⁷

7.22 It went on to add:

The EPBC Act provides for strict controls on the import and possession of non-native species and the scope of s301A grants additional powers that may be established and implemented as appropriate.

Section 301A of the EPBC Act would appear to address much of what is proposed in the Bill.

Legal advice indicates that regulations could be made under Section 301A to control species listed under Section 301A(a) by legislating for offences

15 Subdivision C – clauses 266CA to 26CR.

16 Department of Environment and Heritage, *Submission 61*, p. 17.

17 *ibid.*

relating to the transport or possession of a listed species that would be enforceable under the EPBC Act.

The development of such regulations under Section 301A of the EPBC Act would be a significant challenge. It would require significant resources to be applied by the Department, other Australian government agencies, State, Territory and Local Government agencies, and relevant industry and non-government groups and organisations.¹⁸

7.23 The DEH submission went on to hint that it does not favour the promulgation of such regulations over its current approach to managing invasive species using a combination of statutory and non-statutory methods, because of resource considerations and the impact on a number of national industries such as the nursery and pet fish trade. It added that:

The Department believes that this approach, which includes working with State and Territory jurisdictions and a range of other stakeholders, provides land managers with an adaptive and effective approach to the management of invasive species in Australia.¹⁹

7.24 Additional to the advice in the DEH submission about the Bill's duplication of existing regulations, in her submission, the Australian Government's Gene Technology Regulator, Dr Sue Meek, stressed that the proposed inclusion in the Bill of 'genetically modified species' in the definition of 'invasive species' also appears to be unnecessary:

The Australian environment is currently protected from the risks that may be posed by genetically modified organisms (GMOs) by the *Gene Technology Act 2000* (the GT Act) and corresponding State and Territory legislation. The GT Act requires that a comprehensive, scientifically-based risk assessment be undertaken for every application to release a GMO into the environment.

...This proposed amendment would appear to duplicate in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) the existing requirement in the GT Act for an environmental assessment and approval process for GMOs.²⁰

7.25 The DEH submission also dealt with the GMO issue. Significantly, it stressed that '[t]here is no scientific basis for assuming that all GMOs are "invasive"'.²¹ The Committee notes that, in this respect, the Bill is something of a 'Trojan Horse' in relation to opposition to the use of GMOs in Australia – which is a debate for another day.

18 *ibid.*

19 *ibid.*

20 Gene Technology Regulator, *Submission 60*, p. 1.

21 Department of Environment and Heritage, *Submission 61*, p. 13.

State/Territory government views

7.26 Two State Governments – Western Australia and Queensland - also addressed the need for the Bill, while the ACT Government's submission commented more on its detail rather than its general validity. The Animal and Plant Control Commission of South Australia did not comment on the Bill – it addressed the issue by detailing its regulatory arrangements and stressing the success of its current regulatory framework through, inter alia, implementation through local animal and plant control boards. The Tasmanian Government did not comment on the Bill in its submission.

7.27 In overview, while they recognised the important role of the Commonwealth and the opportunities for improvement of current legislative and administrative arrangements, they shared a concern about the Bill's intention to usurp the States' constitutional responsibility for the movement and control of exotic species within their borders. The Commonwealth role was seen as primarily at the national border,²² perhaps with a role in incursion management – i.e. where the border controls had failed.

7.28 In its submission, the Western Australian Government stated:

The Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 has some merit but falls well short of the level of improvement required. Some sections of the proposed bill are unrealistic, unworkable and/or would create a backlash from some sectors...²³

Its analysis of the Bill's provisions led it to make the recommendation that a review of existing Commonwealth legislation should be undertaken to address the specific items raised in its submission. The Western Australian Government also went on to recommend that the review should consider whether or not, rather than legislative change, management arrangements could be put in place covering the items raised.

7.29 The Queensland Government's submission echoed that of DEH, arguing that the Bill is not required when full implementation of the EPBC Act as it currently stands would enable the Commonwealth to manage both barrier control for invasive species and incursion management. It wrote that:

Queensland believes that many of the powers proposed in the *Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill* already exist in complementary state legislation or within the EPBC Act in its current form. Given Queensland's experience of the EPBC Act in other areas where the Commonwealth has taken pre-emptive and ill advised action (e.g. the declaration of blue grass communities as threatened

22 Under the *Quarantine Act 1908* and the *EPBC Act 1999* the Commonwealth regulates the entry of live plants and animals into Australia, with both statutes requiring that live specimens be assessed for their potential impacts. Department of Environment and Heritage, *Submission 61*, p. 7.

23 Government of Western Australia, *Submission 67*, pp. 20-2.

ecosystems) Queensland has major concerns about the potential administrative problems the proposed Bill will create if implemented. Queensland considers that without a significant increase in resources it is unlikely that the amendments in this Bill would be able to deliver increased action on pests at a national level. Queensland believes that the Bill in its current form will lead to significant duplication and conflict with state legislation.²⁴

7.30 This latter point was pursued by the Committee with representatives of the Queensland Department of Natural Resources, Mines and Energy, Dr Anthony Pressland and Mr Craig Walton. Mr Walton stated that:

We believe it would lead to duplication mostly on the management of established pests, because most state agencies and most states already have actions on those established pests. It most probably would not do that for incursions because that is a totally different issue. In fact, for environmental issues at the moment, there is no way to respond to incursions. It [the Bill] would most probably be a welcome piece of legislation, especially because, unfortunately, at the moment with something like a TAP – a threatened species program – the fire ant people have suggested a TAP process is too slow for a response to an incursion like that...

We just thought, especially for the established pests, that they [the amendments] would be unnecessary... [but] for non-established pests it would most probably be a welcome addition to the suite of legislative schemes that exist at the moment, especially for some of the species, like marine species, that currently do not come under legislative control as good as that.²⁵

7.31 Mr Pressland summarised the Queensland Government's position in the following terms:

We think that a lot of the activities which are mentioned under the amendment bill can in fact be done under the existing bill, under section 301A, without amendment.²⁶

7.32 The Queensland Government's submission made several recommendations, but in particular that:

Full implementation of the *Environment Protection and Biodiversity Conservation Act 1999* in its current form would enable the Commonwealth to manage both barrier control for invasive species of the environment and incursion management. Section 301, if resourced, can also allow some national coordination of management of national pests, but not pests that are better managed by individual states or regions. This should be left to legislation in other jurisdictions.

24 Government of Queensland, *Submission 43*, pp. 24-25.

25 Mr Craig Walton, Committee Hansard, Brisbane, 14 April 2004, p. 7.

26 Mr Anthony Pressland, Committee Hansard, Brisbane 14 April 2004, p. 7.

Section 301 and other sections of the current *Environment Protection and Biodiversity Conservation Act 1999*, if implemented, should allow the Commonwealth to provide adequate national management of invasive species of the environment that are either not covered by state legislation or that need some form of over arching federal legislation e.g. national bans on sale. If this legislation is not to be used in this way States will need to alter current legislation.²⁷

7.33 The ACT Government was strongly supportive of the Commonwealth's pivotal role in facilitating the development of national pest management programs, but was less definitive on its view about the need to respect the existing Commonwealth/State/Territory compact, preferring instead to stress the desirability of consultation between the Commonwealth and the States and Territories prior to its taking action.²⁸

7.34 The Committee had few submissions to its inquiry from local government. The Brisbane City Council welcomed the Bill as a significant step towards the development of appropriate Commonwealth statutory regulation. It noted that:

It is widely accepted that the development of regulatory frameworks assists in increasing the awareness of and impetus for greater energy and resources to be expended on the object of the regulations

A primary concern of Brisbane City Council's as a local government is that neither State nor Commonwealth invasive species legislation adequately reflects the seriousness of the problems they seek to address.²⁹

7.35 The combined submission of the Local Government Association of NSW and the Shires Association of NSW was also generally supportive of the Bill, which it saw as more clearly classifying pest species, regulates their importation and spread, and develops and implements Threat Abatement Plans. It observed that the Bill needed to give greater recognition to local councils, who are: 'the agencies at the "front line" of weed and invasive species management.'³⁰

Community views

7.36 While a certain degree of State and Territory government antagonism to the Bill's intrusion into areas for which they have constitutional responsibility was not unexpected, most community-based submitters were supportive.

7.37 WWF Australia was a strong supporter of the concept of strengthening the EPBC Act as part of its call to transform current arrangements to create a National

27 Government of Queensland, *Submission 43*, p. 26.

28 ACT Government, *Submission 44*, pp. 6-7.

29 Brisbane City Council, *Submission 54*, pp. 6-7.

30 Local Government Association of NSW and the Shires Association of NSW, *Submission 65*, p. 2.

Preventative Framework for Invasive Species.³¹ Its submission recommended that the Commonwealth, in consultation with the States and Territories, should include provisions in the EPBC to control invasive species.³² This statement is a warm endorsement of the Bill, rather than a definitive expression of support for its contents.

7.38 WWF submitted that:

The *Environment Protection and Biodiversity Conservation Act* recognises that cross-border issues, such as the protection of biodiversity and threatened species, require a national approach. The increasing problem, scale and severity of invasive weeds and pests, similarly deserves a statutory national response. Legislation is required to enable the Commonwealth, in cooperation with the States, to take timely, effective, proactive and preventative national action on invasive species. Until a national framework is in place, the slow, uncoordinated and reactive national response to invasive species will continue.

As such, WWF Australia strongly supports either amendments to the EPBC Act or development of regulations under s 301A of the Act, to enact further statutory Commonwealth measures to control non-native species and mitigate against invasive species problems. **The EPBC Act should deal with environmental weeds and pests directly rather than under ad hoc provisions relating to Key Threatening Processes. This enables a more comprehensive, strategic and preventative approach to be adopted.**

If enacted the Bill would result in a positive benefit for the environment and provide more effective control of invasive species...

