Proposed Australian Animal Welfare Standards and Guidelines – Exhibited Animals

Consultation Regulation Impact Statement
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Summary

Introduction

This regulation impact statement (RIS) evaluates the proposed *Australian Animal Welfare Standards and Guidelines - Exhibited Animals* ('the proposed national standards'):

- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – General
- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Crocodilian
- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Koala
- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Macropod
- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Ratite
- Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Wombat

The proposed national standards have been prepared under a system endorsed by all state and territory governments.

'Exhibited animals' are defined as all animals kept for exhibition purposes, including those in zoological parks (zoos), wildlife or fauna parks, aquariums and museums with live animal exhibits, but excluding circus animals. This includes both exotic and native species; and all taxa of animals at any stage of their life cycle, including in the pre-natal, pre-hatched, larval or other such developmental stage.

The purpose of the proposed national standards is to specify uniform standards that ensure the welfare and security of exhibited animals across Australia. (It has been decided that associated risks to human health and safety will be handled outside the scope of these standards). The proposed national standards are complemented by guidelines providing advice and/or recommendations to achieve desirable animal welfare and security outcomes. They apply to people and industries responsible for the care and management of animals kept for exhibition purposes at facilities, animals temporarily removed from such facilities and animals being transported to or from such facilities.

The proposed national standards and guidelines have been prepared under the Australian Animal Welfare Strategy (AAWS). A national Expert Consultative Forum (ECF) provided initial comment and guidance on the drafting of the standards and guidelines and a series of drafts have subsequently been developed over the last few years by a writing group. Representatives from federal, state and territory government agencies, and members of the exhibited animal industry and animal welfare groups have been involved in the process.

Case for action and policy objective

By way of background, the proposed national standards have been developed in response to:

- criticisms of the industry arising from publicised incidents of poor animal treatment, animal escapes, etc.;

- difficulties experienced by jurisdictions ill-equipped to manage/prevent such undesirable situations; and

- difficulties for the industry in dealing with separate jurisdictions having inconsistent standards.

According to COAG guidelines, the RIS is required to demonstrate the need for the proposed national standards. This need is most often demonstrated in RISs by providing quantitative evidence of various forms of market failure in the industry under discussion. However, as discussed in Part 2.1 of this RIS, there are substantial methodological difficulties in providing such quantitative evidence of market failure in the exhibited animals industry. For this reason, the case for action is expressed in terms of meeting community values and expectations regarding exhibited animals, rather than providing quantitative evidence of market failure.

The RIS discusses the nature and extent of the various different values that the Australian community places on zoos and other animal exhibits. Available evidence indicates that most Australians consider animal welfare to be an important issue. On the other hand, visitation rates to zoos and other animal exhibits are the highest of any cultural activity other than going to the movies. From these two sets of evidence, it is reasonable to assume that Australians are prepared to tolerate wild animals being kept in captivity on the understanding that risks to the welfare of exhibited animals will be minimised.

The main way of protecting these community values is to mitigate the risks posed to the welfare of exhibited animals, to the environment and to Australian agriculture from the keeping of exhibited animals. The nature of these risks is discussed in Part 2.2 of this RIS.

In relation to the proposed national standards the following overarching policy objective is identified:

> *To meet community values and expectations regarding the welfare of exhibited animals, and associated protection of the environment and agriculture; in ways that are practical for implementation and industry compliance.*

The main criterion for evaluating the proposed national standards and the feasible alternatives is net benefit for the community, in terms of achieving this policy objective.

Options

Feasible options for meeting these community values and expectations are discussed in this Consultation RIS. Each of these options is likely to entail a different combination of incremental costs and benefits, as discussed in the following summary of the impact analysis.

Having no standards in Australia at all is not a feasible option, because some jurisdictions already have their own standards as part of the base case; and it is outside the scope of this COAG RIS to consider the revocation of individual state or territory standards.

Similarly, public education campaigns as an alternative to national standards are likely to be ineffective and therefore not a feasible alternative. The behaviours that need to be changed are displayed by a minority of exhibitors, who are less likely to be influenced by public education campaigns than by enforceable standards.

Having more comprehensive standards e.g. more standards for specific taxons (species and other animal classifications) is not currently a feasible option either, because the necessary research, standard development and key stakeholder consultation have not yet been done. The development of certain taxon standards may not be feasible for some years.

The practical alternatives below have emerged from discussions with the Expert Consultative Forum (ECF) referred to in Part 1.3 of this RIS. The suggested variations to the proposed national standards are those where standards are likely to be costly and/or contentious amongst stakeholders. The public consultation seeks the views and advice of interested parties in the further formulation of variations to the existing proposals. Selected additional variations may be investigated and reported in the Decision RIS.

The options assessed in terms of costs and benefits are:

- **Option A:** converting the proposed national standards into national voluntary guidelines (the minimum intervention option);
- **Option B:** the proposed national standards as currently drafted;
- **Option C:** one or more variations of the proposed national standards as follows:
    - *Option C1*: amend proposed Macropod Standard S3.2 regarding fox-proof fencing to allow for alternative fox management measures such as baiting (records of measures to be kept by operator). i.e. require fox-proof fence or effective alternative.
    - *Option C2*: amend General Standard S3.28 to state a maximum period in a
    - holding enclosure of 30 days without government approval instead of 90 days.

Interested Australians are now being asked via this Consultation RIS to consider the costs and benefits of each option and whether they are willing to accept the costs of meeting community values and expectations. Thirteen (13) public consultation questions are interspersed in the text of the RIS, in an endeavour to obtain further information and opinions from the Australian community regarding the welfare of exhibited animals. A complete list of these questions is given in Appendix 5 to this RIS.

Impact analysis

The costs and benefits of Options A, B, and C are assessed by using the following criteria (**I to III**) to compare the effectiveness of each option in achieving the relevant part of the policy objective:

I. Animal welfare benefits;

II. Ecological benefits; and

III. Net compliance costs to industry and government.

The term ‘base case’ means the relevant status quo, or the situation that would exist if the proposed national standards were not adopted i.e. the existing state and territory standards plus market forces and the relevant federal, state and territory legislation (refer to Appendix 1 for details).

Comparing the costs and benefits against the base case is hindered by the inherent inability to quantify benefits to animal welfare, the ecology and agriculture; and the difficulty in this case of quantifying some of the costs.

The incremental costs and benefits of the options relative to the base case are summarised in the following Table.

Table 11: Summary of relative costs and benefits over 10 years (Options A, B, C1 and C2)

Criterion	I	II	III
Option			
A (guidelines only)	> base case	> base case	0
B (proposed national standards)	> Option A and = to C1	> Option A and = to C1 and C2	$6.24m for general and $0.81m for taxon Standards > Option A
C1 (fox proof fencing or alternative)	> Option A and = to Option B	> Option A and = to Option B and C2	$6.24m for general and $0.91m for taxon standards if fox baiting is used instead of fencing. > Option A and > Option B (for taxon standards only)
C2 (maximum 30 days in holding enclosure without approval from Government)	> Option A, B and C1	> Option A and = to Option B and C1	> $6.24m for general and $0.81m for taxon Standards > Option A and > Option B (for general standard only where unquantifiable cost is likely to be slightly > B)
Rank 1 highest benefit or lowest cost per criteria	**C2**	B, C1 and **C2**	A
Rank 2 highest benefit or lowest cost per criteria	B and C1	A	B
Rank 3 highest benefit or lowest cost per criteria	A	N/A	C1 and **C2**

The above table shows that all options would provide greater benefits than the base case; but all options other than Option A would be more costly than the base case. Options B, C1 and C2 would provide greater benefits than Option A; but would also be more costly than Option A.

Options C1 and C2 are not mutually exclusive. Option C1 *(variation of taxon Standard S3.2 to enable baiting as an alternative to fox proof fencing),* would not provide additional benefits as compared to Option B but would entail a higher cost than Option B if fox baiting is used.

Option C2 (*variation of the proposed general Standard S3.28 which allows a maximum period in holding enclosure of 30 days without government approval instead of 90 days*) would be likely to provide additional animal welfare benefits under Criterion I, but with a slightly larger unquantifiable cost under Criterion III. The prevalence of Option C2 in Table 11 suggests that, in terms of ranking, this option is likely to achieve the highest net benefit. ***Therefore Option C2 is selected as the preferred option*** and the most likely to achieve the objectives as discussed in Part 2.2 of this RIS.

The preferred option, i.e. the variation of the proposed national standards (Option C2), addresses the identified problems far more comprehensively than the base case, i.e. the existing legislation and standards as listed in Appendix 1 to this RIS.

The intent of preparing the variation of the proposed national standards is to replace current jurisdictional standards, but it is ultimately a matter for each jurisdiction as to whether and how they will implement the national standards, if and when adopted by the Agriculture Ministers Forum (AMF).

The incremental costs per business are unlikely to be large enough to create a barrier to entry; and such businesses would be equally affected by the same regulatory environment. Thus the proposed national standards would be unlikely to restrict competition.