The importance of including control of non-native species under the ambit of the EPBC Act has already been recognised to an extent by the States: a Commonwealth-State marine pests task force suggests that statutory support for mitigation and control of established populations of marine pests could involve a combination of the EPBC Act and the range of State and Northern Territory legislation. [Footnote: Joint Standing Committee on Conservation (SCC)/Standing Committee on Fisheries and Aquaculture (SCFA) National Taskforce on the Prevention and Management of Marine Pest Incursions. 1999. Report of the Taskforce. Pg.57. Recommendation 4.20 recommends: "that the Commonwealth government explore the option of developing statutory plans to reduce, eliminate or prevent the impacts of introduced marine species on the biodiversity of Australia using s301A of the Environment Protection and Biodiversity Conservation Act 1999. This should be nationally coordinated by Environment Australia, as part of the National System."³³

7.39 WWF representative, Mr Andreas Glanznig, told the Committee:

31 WWF Australia, *Submission 30*, Letter of transmittal.

32 WWF Australia, *Submission 30*, p. 55.

33 WWF Australia, *Submission 30*, pp. 53-54 and footnote on p. 63. Emphasis in original.

...a key threatening process listing and a threat abatement plan are indirect mechanisms to control invasive species. Look at some of the emerging second generation State laws, such as the proposed Biodiversity Conservation Act in Western Australia. They are proposing to shift this indirect control to the direct control of invasive species. That is very much in line with and along the lines of what the Democrats' bill is intending to do as well...I think a good analogy is threatened species legislation. What is interesting there is that the Commonwealth put in place pretty much the first Commonwealth legislation for endangered species. As such, it was able to foster a standardised approach. As State governments came on stream, they were able to nest under that. That is the real opportunity with this Bill or with any regulation or a form of the EPBC Act. You are able to put in place a national statutory framework under which second generation State laws, such as those being developed in WA and the ACT, can nest. Once those second generation State laws are put in place, again, we will have missed the opportunity to foster a very strong and tightly coordinated national statutory framework.³⁴

7.40 The Invasive Species Council reinforced much of what the WWF had submitted, including citing the 1999 Joint Standing Committee on Conservation/Standing Committee on Fisheries and Aquaculture National Taskforce Report on the Prevention and Management of Marine Pest Incursions as having already highlighted the important role of the EPBC Act:

Suffice to say for now that the ISC strongly supports using the EPBC Act as a basis for regulations to control invasive species... If enacted, the regulatory regime proposed by the Bill would have a dramatic and beneficial impact on the environmental problems created by invasive species... We urge the Senate Committee to take advantage of the opportunity presented by the Bill to provide a strong statutory foundation for the management of invasive species, incorporating many of the recommendations contained in this submission.³⁵

7.41 Ms Lucy Vaughan, an environmental lawyer and Secretary of the Invasive Species Council, critiqued the Bill in an article in the July 2003 issue of *Feral Herald*, the Council's Newsletter. Ms Vaughan wrote:

If enacted, there can be little doubt that the Bill would have a dramatic and beneficial impact on the environmental problems created by invasive species... The Democrats should be applauded for introducing the Bill.³⁶

34 Mr Andreas Glanznig, WWF Australia, *Committee Hansard*, Canberra, 26 November 2003, p. 22.

35 Invasive Species Council, *Submission 33*, p.11 and p.6 of Attachment 2.

36 *A Quick Look at the Democrats' Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill(2002)*, Lucy Vaughan, *Feral Herald*, Volume 1, Issue 4, July 2003, p. 14.

7.42 However, she noted that, as with the existing EPBC Act, the Bill appears to stop short of taking an active regulatory and management role in relation to the impact of the 'actions' of private persons, corporations and the States in facilitating the problems brought about by the introduction and presence of invasive species. She added:

In this way, arguably the Bill continues to honour and preserve the articulation of Commonwealth and State roles provided for in the Inter-governmental Agreement on the Environment (IGAE) in much the same way as the existing EPBC Act. The IGAE is perhaps the definitive example of the policy of co-operative federalism (the approach preferred by the current Federal Government) at work.

Whilst the IGAE recognises that the Commonwealth has a legitimate role in respect of national environmental issues, it gives the States primary responsibility for environmental management within their respective jurisdictions. This often leads to the 'hands-off' approach taken by the Commonwealth in relation to many national environmental problems, like invasive species...

Whilst it is almost certain that Australia is not 'politically' ready to adopt the kind of national regulatory scheme for addressing the problem of invasive species proposed by the Bill, the Bill represents an excellent opportunity to raise the profile of this issue not only with all levels of Government in Australia, but also with relevant industry and the general community.³⁷

7.43 The submissions from other peak environmental groups were also generally supportive of the Bill. For example, the Conservation Council of WA submitted that:

The Council strongly supports the measures proposed by the Australian Democrats in the...Bill. In particular, we support:

- the requirement for risk assessment before granting import permits;
- the strict banning of further imports of pasture grasses, ornamental plants and aquarium fish; and
- the creation of an Invasive Species Advisory Committee.³⁸

7.44 Several echoed the WWF comment cited in paragraph 7.38 that there are several provisions in the EPBC Act through which the Commonwealth could address the environmental harm caused by invasive species at a national level, but they are seen as inadequate because they use indirect mechanisms to address the invasive species problem rather than the Bill's distinct and direct focus.³⁹ Obviously, they

37 *ibid*, pp. 12 and 14.

38 Conservation Council of WA, *Submission 59*, p. 6. See also: The Eurobodalla Greens, *Submission 11*, p. 4, Native Fish Australia (SA), *Submission 31*, p. 1; Bendigo and District Environment Council and Bendigo Field Naturalist Club, *Submission 46*, p. 8; The North West Vegetation Forum, *Submission 57*, p. 1.

39 Invasive Species Council, *Submission 33*, pp.3-4 of Attachment 3.

would prefer that invasive species be targeted directly rather than through their indirect impact on, for example, threatened species. DEH highlighted one key flaw with this approach, however: that the introduction of the Bill would lead to there being two types of threat abatement plans – key threatening process threat abatement plans and invasive species threat abatement plans. It noted that a species may be listed as both an invasive species and a key threatening process, leading to two threat abatement plans for the same species. It wrote: 'This duplication would not achieve a better conservation outcome'.⁴⁰

7.45 The Weed Society of Queensland simply saw the proposed amendments as unnecessary, however:

With the development of clear, directed regulations, Section 301 would deliver effective national outcomes without the need to amend the present Act.⁴¹

7.46 Concern was also expressed at the limitation of the Bill to non-native species. The Tasmanian Weed Society, for example, drew attention to problems of: '[t]he increasing popularity of native gardens in Australia has led to a second wave of invasive species derived from Australian plants grown outside their natural range...'⁴² This issue was also addressed by the Indigenous Land Corporation. While being generally supportive of the overall thrust of the Bill, and suggesting several amendments, it added its concern over the failure of the Bill to also address as 'invasive' indigenous species whose populations get 'out of control', especially on a regional, bioregional, catchment or jurisdictional level.⁴³

7.47 Mr Richard Sharp, an environmental practitioner and author of published articles dealing with the issue of 'alien species', expressed support for the Bill subject to certain changes being made.⁴⁴ In a September 1999 article he wrote:

Today, alien species or those animals, plants and micro-organisms which are not native to Australia, are invading to such an extent that they are now posing a serious threat to the economy and the environment, especially biodiversity. While there have been some developments in terms of policy and legislation to deal with this problem in Australia, at the federal level

40 Department of Environment and Heritage, *Submission 61*, p. 14.

41 Weed Society of Queensland, *Submission 55*, p.1.

42 Tasmanian Weed Society, *Submission 18*, p. 6. See also Dr Trudi Ryan, *Submission 26*, p. 3; Ms Renae Leverenz, *Submission 27*, p. 3; Weed Management Society of South Australia, *Submission 35*, pp. 6-7; Bendigo and District Environment Council and Bendigo Field Naturalist Club, *Submission 46*, pp. 7-8.

43 Indigenous Land Corporation, *Submission 38*, pp. 15-16.

44 Mr Richard Sharp, *Submission 2*, p. 2.

there remains a need to continue such development in order to counter the continually growing and global threat of invading alien species.⁴⁵

Committee discussion

7.48 As stated in paragraph 7.1, the Committee's terms of reference require it to determine whether the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 could assist in improving the current statutory and administrative arrangements for the regulation, control and management of invasive species. While it is clear to the Committee that there is scope to improve the national effort to address the invasive species challenge, it is also clear that the Bill is not the answer.

7.49 Senator Bartlett saw the Bill as addressing perceived inadequacies in the current regulatory framework and as a catalyst to further debate about the issue of invasive species. It can be argued that the Bill has been a spectacular success in this latter aspect, moving the debate from the realms of the cognoscenti to a broader audience. Given the lack of public appreciation of the scale of the invasive species problem, and the public's important role in its resolution, the debate on the Bill should act as a platform for a coherent and determined community effort to address the matter. It could even be argued that the prospect of a debate on the Bill may have driven nervous State and Territory governments to seek to improve their performance, despite the likely threat of the passage of the Bill being minimal.

7.50 The Bill's single greatest strength is symbolic. It represents an attempt to codify in one piece of legislation a range of regulations currently scattered throughout the statute books which relate to the regulation, control and management of invasive species. This is a commendable, if somewhat idealistic, approach as there may be risks and confusion arising from any duplication.