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1.0 Background

1.1. Introduction

This regulation impact statement (RIS) evaluates the proposed the *Australian Animal Welfare Standards and Guidelines - Exhibited Animals* ('the proposed national standards'):

- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – General*
- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Crocodilian*
- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Koala*
- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Macropod*
- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Ratite*
- *Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Wombat*

These standards have been prepared under the Australian Animal Welfare Strategy (AAWS) as part of a program of developing national welfare standards and guidelines for various industry sectors.

'Exhibited animals' are defined as all animals kept for exhibition purposes, including those in zoological parks (zoos), wildlife parks and aquariums, but excluding circus animals. This includes both exotic and native species; and all taxa of animals at any stage of their life cycle, including in the pre-natal, pre-hatched, larval or other such developmental stage.

The laws that currently apply to the management of exhibited animals differ between the states and territories of Australia. The purpose of the proposed national standards is to specify uniform standards that ensure the welfare and security of exhibited animals across Australia. The proposed standards are complemented by guidelines providing advice and/or recommendations to achieve desirable animal welfare and security outcomes. The standards and guidelines apply to those people and industries responsible for the care and management of animals kept at facilities for exhibition purposes, animals temporarily removed from such facilities and animals being transported to or from such facilities.

The development of nationally consistent animal welfare arrangements for various industry sectors has been identified as a priority by all levels of government, industry and welfare organizations. In addition it was a key policy objective under the Australian Animal Welfare Strategy (AAWS). The AAWS identified enhanced national consistency in regulation and sustainable improvements in animal welfare based on science, national and international benchmarks and changing community standards as areas of priority effort.

Under an arrangement between the NSW Department of Primary Industries (DPI) and the Commonwealth of Australia, acting through the Department of Agriculture, DPI is

now managing the project by arranging for a consultant to conduct the national regulation impact statement (RIS) and public consultation process.

The proposed national standards, if they emerge from this RIS process as the preferred option and if they are endorsed by the Agriculture Ministers Forum (AMF), are intended to be adopted or incorporated into regulations by the various jurisdictions, after which compliance with the standards will become mandatory.[1] For evaluation purposes, the RIS will need to treat the proposed national standards and feasible alternatives as if they are mandatory[2] and must use relevant existing Australian legislation, standards[3] and industry practices as the base case for measurement of incremental costs and benefits (see Part 4.2 of this RIS).

The RIS is required to comply[4] with the *'Best Practice Regulation - A Guide for Ministerial Councils and National Standard Setting Bodies'* as endorsed by the Council of Australian Governments (COAG) in October 2007. COAG has agreed that all governments will ensure that regulatory processes in their jurisdiction are consistent with the following principles:

1. establishing a case for action before addressing a problem;

2. a range of feasible policy options must be considered, including self-regulatory, co-regulatory and non-regulatory approaches, and their benefits and costs assessed;

3. adopting the option that generates the greatest net benefit for the community;

4. in accordance with the Competition Principles Agreement, legislation should not restrict competition unless it can be demonstrated that:-

    a. the benefits of the restrictions to the community as a whole outweigh the costs, and

    b. the objectives of the regulation can only be achieved by restricting competition;

5. providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear;

6. ensuring that regulation remains relevant and effective over time;

7. consulting effectively with affected key stakeholders at all stages of the regulatory cycle; and

8. government action should be effective and proportional to the issue being addressed.

The process for this RIS includes three phases, as follows:

- **Phase 1** is the preparation of a preliminary draft RIS for public consultation, which complies with the requirements of relevant COAG guidelines (as assessed by OBPR).
- **Phase 2** is to conduct the public consultation period, by placing advertisements, targeted distribution of electronic copies to key stakeholders and organising copies to be downloadable from the NSW DPI web site and others.
- **Phase 3** is the preparation of a comprehensive final (Decision RIS), taking into account submissions received and any further developments during the public consultation period.

[1] It is not intended that compliance with guidelines ('should' statements) will be mandatory.
[2] No costs are imposed if compliance with standards is voluntary.
[3] 'Must' statements or practices required by government codes of practice.
[4] As independently assessed by the Commonwealth Office of Best Practice Regulation (OBPR).

It should be emphasised that the scope of this RIS is limited to evaluating the proposed national standards, and not Commonwealth or state legislation or other standards or codes of practice. However, the following relevant background information may be helpful to interested parties in understanding the proposed national standards within their legislative, economic, national and international contexts.

1.2. Setting the scene

1.2.1 Overview of the Australian exhibited animals industry

Animal exhibitors include zoos, wildlife or fauna parks, aquariums and museums with live exhibits.

Zoos were originally established in the nineteenth century, following the development of taxonomy (the scientific classification of animals and plants) and European discovery of other continents and their wildlife. Their original purposes were to encourage observation, learning and social recreation; and to satisfy public curiosity regarding newly discovered exotic species.[5]

A framework of four key objectives of zoos emerged in the 1970s: conservation, education, recreation and research. Public education and recreation is also a main motivation for tourist visitation. Following publication of the first *World Conservation Strategy* in 1980, the second in 1991, and the international *Convention on Biological Diversity*, the importance of zoos in maintaining *ex situ*[6] populations of threatened species and in related public education is now explicitly recognised.[7]

More recently, the World Association of Zoos and Aquariums (WAZA), has developed the *World Zoo and Aquarium Conservation Strategy*. [The Zoo and Aquarium Association (ZAA),[8] as the Australasian or regional peak body for this industry, is associated with WAZA]. This strategy defines the roles of zoos as contributing to conservation, research and education, and as places of recreation for the community.

Based on an economic survey conducted for the former Australasian Regional Association of Zoological Parks and Aquaria (now ZAA) in 2009, the total estimated production by Australian zoos is worth about $424 million per annum. This consists of annual operating expenditure of about $358 million and capital expenditure of about $66 million. Zoos in Australia employ about 5300 people, including 3700 full-time employees and 1600 part-time employees. International visitors to zoos may create an estimated net benefit to the Australian economy of about $58 million per annum in addition to their payments for admissions to zoos. Allowing for a multiplier of up to 2.0, this could convert to a total value of about $116 million per annum.[9]

Wildlife or fauna parks generally specialise in native animals and perform similar roles to zoos. Aquariums specialise in aquatic animals including mammals and birds as well as fish and aquatic invertebrates.

[5]Mumaw, 2006.
[6] Not in their natural habitats.
[7]Mumaw, 2006.
[8]Formerly the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA).
[9]Aegis Consulting Australia and Applied Economics, 2009.

In Australia, animal exhibits generally require some form of government licence (authority). As shown in Table 2 below, it is estimated that there are 211 licensed (authorised) facilities nationally (details are provided in Appendix 1 to this RIS).

Table 2: Estimated number of licensed (authorised) facilities by jurisdiction - 2012[10]

Category	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUSTRALIA
No. Licensed facilities (a)	58	42	45	6	40	12	6	2	211

The 5300 curatorial and maintenance staff are comprised of employees involved in the research, development, promotion and maintenance of scientific collections and exhibits, as well as, zookeepers and park/wildlife officers. The latest census of population and housing statistics from August 2006 notes that there were 483 zookeepers employed by the zoos and botanic gardens industry[11] and a further 98 zookeepers employed by the nature reserves and conservation parks industry.[12]

Summary statistics of exhibited animal numbers are provided in the following tables. Table 3 illustrates the number of animals exhibited by jurisdiction and by taxon based on ZAA membership and associates representing only 56 out of 211 licensed (authorised) facilities.

Table 3: Number of exhibited animals by species, taxon and jurisdiction ZAA members and associates *only* - by jurisdiction (2011)[13]

Species	Taxon	AUSTRALIA
Mammals	Macropods	2552
	Wombats	124
	Koalas	579
	Other	5255
	Total	*8510*
Birds	Ratites	274
	Other	11113
	Total	*11387*
Fish	*Total*	*29588*
Reptiles	Crocodilians	1328
	Other	5309
	Total	*6637*
Amphibians	*Total*	*3605*
Invertebrates	*Total*	*7746*
All species		*67473*

Source: This table has been compiled from 2011 census data from the Zoo and Aquarium Association's *Diversity Index Table* (see http://www.zooaquarium.org.au/)

[10] See Table A2.1 in Appendix 2 for source of estimates
[11] ABS (2011) Arts and Culture in Australia: A Statistical Overview, Catalogue 4172.0
[12] ABS (2011) Arts and Culture in Australia: A Statistical Overview, Catalogue 4172.0
[13] See Table A2.5 in Appendix 2 for source of estimates.

By extrapolation using the NSW figures, the estimated total numbers of exhibited animals covered by the proposed specific taxon standards are shown in Table 4.

Table 4: Estimated number of exhibited animals by taxon standard (ZAA members and non-members) – by State or Territory (2011)[14]

Taxon standard animal (No. facilities 2012)	Total NSW (58)	Total Vic (42)	Total QLD (45)	Total SA (6)	Total WA (40)	Total TAS (12)	Total NT (6)	Total ACT (2)	Total Australia (211)
Macropods	1643	1802	4378	2039	241	460	209	842	11615
Wombats	62	105	291	72	10	48	0	5	591
Koalas	193	85	1058	161	11	3	0	21	1531
Ratites	205	215	309	160	17	0	35	10	952
Crocodilians	149	52	1350	22	3	5	657	10	2248
Total taxon standard animals	***2252***	***2260***	***7386***	***2454***	***282***	***515***	***901***	***888***	***16937***

1.2.2 Animal welfare

Animal welfare concerns are becoming increasingly important to industry, government, consumers and the general public, both in Australia and internationally. Practices which may have once been deemed acceptable are now being reassessed in light of new knowledge and changing attitudes.

'Animal welfare' is a difficult term to define and has several dimensions including the mental and physical aspects of the animal's well-being, as well as people's subjective ethical preferences.[15]

Barnett and Hemsworth establish that the most credible scientific definition of animal welfare relates to the attempt of an animal to cope with its environment.[16] Broom and Johnson add to this definition of animal welfare stating:

> [The animal's] state as regards its attempts to cope with its environment and includes both the extent of failure to cope and the ease or difficulty in coping. Health is an important part of welfare whilst feelings – such as pain, fear and various forms of pleasure – components of the mechanisms for attempting to cope and should be evaluated where possible in welfare assessment.[17]

Under the Australian Animal Welfare Strategy (AAWS), Australia has accepted the agreed international definition of animal welfare from the World Organisation for Animal Health (OIE):

> Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is

[14] See Table A2.7 in Appendix 2 for source of estimates.
[15] Productivity Commission, 1998.
[16] Barnett and Hemsworth, 2003.
[17] Broom and Johnson, 1993.

> covered by other terms such as animal care, animal husbandry, and humane treatment.[18]

In accordance with this definition, and with long-established welfare science principles, it is important when dealing with animal welfare to separate factual considerations of welfare from attitudes and moral judgments about what is appropriate (ethics).[19]

1.2.3 Relevant legislation, standards and guidelines

1.2.3.1 Responsibilities of governments

Animal welfare legislation provides a balance between the competing views in the community about the use of animals. The successful pursuit of many industries involving animals is dependent on community confidence in the regulation of animal welfare.

Under constitutional arrangements, the primary responsibility for animal welfare within Australia rests with individual states and territories, which exercise legislative control through the legislation outlined in Appendix 1 of this RIS.

In, most jurisdictions the keeping of exotic animals and the keeping of native animals are regulated by separate pieces of legislation with objectives that respectively focus on vertebrate pest management and nature conservation.

Exotic animal licensing systems seek to reduce the risk of vertebrate pest establishment by categorizing exotic species according to perceived pest risk and prohibiting or restricting the keeping of higher risk species. Public and commercial exhibitors are often able to keep controlled categories of exotic animal species that private keepers cannot. This is because exhibitors can usually demonstrate a superior level of facility security and keeper experience. There also appears to be an acceptance that the public benefit arising from allowing exhibition of exotic animals is normally greater than any arising from allowing from private keeping of such animals. Standards and licensing conditions for higher risk exotic animals tend to focus on security of enclosures and premises; together with avoiding widespread holding of large populations of such species.

Native animal licensing systems often limit the range of native species that may be kept by private keepers. This is primarily to limit pressure on wild populations. Some jurisdictions have tiered licensing schemes which prevent keepers from keeping some species unless they have held a lower tier licence for a set period. As with exotic animal licensing systems, animal exhibitors are often permitted to keep native species that private keepers cannot ordinarily keep.

The welfare of animals in exhibit facilities is usually addressed via prevention of cruelty to animals legislation, which encourage the considerate treatment of animals

[18] <http://web.oie.int/eng/normes/mcode/en_chapitre_1.7.1.htm> Viewed 10 June 2012.
[19] Productivity Commission, 1998

as well as preventing cruelty.[20] Most jurisdictions have codes of practice under their legislation setting standards and/or guidelines for the welfare of exhibited animals.

New South Wales differs from most other jurisdictions in that it regulates the keeping of both native and exotic animals for exhibit purposes and the welfare of such animals under one piece of legislation, the *Exhibited Animals Protection Act 1986*.

Some jurisdictions (NSW, QLD and WA) already have standards dealing with many of the matters covered in the proposed national standards, but with some gaps in standards between jurisdictions. Other jurisdictions (VIC and SA) have codes of practice that are a mixture of standards ('must' requirements) and guidelines ('should' advisory statements). As such, these codes are not sufficiently clear or verifiable for implementation and enforcement purposes; nor for integration into industry training and quality assurance (QA) programs.

There are no government standards or guidelines at all relating to exhibited animals in Tasmania, the Australian Capital Territory or the Northern Territory. The Western Australian code is based on the New South Wales standards, which use 'must' statements in the standards and 'should' statements in notes associated with the standards. South Australia has no separate standards for exhibitors of native animals. The standards which apply to private hobbyist keepers of native animals are applied to exhibitors in that state.

Deficiencies and inconsistencies in government standards and guidelines can restrict government capacity to influence management of exhibited animals to meet community values and expectations (see Part 2.2 of this RIS). For instance, the Cairns Tropical Zoo has written:

> The current lack of standards in some jurisdictions affects the operation of business through slowing down approvals for new species/enclosures as neither the industry applicant nor the government regulator knows what is required of them. This leads to a very inconsistent approach to animals welfare and adds considerable costs to both industry and government due to increased time for preparation and assessment of applications. Consistent national standards will assist greatly in dealing with such issues.

Another concern is that a number of the government standards documents do not incorporate some of the advances in the understanding of the factors influencing exhibited animal welfare.

The Australian Government has specific powers in relation to external trade and treaties that encompasses some animal welfare issues. Its legislative responsibility for the live animal import and export trade and animals in quarantine can directly affect animal exhibitors. For instance, the Department of Environment regulates the importing or exporting wildlife for exhibition purposes. Specific conditions apply to the export of koalas, kangaroos, wombats, Tasmanian devils, wallabies and nationally threatened species. These conditions include animal welfare standards dealing with requirements such as health examinations, food supply, transport crates, noise minimisation etc.[21]

[20] For example, section 1 of the Victorian **Prevention Of Cruelty To Animals Act** 1986.
[21] DoE web site <http://www.environment.gov.au/biodiversity/wildlife-trade/sources/non-commercial/exhibition.html> Viewed 20 July 2013.

The main method of co-ordinating animal welfare issues amongst state and territory governments to date has been through the development of national model codes of practice in consultation with industry and other stakeholders, for endorsement by the former Primary Industries Ministerial Council (PIMC), and the former Standing Council on Primary Industries (SCoPI). The model codes have been used as a guide by the various state and territory governments in the development of their own legislation and codes of practice. These model codes of practice are progressively being converted into national mandatory standards. As these model codes or standards are developed primarily in recognition of government purposes, they are distinct from the various wholly voluntary codes of practice and quality assurance programs that may be developed from time to time by industry associations.

The model codes of practice developed to date have focused on livestock species primarily - no national model code of practice has been developed specifically for exhibited animals.

Local governments have responsibility for some areas of domestic and unwanted animal control that can have a significant impact on the welfare of these animals. This includes the provision of feedback to state/territory governments in order to change legislation and for the promotion and maintenance of responsible animal ownership.[22]

1.2.3.2 Australian Animal Welfare Strategy

In 2006, the former SCoPI asked the former Primary Industries Standing Committee (PIMC) to develop a nationally consistent approach to the development, implementation and enforcement of Australian animal welfare standards.

The Australian Animal Welfare Strategy (AAWS) endorsed in May 2004 by PIMC outlined directions for future improvements in the welfare of animals and to provide national and international communities with an appreciation of animal welfare arrangements in Australia. As part of the AAWS, enhanced national consistency in regulation and sustainable improvements in animal welfare based on science, national and international benchmarks and changing community standards were identified as areas of priority effort. Work is now underway to update the Model Codes of Practice and convert them into Australian Animal Welfare Standards and Guidelines. The new documents will incorporate both national welfare standards and industry guidelines for each species or enterprise. In an effort to comprehensively cover all animal management sectors, new standards and guidelines are also being created where Model Codes of Practice did not exist, such as for exhibited animals.[23]

The aim of the AAWS was to assist in the creation of a more consistent and effective animal welfare system in Australia. The AAWS, through its participants and projects helped to clarify the roles and responsibilities of key community, industry and government organisations. The animal welfare system in Australia aims to ensure all animals receive a standard minimum level of care and treatment. The level of care requires that all animals be provided with adequate housing or habitat, handling, sanitation, nutrition, water, veterinary care, and protection from extreme weather conditions and other forms of natural disasters.

[22] Primary Industries Standing Committee, 2011.
[23] Primary Industries Standing Committee, 2011.