7.51 Its principal drawback is that it duplicates existing regulations in some aspects. It is perhaps unsurprising that the evidence from environmental groups was for greater Commonwealth involvement on the basis that ecological processes do not recognise state borders: '[a] species banned in one State may not be banned in other States and many are inadvertently or deliberately transported to an environment where they are dangerous'.⁴⁶

7.52 The Queensland Farmers' Federation's submission contained a similar theme: while Commonwealth involvement in managing the threat posed by invasive species is critical, it queried whether a national statutory foundation was the only way to

45 Mr Richard Sharp, *Australian Journal of Environmental Management*, Vol 6, September 1999, p. 172.

46 WWF Australia, *Submission 30*, p. 53.

achieve the co-ordination of already established State and Territory weed and pest animal management regimes.⁴⁷

7.53 Equally unsurprising was the Bill's substantial rejection by governments at both Commonwealth and State levels, notwithstanding State support of regulations under section 301A of the EPBC Act. The current regulatory system – based as it is on the IGAE, with its emphasis on environmental protection vested in the States and Territories – is designed to improve consistency and reduce duplication between the different levels of government and to increase efficiency of decision-making with regard to environmental management protection. The Tasmanian Weed Society highlighted this issue in its submission:

The Bill would benefit from complementary legislation at the State level as many of its planning functions and on ground outcomes functions will require State participation. The Weeds of National Significance program provides some insight to the functioning of the Bill and demonstrates the stress placed on States to participate in that program within existing state obligations and programs. Considerable Commonwealth funding would be required to assist State and Territories to participate in planning and management programs under the Bill, particularly in assisting landholders who carry the responsibility for managing the invasive species...

It should be noted that for most threat abatement plans to be produced, the Commonwealth will be dependent on State and Territory co-operation by virtue of the distribution of most invasive species. The legislation is likely to be ineffective in the management of invasive species in Australia if it does not support and encourage other jurisdictions to participate. The Bill fails this requirement.⁴⁸

7.54 The Committee is supportive of the Commonwealth, in consultation with the States and Territories, seriously examining the merits of proclamation of regulations under section 301A. Support for such regulations as part of a focussed national regulatory framework were explicitly supported by both the Queensland and Western Australian governments.

7.55 The Queensland Government stated that:

Section 301 and other sections of the current EPBC Act, if implemented, should allow the Commonwealth to provide adequate national management of invasive species of the environment that are either not covered by state legislation or that need some form of overarching federal legislation, eg. national bans on sale.⁴⁹

7.56 The Western Australian Government similarly identified the useful role of EPBC Act regulations providing a prohibition on sale and recommended that:

47 Queensland Farmers' Federation, *Submission 42*, p. 6.

48 Tasmanian Weed Society, *Submission 18*, pp. 6-7.

49 Queensland Government, *Submission 43a*, p.1.

Commonwealth legislation to be amended to prevent the sales of identified threats, such as Northern Australia Quarantine Strategy (NAQS) potential species.⁵⁰

7.57 A range of scientific organisations, including the Weeds CRC, also supported the proclamation of national regulations.

7.58 This is both a logical and necessary step as the national government needs to be able to represent the nation on an international basis. Dr Cas Vanderwoude, technical adviser to the Invasive Species Specialist Group of the International Union for the Conservation of Nature (IUCN), went so far as to call for the Bill to be expanded to enable the Commonwealth to operate on a regional basis:

Current Australian legislation does not encompass this [regionally based threat assessments] strategy and as a result there is no funding mechanism through which planning and implementation of regional plans ... can be implemented.⁵¹

Australia is, of course, and as described in Chapter 2, a signatory to many important international agreements designed to protect its environment from invasive species, particularly the Convention on Biological Diversity and the International Convention for the Control and Management of Ships Ballast Water and Sediments.

7.59 As has been discussed at length in Chapter 5, section 301A of the EPBC Act already appears to provide a sound statutory basis for the Commonwealth to exercise a prominent role in the invasive species challenge, but which is simply foundering for want of will. All the legislation in the world is not an adequate substitute for a determination to act. While the Committee commends the framers of the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002 to seek to highlight the issues, it is unable to recommend that the Bill be implemented. Rather, in the final chapter the Committee has set out a range of measures for reform, including regulations under section 301A, that combine into a coherent national framework to prevent and control invasive species.

7.60 Creation of such a system of regulation gives the opportunity for the Commonwealth to provide a lead to the States and Territories, whose efforts are currently fragmented and undermined by a lack of coordination. A national regulatory framework to oversee the existing diverse and disparate range of regulations and laws throughout the States and Territories can only encourage them to more appropriately implement coordinated action within and between jurisdictions.

⁵⁰ Western Australian Government, *Submission 67*, p. 3.

⁵¹ Dr Cas Vanderwoude, *Submission 19*, p. 1.

Chapter 8

The Way Forward

The [invasive species] problem seems immense and there is certainly no “silver bullet” for all, or perhaps even any, of these pest species, either animal or plant.¹

8.1 This quote by botanist Mr Ed McAlister who wears, among his many hats, that of President of the World Association of Zoos and Aquariums, is significant for putting the invasive species problem into context. The Committee has learnt in the course of this inquiry that the scale of the problem is enormous and the challenges daunting. The traditional response in such situations is to call for larger expenditures, usually by governments, because it signals the view that more should be done. However, the Committee has been struck by the fact that much good work is being done in Australia, not least by governments but also at an individual level - by dedicated scientists, researchers, and members of the public - who are willingly committing their energies in trying to confront the pest species challenge. While greater expenditure is certainly well and truly justified at a governmental level, what is equally needed is for a national strategic approach to be developed which will guide and coordinate the efforts of all parties in seeking to achieve a common goal.

8.2 As discussed throughout this report, society pays a high price for the presence of invasive species – not just in direct costs to the agriculture sector - but also in such externalities as environmental degradation and loss of Australia's unique biodiversity. Assisted by the rapid global expansion of trade and travel, invasive species and their cost to society are increasing at an alarming rate.

8.3 Most non-native species are relatively benign. Australians are the beneficiaries of cows from Jersey and roses from England - to name but two examples. While purists may disagree, Australia is a more dynamic and attractive country for the successful introduction of many non-native species. However, Australia needs to be able to act effectively on two fronts: to find remedial solutions for the invasive species that have already passed our borders and to recognise and manage those non-native species that are not already here that have the potential to threaten our native flora and fauna.

8.4 The Committee has set out in this report – and summarises below - recommendations for action and strategies for the future that will assist Australia in its continuing efforts to combat invasive species. The Committee sees three key dimensions to resolving the invasive species challenge: a national framework, research and education. It deals with each in turn below.

1 Mr Edward McAlister, *Submission 75*, p. 5.

8.5 The way forward is a national co-ordinated and cohesive approach across all levels of government, industry and the general community. Present arrangements represent a good starting point – but there is still scope for considerable improvement.

A national framework

8.6 Invasive species do not recognise borders, yet Australian management plans and the legislative framework that supports them, are jurisdictionally based. Frustratingly, those controls introduced and managed by the States and Territories are inconsistent, which further weakens the national effort. A chain is only as strong as its weakest link, and the efforts to combat invasive species in some jurisdictions are undermined when other jurisdictions fail to apply the same standards.

8.7 This lack of uniformity between the States and Territories raises the issue of the extent to which the Commonwealth Government should act to ensure that invasive species are dealt with in a consistent manner, as it is the tier of government primarily concerned with the goal of conserving Australia's biodiversity for the benefit of future generations.

8.8 All parties to this inquiry have argued that it is the proper role of the Commonwealth Government to provide national leadership. Leadership should involve working with the States and Territories to develop an agreed national framework, which includes common standards and common invasive species terminology and categorisation, put into effect through national strategies and/or action plans, and providing appropriate funding. Benefits of coordination include:

- defining the respective roles and responsibilities of each level of government;
- simplification of current administrative processes;
- agreeing on objectives and performance measures on a national basis;
- closing loopholes in current legislative frameworks;
- developing a cooperative and cohesive approach between jurisdictions;
- developing a national information base to guide strategic planning; and
- establishing Australia as a leading edge nation in terms of management of invasive species, especially in the field of research, with associated benefits in the international arena.

8.9 The Committee welcomes the agreement by the NRM Ministerial Council in April 2004 that:

there remained a need to develop a robust national framework for a coordinated and strategic approach to preventing significant new invasive species establishing in Australia, and to reducing the impacts of major pests and weeds already present.

8.10 A joint Commonwealth-State NRM Standing Committee Task Group has been established to investigate and report on options for a national framework for preventative action, early detection, awareness and ongoing control.

8.11 The Committee notes that this initiative received bipartisan support in the lead-up to the recent Federal election and believes that Australia's strategic planning and management of invasive species would be assisted by the development of a national blueprint for action, the equivalent of a national corporate plan, as the visionary basis for a better coordinated approach to invasive species. The framework should allocate responsibility for action between the three tiers of government and set a timetable for the implementation of key steps.

Recommendation 1

8.12 The Committee recommends that the Commonwealth Government strengthen its leadership role in the national effort to combat invasive species by developing a robust national framework, in consultation with State, Territory and local governments, to regulate, control and manage invasive species.

8.13 The key features of a National Framework should include:

- comprehensive scope to cover all taxonomic groups;
- national aims, principles, targets and focus;
- common terms and categories for invasive species, particularly in relation to invasive species of national importance;
- emphasis on preventative approaches, including strengthened community and expert early warning surveillance systems;
- promulgation of regulations under section 301A of the EPBC Act to provide the foundation for a national statutory framework;
- development of model State legislation to encourage harmonised state and territory legislation consistent with the national statutory framework;
- agreed Commonwealth-State cost-sharing arrangements for both eradication and strategic containment of invasive species of national importance;
- national information system to enhance national, State and regional strategic planning and review, including a national list of invasive species; and
- a regular review mechanism under NRMCC to measure performance against agreed targets and milestones.

Some of these key features are discussed below.