1.2.3.3 Role of standards and guidelines

For the purposes of this RIS, and especially the cost/benefit assessment in Part 4.0 of the RIS,[24] it is important to clearly distinguish between standards and guidelines. These terms are defined in the proposed national standards document as follows:

> **Standards** – the acceptable animal welfare and security requirements designated in this document. They are requirements that must be met under law with respect to animals kept for exhibition purposes.
>
> The standards are intended to be clear, essential and verifiable statements. However, not all issues are able to be well defined by scientific research or are able to be quantified. Standards use the word 'must'. Non-compliance with one or more standards would constitute an offence under law.
>
> **Guidelines** - complement the standards by providing advice and/or recommendations to achieve desirable animal welfare and security outcomes. Non-compliance with guidelines would not constitute an offence under law.

In contrast, the terms 'best practice' or 'better practice' are not used in the proposed standards document. These are concepts used by industry for business benchmarking purposes, rather than as an enforceable standard or a recommended guideline. 'Best practice' is defined in Oxford Dictionaries Online as 'commercial or professional procedures that are accepted or prescribed as being correct or most effective'.

1.2.3.4 Industry initiatives and guidelines

The Zoo and Aquarium Association (ZAA)[25] is the peak body representing the zoo and aquarium community throughout Australasia. The Association has 87 member organisations; 81 of these are zoos, aquariums and museums with the remainder consisting of universities, TAFEs and government departments.

The Association manages the coordination of breeding programs and sets the level of professional standards and practice for its members, including an accreditation program. It also provides general support and advice where required to its members and governments on a range of issues such as biosecurity, wildlife disease and species knowledge.[26]

The position of the Association is that zoos and aquariums have a responsibility to ensure a high standard of animal welfare for all animals in their care. The Association maintains that the conservation, education, research and recreational goals of zoological organisations must be underpinned by positive animal welfare. Australasian zoos and aquariums maintain a unique and diverse collection of non-domestic species. The Association recognises the benefits of an industry specific

[24] Mandatory costs are imposed by standards, but not guidelines.
[25] Formerly known as the Australasian Regional Association of Zoological Parks and Aquaria
[26] <http://www.zooaquarium.org.au/index.php/who-we-are/> Viewed 29 April 2013.

approach to animal welfare; and has adopted the Five Domains model,[27] which recognises the affective (psychological) states of welfare in animals.[28]

The Five Welfare Domains and examples of related positive states[29] are:

Physical Domains:

1. **Nutrition**: e.g. appropriate consumption of nutritious foods is a pleasurable experience
2. **Environmental**: e.g. benign conditions offer adaptive choices and variety
3. **Health**: e.g. physically sound (uninjured, disease-free) animals enjoy good health
4. **Behaviour**: e.g. environment-focused and inter-animal activities are satisfying and engaging

Mental Domain:

5. **Mental or Affective State**: e.g. animals experience comfort, pleasure, interest and confidence

The professional standards activities of the Association encompass a membership program, an accreditation program, and the National Zoo Biosecurity Manual.[30] This manual was developed as a cooperative initiative between the Association, the Australian Wildlife Health Network and the Australian government to document better practice biosecurity measures currently being adopted by the zoo industry. Member zoos and aquariums are encouraged to use the guidelines and information in the Manual to develop and maintain an appropriate level of biosecurity management for their institution.

The Association is also involved in partnership projects, such as the implementation of the AAWS (see Part 1.2.3.1 of this RIS), an animal welfare online training program and the development of the proposed standards and guidelines for exhibited animals.[31]

Other relevant industry associations include the NSW Fauna and Marine Parks Association representing fauna and marine parks in New South Wales. This Association has a long history of collaborating with the NSW government in the development of prescribed standards under the Exhibited Animals Protection Act, in rehoming animals from fauna parks that close, and in the development of industry-relevant training via the TAFE system.

It appears that there are no state-based industry associations for animal exhibitors in Victoria, Tasmania, South Australia, Western Australia, Australian Capital Territory and Northern Territory. This means that approximately half of all animal exhibition facilities are not members of an animal exhibition industry association.

[27] Mellor et al, 2009.
[28] ZAA, 2013.
[29] Green and Mellor, 2011.
[30] Riess and Wood, 2011.
[31] <http://www.zooaquarium.org.au/index.php/who-we-are/professional-standards/> Viewed 29 April 2013.

1.2.3.5 Relevant international standards

Internationally, there has been an increasing trend to introduce legislation that recognises the important role that zoos play in the area of conservation and to provide for mandatory minimum standards for the care and management of exhibited animals. However, there are no World Organisation for Animal Health (OIE) or other global standards as yet dealing with the welfare of exhibited animals.

The European Community Zoos Directive *(Directive 1999/22/EC)* requires European Union Member States to regulate zoos in accordance with its provisions. The Directive is transposed into the legislation of each member state. In England, the Secretary of State's *Standards of Modern Zoo Practice* (England) (last updated September 2004)[32] has been referred to by the Queensland Department of Agriculture, Fisheries and Forestry (DAFF) as the 'world-class standard' and considered as a benchmark for its own regulatory regime.[33]

The European Union (EU) has recognised that not only must animals be kept under appropriate conditions, but also that the animals kept in zoos are part of environmental heritage and natural resources. It was on this basis that EU member states adopted common minimum standards for the housing and care of animals in zoos, and reinforced the role of zoos in preserving biodiversity.

The European Council's Zoos Directive (Council Directive 1999/22/EC) required each member state to enact legislation that complies with the directive, which provided a common basis for the regulation of zoos in the areas of licensing and inspections, the keeping of animals, staff training and public education. A significant obligation from the European Council's Zoos Directive is that there must be a strategy approved by the licensing authority for the welfare or disposal of animals following the closure of a zoo. However, Australian state and territory governments would be likely to regard such matters as their responsibility without the need for explicit standards.

1.3 Consultation processes

The preparation of a RIS provides for an informed process of consultation regarding the proposed national standards, alternative options and the costs and benefits associated with each option. The publication of the consultation draft RIS is the final step in the consultation process, where the general community and consumers, as well as interested stakeholders have an opportunity to comment on both the proposed standards and the RIS.

The Consultation Guidelines (Appendix F of the COAG Guidelines) have been considered in the consultation strategy for this RIS.

The draft national Standards and Guidelines have been prepared under the Australian Animal Welfare Strategy (AAWS). A national Expert Consultative Forum (ECF)

[32] <https://www.gov.uk/government/publications/secretary-of-state-s-standards-of-modern-zoo-practice> Viewed 29 April 2013.
[33] Biosecurity Queensland, 2008 p.12.

provided initial comment and guidance on the drafting of the standards and guidelines and a series of drafts have subsequently been developed over the last few years by a writing group. Representatives from federal, state and territory government agencies, and members of the exhibited animal industry and animal welfare groups have been involved in the process. The ECF met shortly before the drafting of this Regulation Impact Statement commenced.

Further preliminary consultation has recently been undertaken by emailing letters to key stakeholders asking them to state their position in relation to the proposed national standards (i.e. mostly support, mostly oppose, support some and oppose others or another position).

The Zoo and Aquarium Association (ZAA) has a position statement on animal welfare as outlined in Part 1.2.3.4 of this RIS. The stated position of ZAA in relation to the proposed standards is:

> The Zoo and Aquarium Association (the Association) is supportive of the Australian Animal Welfare Standards for Exhibited Animals provided they achieve the outcomes as requested by the Animal Welfare Committee in that they are clear, achievable and verifiable. The Association is also supportive where the policy objectives, as outlined on page 21 of this document, are captured and embraced by the regulatory departments who will be responsible for implementing the Standards on the legislative platform. The Association believes that this approach will be beneficial to animal welfare and the industry, supported by consistent regulation across Australia's states and territories.[34]

RSPCA Australia has confirmed its position that it mostly supports the proposed standards. The RSPCA has a specific policy statement that states: 'RSPCA Australia advocates the adoption of compulsory national standards and guidelines for zoological parks and aquaria, including species-specific standards for husbandry and care'.

At the time of writing, Animals Australia has not provided a substantive response to the consultation letter. According to its web site, Animals Australia has no specific policy in relation to the proposed national standards.

There will be a 60-day public consultation period conducted via an appropriate web site plus specific approaches to key stakeholders.

2.0 Case for action and policy objective

2.1 Basis for action

By way of background, the proposed national standards have been developed in response to:

- criticisms of the industry arising from publicised incidents of poor animal treatment, animal escapes, etc.;

[34] Email from ZAA to Tim Harding & Associates dated 13/8/12.

- difficulties experienced by jurisdictions ill-equipped to manage/prevent such undesirable situations; and

- difficulties for the industry in dealing with separate jurisdictions having inconsistent standards.

According to COAG guidelines, the RIS is required to demonstrate the need for the proposed national standards. This need is most often demonstrated in RISs by providing quantitative evidence of various forms of market failure in the industry under discussion. However, there are substantial methodological difficulties in providing such quantitative evidence of market failure in the exhibited animals industry.

Firstly, as discussed in Part 1.2.2. of this RIS, 'animal welfare' is a difficult term to define, and is even more difficult to measure, because it includes an animal's mental state (i.e. the minimisation of stress) as well as its physical well-being. No nationwide scientific study has been conducted on the overall welfare of Australia's exhibited animals; and it would be prohibitively expensive to conduct such a major study.