Common terms and categories for invasive species

8.14 The Committee heard evidence from a range of quarters that the Weeds of National Significance (WONS) was a good model of how Commonwealth, States and Territories could work cooperatively to develop an agreed national weed control list. This inclusive process resulted in the States and Territories agreeing in 2001 to prohibit their sale. On the other hand, the national Alert List of Environmental Weeds was highlighted as a poor model as it was developed by the Commonwealth with limited State consultation and was not agreed by the States and Territories. In line with the need to strengthen actions to prevent nationally important invasive species, the Committee believes that three standard categories for invasive species of national importance need to be developed and agreed to by the Commonwealth, States and Territories and included in all national invasive species strategies and/or action plans, and to cover all taxonomic groups of invasive species. The three categories are as follows:

National Quarantine List: Comprised of invasive species of national importance that are a high invasion risk for Australia, may or may not have already invaded Australia, and whose early detection will enable cost-effective eradication. A starting point should be the Northern Australia Quarantine Strategy target list and the Trigger List of Introduced Marine Pest Species.

National Alert List: Comprised of invasive species of national importance that are naturalised, have a restricted range, are predicted to have a major impact on the environment or industries, and whose eradication is feasible and cost-effective. It should also include introduced invasive plant species of national importance, which are garden plants that are yet to escape and are subject to national early warning surveillance action.

National Control List: Comprised of invasive species of national importance that are naturalised and generally widespread, are having a major impact on the environment or industry, and whose containment or control will assist protect the values of areas of national environmental significance. A starting point is the Weeds of National Significance list, those invasive species that are listed as a Key Threatening Process under the EPBC Act, and those marine pests that are subject to a national action plan (ie. Northern Pacific Seastar).

Recommendation 2

8.15 The Committee recommends that as part of developing a list of invasive plant species of national importance, the Commonwealth, States and Territories develop an agreed national Alert List.

EPBC Act section 301A regulations

8.16 The ongoing trade in Australia of invasive plants is a complex issue that must be resolved if the problem of invasive plants is to be effectively addressed. Discussion of issues relating to the trade in invasive plants is provided in Chapter 5.

8.17 The problem is primarily that there is a lack of national consistency in legislation to control the trading and planting of invasive plants. This is best demonstrated through the failure of all States and Territories to prohibit trade in the 20 WONS, despite being declared in 1999 and agreement to do so in 2001. Although the EPBC Act could be utilised to address this issue the Committee heard that the Commonwealth Government is hesitant to invoke its powers due to funding, monitoring and compliance concerns.

8.18 There is a Catch 22 situation. The Commonwealth Government does not currently wish to implement Section 301A of the EPBC Act because its view is that the States and Territories are primarily responsible for managing non-native species. But the States and Territories have failed to act for their own reasons – with the outcome that the sale of WONS continues to the detriment of the Australian environment. Many Alert List weeds and a NAQS target weed are also available for sale.

Recommendation 3

8.19 **The Committee recommends that those States and Territories that have failed to legislate a prohibition on the sale of WONS within their jurisdictions should act to do so as a matter of priority.**

Recommendation 4

8.20 **The Committee recommends that the species listed on the WONS list be reviewed and that other significant threatening species be included as part of a new national control list of invasive plant species.**

Recommendation 5

8.21 **The Committee recommends that the Commonwealth, States and Territories provide funding to enable the Australian Weeds Committee to engage the CRC for Australian Weed Management to produce a scientifically credible and robust national list of invasive plant species.**

Recommendation 6

8.22 **The Committee recommends that the Commonwealth, in consultation with the States and Territories, promulgate regulations under section 301A of the EPBC to prohibit the trade in invasive plant species of national importance, combined with State and Territory commitment to prohibit these same species under their respective laws.**

Recommendation 7

8.23 **The Committee recommends that the Commonwealth, in consultation with the States and Territories, produce a list in legislation of taxa that prevents their sale and spread for each state or region. Nominations for each taxon on a**

state or regional basis can be developed in consultation with natural resource management agencies, state herbaria and members of the general public.

8.24 The Committee believes that the financial burden of managing invasive weeds should be borne by those who are responsible for the importation and sale of plants known to be weedy.

Recommendation 8

8.25 The Committee recommends that the Commonwealth Government investigate the imposition of a 'polluter pays' principle where importers pay for the cost of control and repair should a plant become a weed.

8.26 The Committee suggests that the national plan, which will recognise regional differences, should act as the basis for the continuing self-regulation of the nursery and garden industry. Should experience suggest that voluntary observance is inadequate once clear lists of invasive weeds are produced, governments may have to give consideration to a more regulatory approach.

Sleeper weeds

8.27 The Committee heard that sleeper weeds - weed species that are already in Australia but have not yet become widely established - pose a significant potential threat. In Chapter 5 it is noted that resources are allocated to manage widely established weeds rather than directed at eradicating small outbreaks of sleeper weeds before they become a major problem, despite the evidence that the earlier the response, the more cost effective.

8.28 Management of weed species is also adversely affected by the emphasis on weeds with agricultural impacts ahead of those with primarily environmental or social impacts. While this is understandable in pure economic benefit-cost terms, the Committee believes that a more strategic approach would focus on prioritising species and habitats according to the potential for damage to indigenous biodiversity and the likely effectiveness of effort.

Recommendation 9

8.29 The Committee recommends that the National Weeds Strategy better clarify responsibility for funding eradication of 'sleeper weeds' with purely an environmental or social impact.

Recommendation 10

8.30 The Committee recommends that investment in early warning systems be increased for the detection and eradication of sleeper weeds.

Vertebrate pests

8.31 The need for a national blueprint for invasive species abatement is addressed above. But the absence of a national strategy specifically for vertebrate pests – comparable in concept to the National Weeds Strategy - means that vertebrate pest issues are not being strategically addressed. Consequently there are greater inconsistencies across jurisdictions due to the absence of an appropriate forum at which national strategies and consistent approaches can be agreed and progressed. The establishment of a national strategy will assist in the development and implementation of a coordinated national approach to reduce the damage to the natural environment and primary production that is caused by vertebrate pests. A national strategy will also enable funds to be applied more strategically so that improved long term results can be achieved.

Recommendation 11

8.32 The Committee recommends that the Commonwealth Government place on the agenda of the Natural Resource Management Ministerial Council, as a matter of urgency, the issue of progressing development of a National Strategy for Vertebrate Pests.

Marine pests

8.33 As discussed in Chapter 6, Australia has taken a leading role in developing responses to marine invasive species. This is highlighted by the prominent role that it took to coordinate international action in relation to ballast water with the International Maritime Organisation. Australia's action has resulted in significantly reducing the threat posed from translocation of species in ballast water.

8.34 Submitters argued that Australia should take a proactive approach to invasive species that includes looking overseas and learning about species that have already become invasive elsewhere. This is exemplified by Australia's response to the Black-striped mussel outbreak in Darwin in 1999, a case study of which is provided in Chapter 4. Such action would improve Australia's preparedness to manage new incursions and are more likely to be successful as prevention and early control are the cheapest and most effective approaches to managing invasive species.

8.35 It was also submitted that improving our trading partners' capacity to respond to invasive species and reducing the risk of species reaching trading partners' ports has a flow-on effect for Australia as it reduces the chances of invasive species being picked up in ballast water or through bio-fouling and translocation to Australian waters.

8.36 The management of invasive marine species within Australia's waters is also compounded by the lack of a national strategy to address these issues. As discussed in Chapter 6, some progress has been made towards the development of a national strategy. However, progress has been slow and delays increase the likelihood of new incursions. Two areas which pose a significant risk to Australia are bio-fouling and

mariculture. Yet, to date, they have not received the level of attention warranted by the level of risk they present.

Recommendation 12

8.37 The Committee recommends that the Commonwealth Government take a lead role in Ministerial Councils and other appropriate forums to accelerate progress on the development, implementation and funding of a national system to deal with marine invasive species.

Recommendation 13

8.38 The Committee recommends that, as a matter of urgency, the Commonwealth Government should develop programs to minimise the threat of invasive marine species entering Australia's waters via hull fouling or as a result of the mariculture industries.

Recommendation 14

8.39 The Committee recommends that the Commonwealth Government should provide long-term funding for research aimed at identifying and combating marine invasive species, particularly those which may threaten marine parks such as the Great Barrier Reef Marine Park, and those that are in the ports of Australia's trading partners and could be translocated to Australia.

Key threatening processes

8.40 As discussed in Chapter 5, currently key threatening processes are only listed under section 183 of the EPBC Act when the process threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community. Listing is done at a late stage of the species survival even though it is recognised that to save the species at that point would be costly or ineffective. Evidence argues for the need for early intervention in addressing invasive species and threatening processes.

Recommendation 15

8.41 The Committee recommends that the Threat Abatement Process (TAP) be reviewed to enable threatening processes to be listed prior to threatened species reaching a critical stage.

Review of the Quarantine Proclamation 1998

8.42 The Committee acknowledges the work undertaken by AQIS and Biosecurity Australia since 1997 to review the listing of the more than 2,000 genera in Schedule 5 of the Quarantine Proclamation 1998. It commends the fact that the review, once completed, will list plants at species level, not genus and will lead to the removal of

species not present in Australia from the list, pending WRA.² The Committee heard that:

Looking forward, we believe that in 12 to 14 months time we will be able to have a honed permitted list and nothing could then join that list until such time as it had gone through a comprehensive risk assessment.³

8.43 While commending the work that has been undertaken, the Committee expresses its concern over the time being taken to finalise the review. Every live plant that inadvertently enters Australia in the interim may end up costing the country dearly in the long-term. Speed is of the essence.

Recommendation 16

8.44 **The Committee recommends that the Commonwealth Government act urgently to ensure that:**

- **all listings on Schedule 5 of the *Quarantine Proclamation 1998* are made by species, not genera;**
- **a mechanism be developed to ensure that species identified as weeds of national significance are automatically removed from Schedule 5; and**
- **all listings and applications for the import of plants and seeds be standardised using the scientific names of species.**

Import risk analysis

8.45 Discussion in Chapter 6 highlighted some deficiencies in the import risk analysis (IRA) process, the greatest of which was the lack of independence in the conduct of the IRA process. The current system allows the proponent to directly select and fund the analyst, leading to suggestions of a conflict of interest. This lack of independence brings the integrity of Australia's quarantine system into question. This is a key issue. One wrong import risk assessment could have significant consequences. In the Committee's opinion a better system would see a closer involvement of Biosecurity Australia in the process of conducting import risk analyses, either by conducting them itself on a cost recovery basis, or by co-ordinating their production by a panel of approved providers, again with the cost of the assessment being borne by the proponent.

Recommendation 17

8.46 **The Committee recommends that the import risk analysis process be modified to guarantee greater independence in their preparation.**

2 Department of Environment and Heritage and Department of Agriculture, Fisheries and Forestry, *Submission 74*, p. 3.

3 Mr Bernard Wonder, *Committee Hansard*, Canberra, 18 June 2004, p. 59.

Emergency response plans

8.47 The Committee is reassured at the adequacy of the emergency arrangements for dealing with incursions that might adversely affect primary industries. It notes, however, that incursions which have an environmental impact seem to have no equivalent mechanisms. Timely action against environmental pest incursions is equally important.

Recommendation 18

8.48 The Committee recommends that the Commonwealth place on the agenda of the Natural Resource Management Ministerial Council the need for arrangements to be implemented for environmental pest incursions in parallel with those currently in place for threats to primary industries.

International cooperation

8.49 Australia's ability to prevent invasive species from entering its territorial waters and terrestrial land has a regional and international dimension. As discussed in Chapter 6, it is unacceptable that international trade rules overrule environmental considerations. No country, Australia included, can expect to succeed in addressing its invasive species problems until it has the capacity to protect its borders from further unwelcome incursions.

8.50 Australia can take a leadership role in:

- identifying the limitations and strengths of existing international agreements and develop a program of work to further strengthen them;
- sponsoring technical assistance workshops in other countries;
- establishing an ongoing process to consider the risks of invasive species during the development of trade agreements;
- developing strategies and support materials to encourage and assist other countries with development of coordinated policies and programs on invasive species; and
- fostering and formalising international cooperation aimed at kerbing the sale of invasive species via the Internet.

Recommendation 19

8.51 The Committee recommends that the Commonwealth Government take a leading role in relevant international forums to seek better recognition of the environmental consequences of invasive species, particularly in relation to current trade rules.

Research

8.52 A comprehensive research program should underpin all aspects of the fight against invasive species. Complementary research projects, ranging from basic investigations with broad application to highly targeted applied efforts are required. Research outcomes should be transferred to Commonwealth, State, Territory, local government and private stakeholders for application. To assist in achieving this:

- research programs should be adequately funded and co-ordinated;
- greater support should be provided for research into pests that have not yet become established; and
- Australia should establish and coordinate a long- and short-term research capacity that encompasses the range from basic to applied research for invasive species and should build on existing efforts that reflect a range of perspectives and program approaches.

8.53 Research should not be motivated by economic rationalist considerations alone. As discussed in Chapter 4 some invasive species have a negligible economic cost but a significant environmental cost. The Committee supports research that will reduce the economic impact of invasive species but it also considers that there is a need for non-economically motivated research; research that will assist in preserving Australia's cultural and environmental heritage. This need was encapsulated by Mr McAlister when he told the Committee that:

Having post-graduate students and post-doctoral fellows employed by the appropriate C.R.C.'s to undertake both applied and, what is euphemistically called, "blue-sky" research is of paramount importance.⁴

8.54 'Blue-sky' research has been defined as research that is not directed towards any immediate or definite commercial goal.⁵ Research being conducted by CSIRO into cane toads is a prime example of blue sky research – after 70 years of presence in Australia they are generally regarded as localised, but their eradication is still seen as a positive for the country's biodiversity.

8.55 To ensure that research delivers the highest return on investment there is a need for improved coordination of R&D units and improved planning and coordination across agencies involved in delivering outcomes.

8.56 The lines of communication between difference research organisations are not clear. There is no national invasive species research body, instead it is distributed across a number of CRC and CSIRO sites. Research bodies could benefit from greater cross-fertilisation of ideas.

4 Mr Edward McAlister, *Submission 75*, p. 5.

5 *Oxford Reference Online*, accessed 3 September 2004.

Research funding

8.57 To ensure that invasive species can be successfully addressed the Commonwealth, State and Territory governments need to commit to adequate funding of research activities. The Committee heard that it can take more than 10 years for a biological control method to be developed from inception to implementation. Long-term commitment to funding is essential especially for programs that are seeking to develop biological control responses to invasive species. Central to being able to plan and implement such a research activity is the need for a guaranteed commitment to funding.

Recommendation 20

8.58 The Committee recommends that the Commonwealth Government provide certainty of funding to research institutions, such as CSIRO and CRCs, to enable them to undertake long-term research projects.

Education

8.59 There was a persuasive weight of evidence that there is a general lack of awareness in most sectors of the community of the impacts of invasive species. As was discussed in Chapter 5, invasive species are recognised as an issue by farmers, but do not have a high profile within the political arena or wider community. The Committee members themselves – all urban dwellers - have gone through their own Epiphany, having initially been largely unaware of the scale of the invasive species problem and now fully seized with the notion that it is a matter of some considerable priority.

8.60 This lack of awareness often simply arises from the lack of priority given to the issues. One only needs to review the experiences in Brisbane in relation to the fire ants incursion – the subject of a case study in Chapter 5 - to see what can be achieved once the public is alerted to the adverse economic, environmental and social impacts of the threat within their midst. They can be mobilised and committed. The challenge is to achieve a recognition that, while the likes of mice and locust plagues energise the public consciousness from time-to-time, the invasive species threat is substantial and ever-present.

8.61 This general lack of awareness amongst the community of the invasive species threat can be likened to the salinity or land clearing issues which in recent years have been the subject of significant media attention and, where appropriate, substantial funding. It has been acknowledged that the seriousness of both issues were appreciated by scientists for many years before general public awareness and concern emerged. Only then did a political consensus develop to devote substantial resources to tackle the problem.⁶

6 P Martin, *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management 2002, Canberra, p. 22.

8.62 Invasive species cannot be successfully combated by researchers and scientists without general community support. Support from the public is essential, especially where it relates to methods of eradication such as biological control, gene technology or culling, that may otherwise be negatively perceived. Awareness campaigns are an absolute necessity to gain support and acceptance of such actions. The Committee heard argument that increased awareness and recognition of the impact of invasive species can result in taxpayers being more willing to spend money and politicians being more willing to allocate money to the issue.⁷

8.63 Public education programs are the key to addressing the imbalance between the public's perception of the seriousness of the issue of invasive species and the actual level of threat. Education programs should be targeted on a number of levels: formal, community and industry.

8.64 Education programs directed at school-aged children are a proven way of raising environmental and scientific awareness across the community. Just ask any parent who brushes their teeth with the taps running, or who tries to throw a soft drink can in the general garbage. Information should be presented not simply as science, but in a social, economic and political context. This enables students to better understand the complex circumstances within which decisions about invasive species management are made.

8.65 Investment in education campaigns provide very high cost-benefit-ratios. As discussed in Chapter 4, a 2003 review of the national awareness and education campaign, *Weed Buster Weed*, which started in Queensland indicated that it had a cost-benefit ratio of 43 to 1.⁸

8.66 As awareness of invasive species has grown, the field of teaching on invasive species has also expanded, especially in the tertiary arena. Evidence indicated that there was a need for education programs on invasive species to be holistic and not to solely focus on pest species that primarily have significant economic impact. As demonstrated in the case study on Project Eden that is provided in Chapter 5, invasive species cannot be managed in isolation of the wider environment and their study should be understood within the framework of the broader environmental perspective.

8.67 How invasive species are viewed is influenced by wider societal values and improved prevention and control of invasive species will require a change in how the issue is perceived by the wider community. A wide variety of education, outreach, and training programs are needed. Programs could include:

- identifying and evaluating existing public surveys of attitudes on invasive species issues;

7 Mr Tim Low, *Committee Hansard*, Brisbane, 14 April 2004, p. 49.

8 Queensland Government, *Submission 43*, p. 15.

- compiling a comprehensive assessment of current invasive species communications, education and outreach programs;
- coordinating development and implementation of a national public awareness campaign, emphasising public and private partnerships;
- developing a model public awareness program that incorporates national, state/territory and local level invasive species public education activities;
- developing and co-hosting a series of international workshops on invasive species in different regions for policy makers; and
- educating landowners on weed and pest animal identification.

8.68 Commitment to raising community awareness is demonstrated through the grant to the CRC for Australian Weed Management under NHT 2 for three-year funding to create an easy-to-use web-based system to deliver weed information to schools and communities. This project will assist in disseminating standard information to people at the grassroots level to assist them in weed identification and weed management. The Committee commends this project.

8.69 Volunteers and environment groups can also make vital contributions by playing a word-of-mouth role in educating their immediate communities. However, the better the educative instruments at their disposal, the more effectively they can carry the invasive species message.

8.70 The Commonwealth has the capacity to provide a national framework for the delivery of an education campaign on invasive species, similar to that which has been developed for the highly successful *Quarantine Matters* campaign for the Australian Quarantine and Inspection Service.

Recommendation 21

8.71 The Committee recommends that, under the National Heritage Trust, the Commonwealth Government initiate, develop and deliver national community education campaigns on invasive species.

Recommendation 22

8.72 The Committee recommends that the Commonwealth Government provide the relevant curriculum materials to enable invasive species to be included in relevant schools program across Australia.