Secondly, for various practical reasons, it is not possible to rely on complaints from visitors to animal exhibits as a measure of inadequate animal welfare. For example, not all exhibited animals are on display at any particular time. Tourists and visitors in general are not able to discern the treatment of animals in holding enclosures that are not visible to the public. Risks to animal welfare are not necessarily apparent to untrained observers such as tourists and recreational visitors (the vast bulk of the entry fee payers). These people tend to view animals only for short periods and they may never view those animals again. This severely limits their ability to detect issues which may require repeated or extended observations. This problem is exacerbated by the common behaviour of animals to try to hide any incapacity or disease from potential predators (as they are likely to perceive human visitors to be).

Available evidence indicates that most Australians consider animal welfare to be an important issue. On the other hand, visitation rates to zoos and other animal exhibits are the highest of any cultural activity other than going to the movies. From these two sets of evidence, it is reasonable to assume that Australians are prepared to tolerate wild animals being kept in captivity on the understanding that risks to the welfare of exhibited animals will be minimised.

Accordingly, the community is likely to rely on governments and animal welfare charities to assess whether appropriate levels of welfare are being maintained. For example, the RIS for the NSW *Exhibited Animals Protection Regulation 2010* noted that the community expects that animals will be humanely treated, and has particular concerns about animals that may be subjected to pain or distress. It also noted that animals in exhibition facilities, particularly those that are dangerous or carry a disease, can threaten public safety, the environment and/or private property. This RIS concluded that there is a clear role for Governments to prevent such outcomes.[35]

[35] Industry and Investment NSW, 2010.

The legislation and range of standards in Appendix 1 to this RIS indicate that most jurisdictions have already identified that community expectations require government action with respect to the welfare of exhibited animals. It is assumed that community expectations with regard to minimum standards for exhibited are fairly similar across Australia. However existing standards in each jurisdiction have been developed independently which has led to inconsistencies, deficiencies and differing degrees of enforceability and compliance. Some jurisdictions have no relevant standards at all. This combination of factors appears to be limiting the capacity of governments to ensure animal exhibitors meet community expectations with regard to animal welfare, pest risk and the environment.

The general community is likely to be primarily concerned about achieving the minimum standards necessary to ensure that the risks to animal welfare, agriculture and the environment are minimised. They are less likely to be concerned about consistency between jurisdictions as long as the minimum standards are net in every jurisdiction. Close consistency between jurisdictions is likely to be more of a concern to the exhibited animals industry than the general community.

For these reasons, the following case for action is expressed in terms of meeting community values and expectations regarding exhibited animals, rather than providing quantitative evidence of market failure.

2.2 Community values and expectations

With respect to Australian community attitudes towards animal welfare generally, empirical research was undertaken by consultants for the Australian Department of Agriculture, Fisheries and Forestry in 2006, to assist in the development of a communications strategy for AAWS. This research showed that community engagement with the issue of animal welfare is very high in Australia.[36]

From the limited data available, the Australian community considers the welfare of animals in general to be an important issue; and is associated with a willingness to engage in community behaviours such as donating to animal welfare organisations, writing to newspapers etc.[37] Data obtained from a sample of 1061 random respondents from Victoria, indicated that 60% agreed with the statement 'Welfare of animals is a major concern', 16% disagreed and the remainder neither agreed nor disagreed. 76% agreed with the statement 'Welfare of native animals is important', 6% disagreed and the remainder neither agreed nor disagreed.[38]

Turning now to exhibited animals, zoos, wildlife or fauna parks and aquariums have large numbers of visitors (15.4 million visits per annum in Australia)[39] that enable them to make positive contributions to the community and the environment through educating visitors about the care of animals and the preservation of their natural

[36] TNS Social Research, 2006.
[37] Coleman and Hay, 2004.
[38] Coleman, Hay and Toukhsati, 2005.
[39] Aegis Consulting Australia and Applied Economics, 2009.

environments. The roles of such zoos and wildlife or fauna parks extend beyond private profit by providing benefits to the wider community.

These benefits of animal exhibits fall into three categories: private use benefits, public use benefits and non-use benefits. The nature of these various benefits is summarised in Table 5 below:

Table 5 - Use and non-use benefits of animal exhibits

Use benefits	Non-use benefits (all public)
Private use benefits o Leisure, entertainment and recreational opportunities; o Family activities; o Eating and meeting facilities; and o Opportunities to learn about animals Public use benefits o Wildlife research; o School and community education; o Tourism and its benefits to the wider-economy; o Veterinary services and training; o Wildlife rehabilitation; o Disease surveillance; and o Holding facilities for law enforcement.	o Bequest to future generations accomplished by maintenance of a state and cultural heritage asset (bequest benefit); o Value from continued existence of rare species and biodiversity through conservation (e.g. captive breeding and wildlife care) and research related activities (existence benefit); and o Option to utilise a species at a future circumstance (insurance/option benefit).[40]

Private use benefits such as recreation and education accrue to the visitors i.e. people who visit the particular exhibits in which the services are provided. Public use and non-use benefits are provided in the wider and longer-term public interest, independently of the level of visitation to animal exhibits. In other words, the beneficiaries of animal exhibits include the wider general public (including future generations), whether or not individuals visit particular exhibits, or indeed any exhibits at all.[41]

The information in the remainder of this section of the RIS has been obtained from a 2009 consultants' report that was commissioned by the former Australasian Regional Association of Zoological Parks and Aquaria (now ZAA) to assist it to determine the economic and social value that wildlife parks, zoos and aquariums contribute to Australia.[42]

The consultants assessed five main values of such zoos and other animal exhibits. These are:

- Economic value, measured in terms of contributions to Gross Domestic Product, employment and tourism (production value).

- Value for consumers, measured via visitor survey results, the revenue and financial support provided to and consumer surplus (recreational value).

[40] Bennett, 2003.
[41] Tim Harding & Associates, 2003.
[42] Aegis Consulting Australia and Applied Economics, 2009.

- Value of contribution to conservation, measured by the nature and results of in-situ and ex-situ programs and research.

- Value of contribution to education, measured by the nature and results of school, tertiary and visitor education programs and their links to raising conservation awareness and motivating behaviour change.

- Value of contribution to bio-security, measured by the role zoos and other animal exhibits play in protecting Australia's biodiversity and environment and primary production industries.

The study found that:

1. In 2005-06, nearly 36 per cent of the population over 15 years of age visited a zoo or other animal exhibit at least once. More Australians visits animal exhibits each year than any other form of cultural entertainment, apart from movies (65 per cent). Animal exhibits had maintained this rate of visitation over the previous ten years.

2. It is significant that animal exhibits maintain the second highest level of annual visitation compared to other cultural activities, such as libraries, museums and art galleries, even though zoo visits come at a cost and general admission to libraries, museums and art galleries is generally free. This is a strong indicator of the value that consumers attribute to animal exhibits. There were an estimated 15.4 million visits to animal exhibits per annum, which include about 3.3 million visits by international tourists and 12.1 million visits by Australian residents.

3. Overall the private sector, including visitors, contributes three-quarters of the revenue of zoos (state governments contribute the rest). This is an indication of the minimum level of benefits to consumers. The price of admission is one source of this private revenue.

4. Consumer surveys indicate that the benefits to consumers are typically greater than their payments for admissions to animal exhibits. Many consumers have consumer surpluses, although the consultants were unable to quantify this surplus.

Zoos provide a range of education programs for school and tertiary students, visitors and the general public. In 2007-08 19 zoos provided formal education to about 613,000 students nationally. In many states zoo education programs are either integrated with or reflect state education curriculum.

Analysis of general surveys conducted by zoos show a particularly high level of consumer satisfaction with zoo education. These surveys suggest that learning about the animals themselves has overtaken the pure novelty or entertainment value of zoos as one of the principal reasons why people visit. Recent independent studies confirm this and demonstrate that 76 per cent of international tourists are interested or very interested in experiencing (mainly iconic) native wildlife and of these more than half preferred to visit either a zoo or wildlife park, rather than take a tour in the wild.

Zoos also play a role in delivering ex situ and in situ conservation for both biological diversity and conserving wild populations of animals in their natural habitats. The significant value that the international community places on conservation is reflected by the commitment of the vast majority of nations in the world to key international treaties regulating the conservation of biological diversity and import and export of endangered species, as well as the widespread membership of the World Conservation Union (IUCN).

The significant value that the Australian community places on wildlife conservation is reflected by the Australian Government's ratification of these international treaties and the range of Commonwealth and State regulation concerning threatened species and habitat protection.

Zoos play an important role in biosecurity because many newly discovered human diseases over the last 30 years have been found to be zoonotic or to occur first in wildlife. Biosecurity management tends to be undertaken by large zoos, universities, NGOs and government agencies working in collaboration because smaller zoos do not have the resources to fund such work. Wildlife disease surveillance is coordinated nationally through the Australian Wildlife Health Network (AWHN), in which many zoos participate.