Recommendation 23

8.73 The Committee recommends that the Commonwealth Government continue to provide support through the NHT and Envirofund to community groups that deliver education and awareness campaigns.

Governments demonstrating leadership

8.74 Governments have been as guilty in the past as private citizens of planting invasive plants in formal displays or as screening, simply because they were attractive or cheap. It is an important part of the educative process for governments to demonstrate that they are prepared to show leadership by their actions, not just rhetoric.

Recommendation 24

8.75 The Committee recommends that all tiers of government immediately commit to an eradication program for all WONS and all locally significant invasive species within their formal plantings.

Labelling on plants

8.76 Mandatory labelling of plants to warn and educate consumers about their invasive qualities, similar to warning advices on water usage levels for washing machines, has been suggested. Such a system would raise awareness of the characteristics of the species and assist the public in making informed decisions. The Committee commends the matter to the industry - it would also be a relatively cheaper option for the nursery and gardening industry than mandatory regulation, which the Committee is resisting at this stage simply because of the relatively small size of many of its players.

Recommendation 25

8.77 The Committee recommends that the Commonwealth, States and Territories, the Nursery and Garden Industry Association and other stakeholders, including conservation NGOs, establish a process under the proposed National Weeds Action Plan to examine the merits of a mandatory labelling scheme on invasive garden plants.

Recommendation 26

8.78 The Committee recommends that the nursery and gardening industry give consideration to labelling of all invasive plants which, while able to be sold legally, may have invasive characteristics and should be managed responsibly.

Media responsibility

8.79 The Committee received evidence of gardening and lifestyle programs and magazines that have encouraged the use of invasive plants. It should not be necessary for the Committee to condemn such irresponsible behaviour. The Committee takes this opportunity to commend the recent edition of the *Gardening Show* on ABC Television which dedicated an entire program to the issue of invasive weeds.

Recommendation 27

8.80 The Committee recommends that gardening and lifestyle programs should be encouraged to include warnings about the appropriateness of the plants suggested on their shows. Such warnings could require an indication of the country of origin of the plant, the areas it is indigenous to, and whether it has proven invasive elsewhere.

Conclusion

Public money should be focused on protecting those non-commercial species because they have no industries to protect them.⁹

8.81 One of the key aims of managing invasive species is to minimise their adverse economic, environmental and social impacts and to preserve Australia's unique biodiversity. Invasive species not only pose a significant threat to Australia's agricultural sector but also to native plants and animals. The Committee has found considerable governmental effort directed at the former and very little by comparison at the latter.

8.82 The Committee expresses its hope that this report will assist in raising public awareness of the impact of invasive species and influence the taking of the necessary political decisions, across all tiers of government, to effectively address the issue. The Committee believes that the evidence provided in this report will assist in changing Australia's response to invasive species from a narrow, reactive approach based primarily on economic considerations to a broadly based one directed at remediation and protection of Australia's unique environment.

8.83 Some environmental issues turn on competing interpretations of scientific data – often with more heat than light in the debates. But the case for taking remedial action against invasive species is real and provable – we all bear witness to their impact in our daily lives. Action must be taken for the benefit of future generations. It may take decades, even centuries, to turn back the tide of environmental degradation of the past 200 years – but now is a good time to make a determined start.

9 Marine and Coastal Community Network (MCCN), *NRM and NHT – A Brief, Wet History*, NSW Regional Ripples E-Bulletin, Number 9, September 2004.

Appendix 1

List of submitters

- 1 Ms Phillipa Foster, TAS
- 2 Mr Richard Sharp, NSW
- 3 Local Government Association of Queensland Inc., QLD
- 3a Local Government Association of Queensland Inc., QLD
- 4 Ms Denise and Mr Tony Redmond, NSW
- 5 Victorian Recreational Fishing Peak Body (VRFish), VIC
- 6 Venom Supplies, SA
- 7 Far North Queensland Regional Organisation of Councils (FNQROC), QLD
- 8 Mr Alexander and Ms Ann Sloane, NSW
- 9 Plant Health Australia, ACT
- 9a Plant Health Australia, ACT
- 10 Mr/s W. Wentworth, NSW
- 11 Eurobodalla Greens, NSW
- 12 Ms Debbie Reynolds, VIC
- 13 Far North Queensland Local Government Pest Plan Advisory Committee
Johnston Shire Council, QLD
- 14 Mr Matthew Dell, VIC
- 15 Animal and Plant Control Commission SA, SA
- 16 Mullum Mullum Creek Bushcare Group, VIC
- 17 Manilla Landcare Inc, NSW
- 18 Tasmanian Weed Society, TAS
- 19 Dr Cas Vanderwoude, QLD

- 20 Stradbroke Island Management Organisation (SIMO), QLD
- 21 Ms Jane Gye, NSW
- 22 CRC for Australian Weed Management, SA
- 23 Bend of Islands Conservation Association, VIC
- 24 Mr David A. Manning, QLD
- 25 NSW Farmers Association, Bega Branch, NSW
- 26 Dr Trudi Ryan, ACT
- 27 Ms Renae Leverenz, SA
- 28 Mr Robert Fallon, VIC
- 29 Friends of Oolong, NSW
- 30 WWF Australia, NSW
- 30a WWF Australia, NSW
- 31 Native Fish Australia (SA), SA
- 32 State Council of Rural Lands Protection Boards (RLPB Boards), NSW
- 33 Invasive Species Council Inc., VIC
- 34 CSIRO Entomology, ACT
- 35 Weed Management Society of South Australia Inc., SA
- 36 Mr Ian Sauer, TAS
- 37 Ports Corporation of Queensland, QLD
- 38 Indigenous Land Corporation, ACT
- 39 Healesville Environment Watch Inc., VIC
- 40 Australian Veterinary Association and Cattle Council of Australia, ACT
- 41 Mr Colin Sumner, TAS
- 42 Queensland Farmers' Federation, QLD
- 43 Queensland Government, QLD

-
- 43a Queensland Government, Department of Natural Resources, Mines and Energy, QLD
- 44 ACT Government, ACT
- 45 Australian Pork Limited, ACT
- 46 Bendigo and District Environment Council Inc. and Bendigo Field Naturalist Club Inc., VIC
- 47 Mr/s P. Crowley, VIC
- 48 Ms Helen Moss, VIC
- 49 Quarantine and Exports Advisory Council (QEAC), ACT
- 50 Pest Animal Control CRC, ACT
- 51 Was a duplicate,
- 52 Towamba Valley Landcare Group, NSW
- 53 Mr Peter Davis and Mr Michael Grim, WA
- 54 Brisbane City Council, QLD
- 55 Weed Society of Queensland Inc, QLD
- 56 Invasive Species Council Australia, QLD
- 57 North West Vegetation Forum (NSW), NSW
- 58 Eurobodalla Shire Council, NSW
- 59 Conservation Council of WA, WA
- 60 Office of the Gene Technology Regulator, ACT
- 61 Department of the Environment and Heritage, ACT
- 61a Department of the Environment and Heritage, ACT
- 62 Department of Agriculture, Fisheries and Forestry, ACT
- 62a Department of Agriculture, Fisheries and Forestry - Bureau of Rural Sciences, ACT
- 62b Department of Agriculture, Fisheries and Forestry, ACT
- 63 Mr/s R.J. Mangan, NSW

- 64 Tasmanian Government, TAS
- 65 Local Government Association of NSW and Shires Association of NSW, NSW
- 66 Cattle Council of Australia, ACT
- 67 Department of Conservation and Land Management, WA
- 68 Council of Australian Weed Societies Inc, NSW
- 69 Nursery & Garden Industry Australia, NSW
- 70 NSW Agriculture, NSW
- 71 NSW Farmers' Association, NSW
- 72 Great Barrier Reef Marine Park Authority, QLD
- 73 AgForce Queensland Industrial Union of Employers, QLD
- 74 Department of the Environment and Heritage and Department of Agriculture, Fisheries and Forestry, ACT
- 75 Mr Edward McAlister, SA
- 76 Nature Conservation Society of South Australia, SA
- 77 Burnt Creek Landcare Group Inc, VIC
- 78 Strathbogie Shire Council, VIC

Appendix 2

Witnesses appearing at public hearings

Canberra, 26 November 2003

Department of the Environment and Heritage

Mr Jonathan Miller, Director, Threats and Threatened Species Section

Department of Agriculture, Fisheries and Forestry

Mr Charles Willcocks, General Manager, Landcare and Sustainable Industries,
Natural Resource management Business Unit

Cooperative Research Centre for Australian Weed Management

Dr Rachel McFadyen, Chief Executive Officer

Cooperative Research Centre for Pest Animal Control

Dr Tony Peacock, Chief Executive Officer

CSIRO Entomology

Dr Mark Lonsdale, Strategic Director Environment

WWF Australia.

Mr Andreas Glanznig, Biodiversity Policy Manager

Brisbane, 14 April 2004

Queensland Department of Natural Resources, Mines and Energy

Dr Anthony Pressland, General Manager, Catchment and Regional Planning

Mr Craig Walton, Senior Policy Officer (Ecology)

CRC for Australian Weed Management

Dr Rachel McFadyen, Chief Executive Officer

Department of the Environment and Heritage

Mr Con Boekel, Assistant Secretary, Parks Australia South Branch

Invasive Species Council Australia

Dr Barry Traill, President

Mr Tim Low, Councillor

Local Government Association of Queensland Inc.