There is also an ethical argument that 'The continued existence of zoos and their good purposes such as conservation, science, education and recreation can be ethically justified only if zoos guarantee the welfare of their animals'.[43]

The above discussion illustrates the nature and extent of the various different values that the Australian community places on zoos and other animal exhibits. When considered alongside the earlier evidence about majority Australian community concerns about animal welfare generally, an inference can be drawn that Australians support the keeping of animals in zoos and other animal exhibits, on the understanding that the welfare of these animals will be adequately safeguarded.

The main way of protecting these community values is to mitigate the risks posed to the welfare of exhibited animals, to the environment and to Australian agriculture from the keeping of exhibited animals. The nature of these risks will now be discussed in the following parts of this RIS.

Thirteen (13) public consultation questions are interspersed in the text of the RIS, in an endeavour to obtain further information and opinions from the Australian community regarding the welfare of exhibited animals. A complete list of these questions is given in Appendix 5 to this RIS.

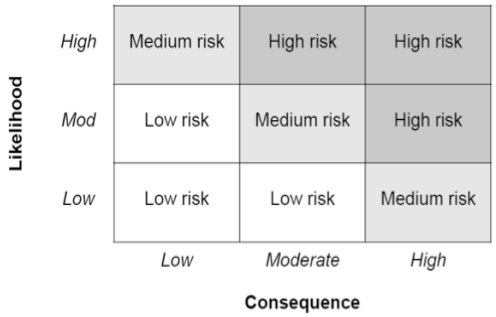
Public consultation question 1: Do you believe that Australian community values and expectations towards the welfare of exhibited animals justify the introduction of national standards and/or guidelines?

[43] Wickins-Drazilova, 2005.

2.2 Risks to animal welfare, the environment and agriculture

Exhibiting animals provides potential risks to the animals themselves and to the environment and agriculture. Before discussing these risks in detail, it is appropriate to say something about risk assessment and risk management. Risk assessment has two dimensions – the likelihood of an adverse event occurring; and the severity of the consequences if it does occur, as illustrated in Figure 1 below.

Figure 1: Assessing the Level of Risk



Source: Victorian Competition and Efficiency Commission

By way of illustration, while the likelihood of risks to animal welfare, the environment and agriculture from exhibited animals may generally be low, the consequences could be high if, for example, a zoo causes its animals extreme suffering or a pest or disease-carrying animal were to escape from its enclosure.

These potential risks include:

- risks to welfare of exhibited animals; and
- risks to the environment and agriculture from escaped animals becoming pests and/or spreading diseases.

The nature of these potential risks will now be discussed in more detail.

Risks to animal welfare

Because exhibited animal welfare outcomes are difficult to measure and quantify, the following problems are expressed more in terms of risks than outcomes.

As discussed in Part 1.2.2 of this RIS, animal welfare means how an animal is coping with the conditions in which it lives. One definition states "An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress".[44] There is increasing evidence that animals kept in conditions where their welfare is poor can have weakened immune systems and so be more likely to succumb to diseases.[45]

[44] <http://web.oie.int/eng/normes/mcode/en_chapitre_1.7.1.htm> Viewed 10 June 2012.
[45] Dawkins, M.S., 2012.

There are specific risks to the welfare of captive animals. Non-domestic animals come from a variety of environments, with differing climates, geography, food sources and interactions. They may be solitary animals or part of complex social groups. Non-domestic animals have evolved to survive in a particular environment and are highly adapted to their environment. Because each animal has a different set of needs, some of which can be complex, risks to animal welfare may result.

Reducing and managing animal welfare risks requires keepers with a high level of skill and knowledge and an ability to provide an environment that meets the animals' needs and limits stress. With some species this can be very costly, especially since some animals live for a long time. For example, koalas have particular health, dietary and welfare requirements as discussed in Part 2.1.1 of this RIS that can impose significant costs over the animal's life. African wild dogs have social protocols in the formation of groups that must be taken into account in captive environments.

> To ensure the welfare of an animal, its biological needs must be met through the provision of the highest husbandry standards and an enclosure design applicable to the species.[46]

The business practices for facilities exhibiting animals have also changed with increased competitiveness to attract and maintain visitors. This has resulted in the desire to keep a wider range of exotic animals and the introduction of interactive programs (such as walking with exotic animals, feeding animals and being photographed with animals). These changes in zoo practices present increased risks to the animals' welfare and the environment.[47]

Every species of exhibited animal has minimum physical and mental requirements in relation to the size of both its display and holding enclosures, the type of enclosure substrate, adequate drainage, suitable enrichment and enclosure furniture; as well as individual dietary and water requirements, health examinations and reproductive management and procedures for capture and restraint without causing undue stress to the animals. Animals also have particular needs in relation to the nature and duration of interactions with humans, as well as accommodation and food requirements during transportation.

As shown in Appendix 1 to this RIS, TAS, NT and ACT have no specific standards relating to the welfare of exhibited animals. SA has standards relating to the welfare of exotic exhibited animals only. The following table summarises significant gaps in the standards of all jurisdictions relating to the welfare of exhibited animals.

Table 5 – Significant gaps in animal welfare standards

Area of risk to animal welfare	Jurisdictions with gaps in standards
Enclosures	
• general requirements	All
• gates and doors	All except NSW and WA
• drive through enclosures	All except NSW
• substrate and drainage	All except NSW, QLD and WA
• enclosure furniture	All except NSW and WA

[46]Biosecurity Queensland, 2008.
[47]Biosecurity Queensland,2008.

• spatial requirements	All except NSW and WA
• holding enclosures	All except NSW, QLD and WA
Dietary and Water Requirements	
• food	All except NSW and WA
• water	All except NSW, QLD, VIC and WA
Health and Wellbeing	
• general requirements	All
• enrichment	All except WA
• quarantine	All except VIC
Reproductive Management	All except QLD zoos
Euthanasia	All
Capture and Restraint	All except WA and SA (exotics only)
Training	All except NSW
Interactive Programs	All except WA , VIC (wildlife parks only and SA (exotics only)
Transportation	All except NSW, QLD, WA and SA (exotics only)
Animal Identification	All except NSW and QLD zoos

Public consultation question 2: Do you have any evidence of poor risk management practices related to the welfare of exhibited animals? If so, what is the extent of this problem?

Public consultation question 3: a. In your experience, to what extent do the existing codes of practice and related regulations create uncertainty for industry? b. Does such uncertainty vary between different states and territories?

Public consultation question 4: Do you think that the potential risks to the welfare of exhibited animals are high enough to justify the introduction of better standards and/or guidelines?

Public consultation question 5: Do you think that there needs to be national consistency in the standards and/or guidelines that relate to the risks to the welfare of exhibited animals?

Risks to the environment and agriculture

Australia has a unique ecology that is already under threat from habitat loss and climate change. The establishment of non-native species in the wild has the potential to cause significant longer-term environmental damage; in addition to immediate risks to life and property from dangerous animals. Only one species, the Five-lined Palm Squirrel *Funambulus pennanti* is known to have established wild populations in Australia as a result of escape from its zoo enclosure, but did not establish outside the zoo's boundary fence; and this population was eradicated by the Taronga Zoo in the late 1970s. In 1898, the Western Australian Acclimatisation Committee (which became Perth Zoo), released this same species as part of its mandate to release European animals into the Australian environment – as was common for settlers at the time. This population still persists within a 5 kilometre radius of the Perth Zoo.[48]

[48] <http://www.daff.qld.gov.au/4790_19939.htm> Viewed 29 April 2013.

There has been no assessment to indicate any significant environmental damage from either population. In the same year the Acclimatisation Committee also released Senegal Doves *Streptopelia senegalensis* which is now very common in the Perth suburbs and the larger Western Australian wheat belt towns.[49]

Zoos continually develop new displays and exhibits to attract visitors and, as a consequence, there has been an increasing number of exhibitors interested in displaying exotic animals. The larger number and variety of captive exotic animals potentially increases the risk of escape and establishment as a pest.[50]It is therefore essential that facilities exhibiting animals with high pest potential have the ability to contain the animals, and be able to handle them so they do not escape.

The NSW Department of Primary Industries has published data on the number of animals that have escaped from zoos and fauna parks in NSW over the last decade. These include 29 exotic animals escaping during 19 different escape events. In comparison over the same period a total of 533 native animals escaped during 47 escape events, of which 477 were birds. This is a total of 745 animals escaping or being stolen over the decade. The reference does not provide information on the percentage of animal recoveries. There have also been cases where non-dangerous animals have escaped from their enclosures but not the perimeter fence of the zoo.[51]

Though the number of native animals that escaped in NSW is considerably more than that for exotic animals (because there are proportionally many more native animals exhibited), there has been an increasing trend toward the theft of exotic species in recent years, as they have become more widely held by exhibitors. In particular, exotic reptiles, birds and small primates are proving to be increasing targets for thieves. The number of native species escaping is also of great concern though it must be noted that a majority of these were the result of releases of birds as a result of storm damage.[52]

Escaped animals could potentially carry diseases; leading to an increased risk of such diseases spreading beyond the exhibition facility. The spread of a disease beyond a contained area could have significant environmental and economic impacts. An outbreak of such diseases may lead to quarantining of animal exhibitions and bans on the transfer of animals. Such measures may prevent the entry of visitors, and severely impact tourism and business income.[53]

According to the National Zoo Biosecurity Manual (NZBM), biosecurity is important for all zoos, regardless of size. Historically, Australia's larger zoos have been expected to maintain strong biosecurity practices, due to the perceived higher risks associated with importing and holding exotic species. With today's growing focus on biosecurity management, it is important that zoo biosecurity focuses on all risks, not just those arising from exotic species. All zoos (including smaller zoos and fauna

[49] Department of Environment and Conservation (WA), 2007
[50] Ibid.
[51] <http://www.australiangeographic.com.au/journal/great-zoo-escapes-confessions-of-a-zookeeper.htm> Viewed 28 April 2013.
[52] Emergencies and Animal Welfare Unit, 2011.
[53] Industry and Investment NSW, 2010.

parks holding few or no exotic species) need to be aware of, and address the biosecurity risks relevant to their circumstances.

> Biosecurity is concerned with minimising the negative consequences of infectious disease introduction and spread. Infectious disease within the zoo collection impacts on individual health and welfare, and can have long term impacts on reproduction, longevity, behaviours and population and species viability. Subclinical and chronic diseases can exert their effects for years and even decades. Ill health, death and reproductive failure in collection animals leads to greater costs (husbandry, veterinary, acquisition) and reduces the financial viability of the zoo as a business. Infectious disease spread to humans or domestic animals can have serious social, economic and ethical costs. A zoo's ability to protect itself from a disease outbreak will be greatly improved if it has appropriate biosecurity arrangements.[54]

As well as secure, well-designed and well-maintained facilities to contain the animals, exhibitors need to have contingency plans in place and trained staff to deal with the pest risk. This can entail high costs for equipment, such as enclosures, perimeter fencing and safety systems, and the development and maintenance of staff skills.

Once again, as shown in Appendix 1 to this RIS, only NSW, QLD, VIC and WA have existing exhibited animals standards relating to the security of exhibits and the prevention of animal escapes. All jurisdictions have gaps in standards relating to this area of risk. Only QLD has standards relating to emergency procedures.

Public consultation question 6: a. Do you have any evidence of poor risk management practices related to the environment or agriculture in connection with exhibited animals? b. If yes, what is the extent of this problem?

Public consultation question 7: Do you think that the potential risks to the environment and agriculture are high enough to justify the introduction of better standards and/or guidelines?

Public consultation question 8: Do you think that there needs to be national consistency in the standards and/or guidelines that relate to the potential impact of exhibited animals on the environment and agriculture?

2.2 Policy objective

In relation to the case for action identified in Parts 2.1 and 2.2, the following overarching policy objective is identified:

To meet community values and expectations regarding the welfare of exhibited animals, and associated protection of the environment and agriculture; in ways that are practical for implementation and industry compliance.

[54] Reiss and Woods, 2011.

The main criterion for evaluating the proposed national standards and the feasible alternatives is net benefit for the community, in terms of achieving this policy objective.

3.0 Alternatives to proposed national standards

In accordance with the COAG guidelines, a RIS is required to identify feasible alternatives to the proposed national standards. Conversely, a RIS is not required to identify alternatives which are not practicable, or where there are no significant cost burdens being imposed.

Having no standards at all is not a feasible option, because some jurisdictions already have their own standards as part of the base case; and it is outside the scope of this RIS to consider revoking individual state or territory standards.

Education and publicity campaigns attempting to raise awareness regarding the welfare of exhibited animals have been conducted over several years by a number of animal welfare lobby groups. The national industry body, ZAA, has also established accreditation criteria which involve policy statements, publications and accreditation criteria and guidelines. Industry bodies like ZAA and the NSWFMPA also involve their membership in commenting on proposed standards and legislation. However despite being aware of their existence, many exhibitors have not elected to join such industry groups and take advantage of the education opportunities already available. In some cases, even members of some of these industry bodies have chosen to ignore the advice available.

This experience has shown that public education campaigns as an alternative to national standards are not likely to be effective and therefore not a feasible alternative. The behaviours that need to be changed are displayed by a minority of exhibitors, most of whom are already aware of the risks to animal welfare and the environment and agriculture associated with their exhibits. These exhibitors are much less likely to be influenced by public education campaigns than by enforceable standards.

Better enforcement of existing standards has also been considered as an alternative. However, as shown in Part 2.1. and Appendix 1 of this RIS, there are so many deficiencies in existing standards, particularly in jurisdictions other than NSW and QLD, that this alternative would not solve the problems that have been identified, even if enforcement was 100% effective. Also, the guidelines in codes of practice are not enforceable.

The possibility of improving compliance by ‘naming and shaming’ exhibitors who do not comply with codes of practice has also been considered. For example, the NSW Food Authority website publishes the names of people who have been issued infringement notices by inspectors (as well as the outcomes of prosecution proceedings). However, because the codes of practice would not be mandatory, animal exhibitors would not be prosecuted for any offence. They would therefore be denied an opportunity to defend their reputations in court or in other public forums. It would not be sufficient to rely on the media to fairly present both sides of the story; and thus injustices could occur. It appears ‘naming and shaming’ could be useful as an adjunct to a system based on mandatory standards but is unlikely to be seen as just where adherence to codes of practice is voluntary.

Having more comprehensive standards e.g. more taxon standards is not currently a feasible option either, because the necessary research, standard development and key stakeholder consultation has not yet been done. The development of certain taxon standards may not be feasible for some years.

The practicable alternatives below have emerged from discussions with the Expert Consultative Forum (ECF) referred to in Part 1.3 of this RIS. The suggested variations to the proposed national standards are those where standards are likely to be costly and/or contentious amongst stakeholders. The public consultation seeks the views and advice of interested parties in the further formulation of variations to the existing proposals. Selected additional variations may be investigated and reported in the decision RIS.

At an earlier stage in the preparation of this RIS, a variation of the proposed national standards was considered to amend General Standard S2.1 to 'The operator of a facility must ensure: a) the facility has a secure perimeter fence; and b) that each enclosure containing a dangerous terrestrial animal or a terrestrial animal of a species of serious or extreme risk to agriculture or ecosystems is surrounded by a secure secondary enclosure that will act as a barrier to the animal.' This variation was proposed as a possibly less costly alternative to upgrading perimeter fences. However, after further consideration, this alternative has been addressed by changing the definition of 'perimeter fence' as secure secondary enclosures are considered unnecessary and impractical.

The practicable alternatives together with the proposed national standards will from here on be referred to as 'options'. The options to be assessed in terms of costs and benefits are:

- **Option A:** converting the proposed national standards into national voluntary guidelines (the minimum intervention option);
- **Option B:** the proposed national standards as currently drafted;
- **Option C:** one or more variations of the proposed national standards as follows:
    - *Option C1*: amend proposed Macropod Standard S3.2 regarding fox-proof fencing to allow for alternative fox management measures such as baiting (records of measures to be kept by operator). i.e. require fox-proof fence or effective alternative.
    - *Option C2*: amend General Standard S3.28 to state a maximum period in a holding enclosure of 30 days without government approval instead of 90 days.

Each of these options and variations is likely to entail a different combination of incremental costs and benefits, as discussed in the following impact analysis, where information on their meanings and implications is also provided.

Interested Australians are now being asked via this Consultation RIS to consider the costs and benefits of each option and whether they are willing to accept the costs of meeting community values and expectations.

4.0 Evaluation of Costs and Benefits

4.1 Introduction

This part of the RIS identifies the relative costs and benefits for the proposed national standards and each of the other options, as identified in Part 3.0, in comparison with the 'base case'. The 'base case' is used as a reference point for measuring the incremental costs and benefits of each of the options, including the proposed standards. Each of the options is assessed in relation to how well the underlying policy objective identified in Part 2.2 of this RIS is likely to be achieved.

Where data exists, discounted[55] quantitative estimates of costs and benefits are provided over the 10-year life of the proposed standards. A detailed discussion of the estimation of costs and benefits is provided in Appendices 2 and 3 to the RIS. However, where cost and benefit data is not available, the assessment is made using qualitative criteria about the achievement of the policy objective. All costs and benefits reported are incremental to the base case (refer to Part 4.2 of this RIS).

The costs and benefits of Options A, B, and C (the practical alternatives) are assessed by using the following criteria (**I to III**) to compare the effectiveness of each option in achieving the relevant part of the policy objective:

I. Animal welfare benefits;

II. Ecological benefits; and

III. Net compliance costs[56] to industry and government.

4.2 The base case

The term 'base case' means the relevant status quo, or the situation that would exist if the proposed national standards were not adopted i.e. the existing state and territory standards plus market forces and the relevant federal, state and territory legislation (refer to Appendix 1 for details). This includes animal welfare legislation as discussed in Part 2.1 of this RIS. The base case provides the benchmark for measuring the incremental costs and benefits of the proposed national standards.