Mr Steve Greenwood, Manager Environment and Planning

Mr Malcolm Petrie, Natural Resource Management Project Coordinator

AgForce Queensland

Mr John Stewart, AM, Vice President, AgForce Cattle
Mr Will Banks, Director, Sheep and Wool Policy

Great Barrier Reef Marine Park Authority

Mr Jon Day, Acting Executive Director
Mr Gregor Manson, Executive Director

Canberra, 18 June 2004**CSIRO**

Dr Joanne Daly, Chief, Entomology
Dr Mark Lonsdale, Assistant Chief, Entomology
Dr Louise Morin, Senior Research Scientist, Entomology
Dr Alex Hyatt, Senior Principal Research Scientist, Livestock Industries
Dr Tony Robinson, Senior Scientist, Sustainable Ecosystems

Pest Animal Control Cooperative Research Centre

Dr Tony Peacock, Chief Executive Officer

WWF Australia

Mr Andreas Glanznig, Biodiversity Policy Manager

Plant Health Australia

Mr Neil Fisher, Chief Executive Officer
Dr Ryan Wilson, Project Officer

Australian Veterinary Association

Dr Michael Bond, Assistant Veterinary Director
Dr Kevin Doyle, Veterinary Director

Cattle Council of Australia

Mr Michael Hartmann, Deputy Director
Mr Robert Pietsch, President, AgForce Sheep and Wool and Member Cattle Council of Australia

Department of Environment and Heritage

Dr Rhondda Dickson, Assistant Secretary, Natural Resource Management Policy Branch
Mr Jonathan Miller, Director, Threat Abatement and Threatened Species
Mr Stewart Noble, Director, Vegetation Management Policy

Department of Agriculture, Fisheries and Forestry

Mr Bernard Wonder, Deputy Secretary
Mr Charles Willcocks, General Manager, Landcare and Sustainable Industries

Mr Simon Veitch, Manager, Sustainable Industries
Dr Mary Bomford, Principal Scientist, Bureau of Rural Sciences
Dr Brian Stynes, General Manager of Plant Biosecurity, Biosecurity Australia
Mr Bill Magee, Senior Manager of Plant Biosecurity, Biosecurity Australia
Mr Simon Murnane, Director, Policy and Governance Section, Natural Resource
Management Team

Adelaide, 28 June 2004

Animal and Plant Control Commission, South Australian Government

Mr Roger Wickes, Presiding Officer
Mr Mark Ramsey, Executive Officer

Nursery and Garden Industry Australia

Mr Geoffrey Fuller, Chief Executive Officer, NGI South Australia Inc.
Ms Edda Keskula, Nursery Industry Development Officer, NGI South Australia Inc.

CSIRO Marine Research

Dr Nicholas Bax, Senior Research Scientist

Marine and Coastal Community Network

Mr Tim Allen, National Coordinator

Weed Management Society of South Australia Inc.

Mr Neville Crossman, President
Mr Noel Richards, Treasurer

Mr Ed McAlister, CEO Royal Zoological Society of Adelaide and Board Member
Pest Animal Control CRC

Nature Conservation Society of South Australia

Ms Anthelia Bond, Threatened Plant Action Group Coordinator
Mr Matthew Turner, Scientific Officer
Mr Peter Tucker, Committee Member
Dr Andrew Black, Committee Member

Appendix 3

Exhibits

Brisbane – 14 April 2004

CRC for Australian Weed Management

Statement to Senate Committee inquiry into invasive species, Brisbane, Wednesday, 14 April 2004

Schedule of Australian flora and fauna threatened by invasive plants

How to discover new weeds using Oxalis to trace sources of infections, by Randall W. Robinson. Published in Proceedings, first biennial Conference: developments in weed management, 20-21 August 2003. Frankston, Vic.: Weed Society of Victoria, 2003.

CRC for Australian Weed Management - Technical Series #8: *The economic impact of weeds in Australia*, February 2004

The cost of serrated tussock control in central western Victoria, A report prepared for the serrated tussock working group, September 1997

The distribution and impact of South/North American stipoid grasses (Poaceae: Stipeae) in Australia, by D.A. McLaren, V. Stajsic and M.R. Gardner, Plant Protection Quarterly Vol. 13(2) 1998, pp 62 – 69

The economics of serrated tussock in New South Wales, by R.E. Jones and D.T. Vere, Plant Protection Quarterly Vol. 13(2) 1998, pp 70 – 76

Parks Australia

Director of National Parks, *Annual Report 2002-03*

Great Barrier Reef Marine Park Authority

Reef CRC booklet – Introduced species in tropical waters, March 2004

Canberra – 18 June 2004

Senator Tchen

Extract from the Senate *Hansard*, 18 June 2004, pp. 23769 – 70. Speech by Senator Ian Macdonald headed *Environment: Invasive Species*.

WWF Australia

Chart entitled *Summary of controls and availability of invasive plants of national importance*

Front door wide open to weeds: An examination of the weed species permitted for import without risk assessment, A report prepared for WWF Australia by Dr Helen Spafford Jacob, CRC for Australian Weed Management, University of Western Australia, Mr Rod Randall, CRC for Australian Weed Management, Ms Sandy Lloyd, CRC for Australian Weed Management, March 2004

Invasive plants of national importance and their legal status by State and Territory, A report by Andreas Glanznig and Ouerdia Kessal, WWF Australia, June 2004

Department of Environment and Heritage project application guidelines entitled *Weeds of National Significance, Research into control of Weeds of National Significance – 2004-05*

Plant Health Australia

National Weeds Workshop - Workshop Proceedings, Plant Health Australia/Australian Weeds Committee, February 2002

Stocktake of existing systems for contingency planning and response action and consideration of their adequacy, Plant Health Australia, 2001

Stocktake of existing systems for contingency planning and response action and consideration of their adequacy Part II, A report commissioned by Plant Health Australia and prepared by the Office of the Chief Plant Protection Officer, February 2002

Australian Veterinary Association and the Cattle Council of Australia

Copy of AVA/Cattle Council submission to the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry dated 14 May 2004

Map of Australia entitled *Feral pig distribution*

Map of Australia entitled *Wild dog distribution*

Map of Queensland entitled *Neospora seroprevalence*

Adelaide – 28 June 2004

Nursery and Garden Industry South Australia Inc.

Grow Me Instead! A guide for gardeners in the greater Sydney district, produced by Nursery and Garden Industry, NSW & ACT

CSIRO Marine Research

Hard copy set of slides

Marine and Coastal Community Network

A hard copy set of Mr Allen's slides entitled *Introduced Marine Pests: Less Talk, More Action*; and

What options exist for ballast water treatment, Waves, Vol 10, No. 1, Autumn 2004, pages 15-16

Mr Ed McAlister, CEO of the Royal Zoological Society of Adelaide

Flinders journal, Volume 15, No. 9, June 7-20 2004 – containing article entitled *Climbing seagull numbers represent more than a picnic pest*;

Newspaws, Perth Zoo's Official Magazine, Winter 2004 - containing article entitled *Poison pea putting an end to feral peril*;

Zoo Times article (undated) headed *Pest control* by Mr Tony Peacock, Chief Executive, Pest Animal Control CRC

Exhibits accepted by resolution of the Committee

AgForce Queensland

Economic Assessment of the Impact of Dingoes/Wild Dogs in Queensland, Rural Management Partners, April 2004.

Plant Health Australia

PLANTPLAN, Australian Emergency Plant Pest Response Plan, Emergency preparedness and response guidelines for Australia's agricultural industries, Version 1, July 2004

Nursery and Garden Industry SA Inc

Alternatives to invasive garden plants – Greater Adelaide Region, 2004, CRC for Australian Weed Management Factsheet

Landcare Notes: Declared noxious weeds, Victorian Department of Sustainability and Environment, July 2004

Discovering Alternatives to Garden Escapes. Stopping the Spread of Invasive Plants, Nursery and Garden Industry NSW and ACT

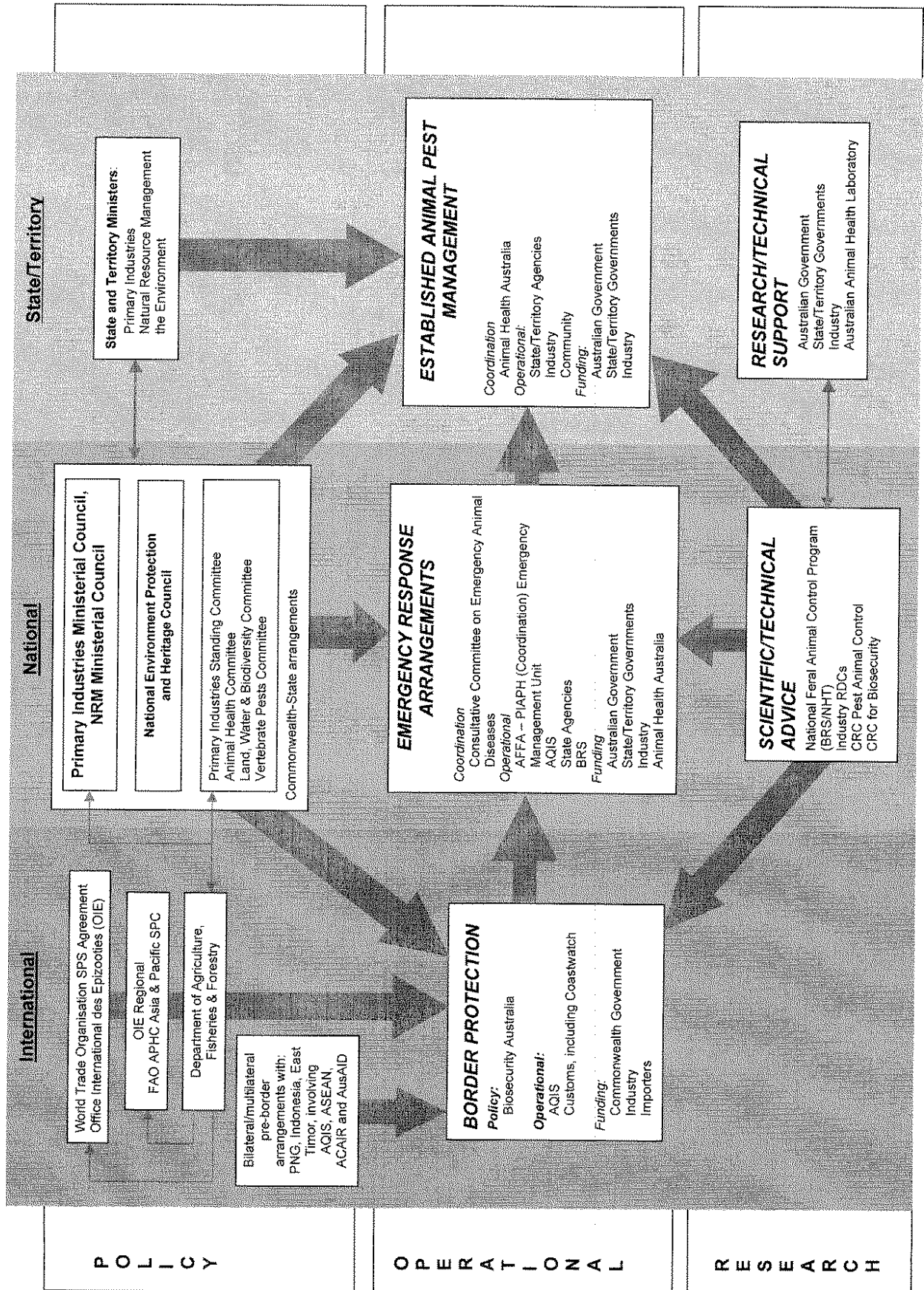
Appendix 4

Charts

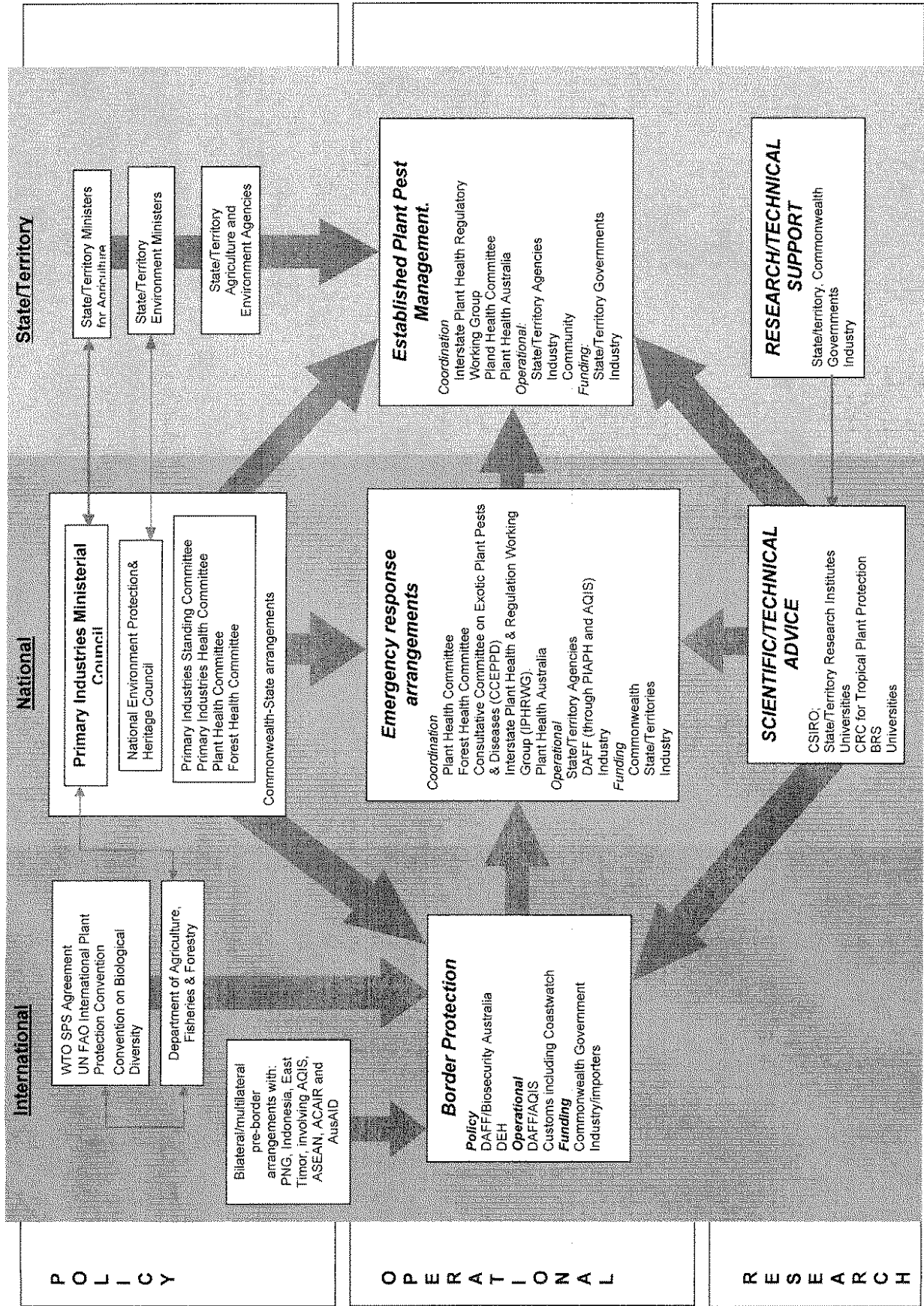
Diagrams – Management Roles and Responsibilities

1. Animal Pests
2. Plant Pests
3. Marine Pests
4. Weeds

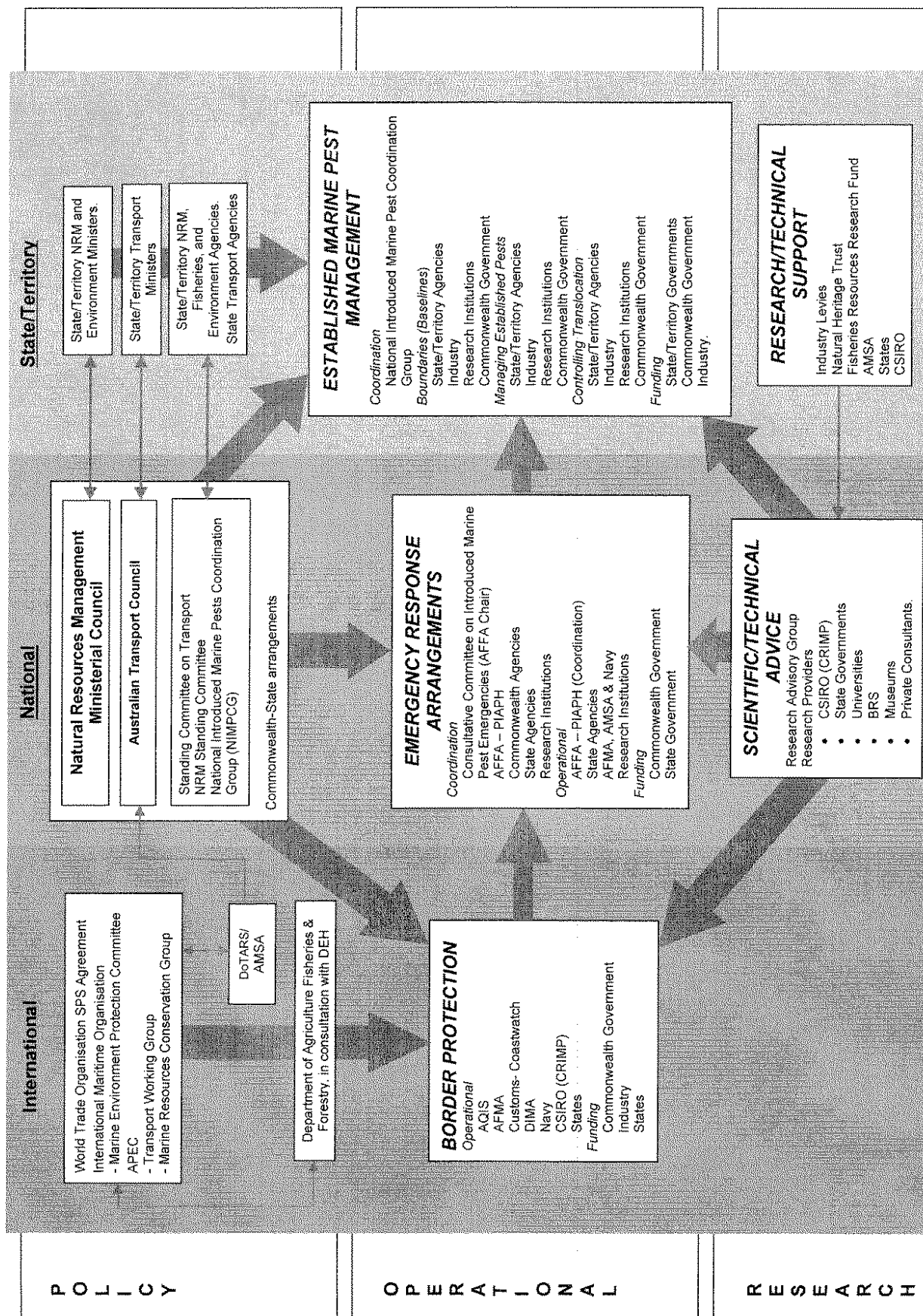
Animal Pest Management and Roles and Responsibilities – Australia - October 2003



Plant Pest Management and Roles and Responsibilities – Australia – October 2003



Australian Marine Pest Management and Roles and Responsibilities – October 2003



Weed Management and Roles and Responsibilities – Australia - October 2003