The influence of market forces on the base case should not be underestimated. Whether public or private organisations, most zoos and wildlife parks operate as income-generating businesses. Their commercial survival and the activities they undertake in relation to conservation, research and education relies on income from the visiting public. Therefore, attracting and retaining visitors is a major consideration for all members of the industry.

A facility with healthy animals (that are well cared for and managed), adequate food outlets and eating areas, and well-trained staff who communicate with the public about the exhibited animals, will provide a more pleasant experience than a facility that does not provide appropriate care or housing for its animals. This in turn is likely to result in higher financial viability.

[55] A discount factor of 7% is used for present value calculations in this RIS, as recommended by OBPR.

[56] Criterion III includes benefits arising from reduction in regulatory burden and uncertainty and the reduction in costs are reflected here.

Many of the animals themselves have a high value, not so much in terms of sale prices but replacement costs. Exhibiting organisations therefore have a significant financial incentive to adequately feed, water and generally care for the health and well-being of their animals. Because the consequences of an escape of a dangerous animal are potentially high, even though the likelihood may be low, organisations exhibiting animals also have a high financial incentive to avoid civil litigation for damages.

4.3 Evaluation of options

The assessment of the costs and benefits of the proposed regulations and the policy alternatives will be conducted by discussing each option in terms of its expected incidence and distribution of costs and benefits, relative to the 'base case' (defined in Part 4.2 of the RIS).

The data used in this analysis and the assumptions and qualifications to the data on which the costs and benefits have been estimated are provided in the appendices.

In order to consolidate the analysis by removing duplication and thereby making the options easier to compare, the following main benefit and cost features of the proposed national standards are outlined in Part 4.3.1 and 4.3.2, respectively. The discussion of options therefore highlights their differences, thereby avoiding the repetition of text and figures.

4.3.1 Benefit drivers of the proposed national standards – Criteria I and II

This part of the RIS highlights specific benefit drivers, which underlie the proposed standards. These are identified as unquantifiable benefits in terms of improved animal welfare outcomes, as well as, reduced ecological risks. Reduction in regulatory burden and uncertainty is discussed in general terms with respect to the change in net compliance costs under Criterion III.

Drivers of unquantifiable animal welfare benefits – Criterion I

There would be additional benefits to animal welfare from training of proficient keepers in terms of improved supervision of animals under proposed standard S1.4 (13, 10 and 28 keepers in large, medium and small facilities, respectively – particularly in VIC, QLD and WA). There would also be improvement of animal welfare by ensuring assessment of proficiency of keepers and hiring of keepers for 1%[57] of small facilities for jurisdictions apart from NSW under proposed standard S1.6.

Moreover, there would be animal welfare benefits from the development of procedures and plans targeting the risk management of animals including:

- procedures that address the circumstances in which staff can access and enter enclosures used to hold dangerous animals (proposed standard S1.8);

[57] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

- procedures to reasonably prevent an animal escaping (proposed standard S2.7) *(except SA exotics)*;
- procedures for recapturing any escaped animal (proposed standard S2.8) *(except QLD)*;
- procedures for emergencies (proposed standard S2.12) *(except QLD)*;
- plan for dealing with incidents including emergency evacuations (proposed standard S3.18) with details of the plan in (proposed standard S3.19);
- plan for animal collection management (proposed standard S6.1) (*except QLD and SA exotics*);
- procedure for the safe and expedient capture and restraint of animals (proposed standard S8.1) (*except WA and SA exotics*);
- procedures for interactive programs (proposed standard S10.5); and
- plan for animal transport (proposed standard S11.6) (*except QLD and SA exotics*).

Moreover proposed standard S2.13 would entail that 5%[58] of all keepers in both medium and small facilities obtain 3.5hrs of training a year in emergency procedures involving evacuations, medical or other animal/non-animal related incidents. This would involve 39 keepers in medium size facilities and 69 keepers in small size facilities with the majority of keepers in NSW, VIC, QLD and WA.

Under the proposed standards, there would be a requirement for the additional development of procedures regarding the health, safety and behavioural needs of the animal;

- during its training (proposed standard S9.1);
- in plans for animal transport (proposed standard S11.6) (except for animals in QLD and SA exotics);
- during procedures for: i). the use of euthanasia; and ii). appropriate methods of euthanasia for each animal held (proposed standard S7.1);
- during procedures for the safe and expedient capture and restraint of animals (proposed standard S8.1) (except for animals in WA and SA exotics);

Under proposed standard S3.3, operators would be required to ensure that moats used to contain animals do not cause injury should an animal accidentally fall in; and that they allow the animal to climb out without leaving the enclosure. Moreover if a moat were part of the area used by animals, operators would be required to enable easy entry and exit. This would provide minor welfare benefits to all jurisdictions where moats are used except for NSW, WA with some exceptions for VIC. The number of enclosures that this would affect and size of facilities remains unknown.

Moreover under proposed standard S3.6, operators in non-compliant facilities (i.e. affecting animals in 420 non-walk through display enclosures) would ensure that enclosures allow for the expression of appropriate natural behaviours of the animals in those enclosures. However, due to the variability of needs between different species within groupings, it is not possible to estimate the incremental benefit of enclosure modification across the industry in terms of the general standards, apart from noting that the animals in these 420 enclosures would benefit from improved welfare.

Under proposed standard S3.22 operators would be required to invest in one-off capital investment in enrichment including toys and furniture that contributes to enrichment of the enclosed animal. This would affect animals in 5%[59] of mammal

[58] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).
[59] Recommended by the ECF.

non-walk through enclosures for large, medium and small facilities (other than facilities in NSW and WA where enrichment is already required under the base case). This would affect, 1, 19 and 28 enclosures in large, medium and small size facilities, respectively with the majority of small medium and small enclosures in VIC and QLD.

Under proposed standard S3.28 operators (excluding those in NSW, WA and QLD[60]) would be required to avoid continuously keep an animal in a holding enclosure for a period longer than 90 days.

Under proposed standard S3.29 operators would be required to ensure that holding enclosures comply with spatial requirements recommended by relevant taxon standards with animals in 124 holding enclosures affected, as shown in Table 5.

Table 5: Estimated number of non-display (holding) enclosures by taxon affected by proposed standard S3.29

	Macropods	Crocodilians	Ratites	Koalas	Wombats	Total
Number of non-display (holding) enclosures by taxon	41	23	13	32	15	124

Under proposed standard S3.30, operators would be required to ensure that where no holding enclosure spatial requirements are stipulated by relevant taxon standards - that the spatial dimensions of a holding enclosure are a minimum of 1/3 of a non-walk through display enclosure. This would affect non-compliant holding enclosures for species groups (i.e. 5% of enclosures), as shown in Table 6.

Table 6: Estimated number of non-display (holding) enclosures by species group affected by proposed standard S3.30

	Mammals	Birds	Reptiles	Amphibians	Total
Number of non-display (holding) enclosures by species group	167	100	354	54	675

Under Clauses S3.31 and S3.32 operators would be required to ensure that a holding enclosure is not used for routine management to rotate an animal through an enclosure; or alternatively to seek written advice from the treating veterinarian that recommends continued holding of an animal in a holding enclosure if an animal undergoing veterinary treatment is held for more than seven days.

Under proposed standard S10.4 operators, in 5% of medium (i.e. 1) and small facilities (i.e. 9), would be required to ensure that a risk assessment examining the risks to the animals is undertaken for each interactive program and is reviewed on a regular basis. The majority of small facilities would be in NSW, VIC, QLD and WA.

Under the proposed standards a number of additional record keeping activities would need to be undertaken by non-compliant operators (i.e. 5% of all operators[61]). The

[60] It is already a requirement of the base case not to hold an animal continuously for 90 days in these jurisdictions.

[61] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

records of individual animals would assist with monitoring the health and welfare of an animal over time. Such records would provide a better capacity to monitor treatment and address problems both in the short and longer term. These record-keeping requirements would include the operator ensuring that:

- the time an animal is used in an interactive program is recorded (proposed standard S10.11);
- an animal register and animal health records are kept and maintained for all animals in the facility (proposed standard S12.3) with particular information included in the register (proposed standard S12.5) and in the animal health record (proposed standard S12.6);
- a copy of all animal register and animal health records of the animal being moved are provided to the receiving facility (proposed standard S12.7);
- all reasonable steps are taken to ensure records are kept securely and cannot be damaged (proposed standard S12.9); and
- significant loss or damage to records is reported in writing to the government authority (proposed standard S12.10).

This would affect 30, 111 and 279 enclosures in large, medium and small size facilities, respectively with the majority of enclosures in medium and small facilities located in NSW, VIC, QLD and WA.

Macropods

Under proposed standard S3.2 (macropods), operators of non-compliant macropod enclosures (i.e. 5% of enclosures) would be required to ensure that macropods kept in regions where wild fox populations occur are held within a fox-proof enclosure, apart from NSW, VIC and WA where fox proofing is already required under the base case. This would affect 2, 3, and 19 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in QLD and TAS.

Under proposed standard S3.3 (macropods), operators would be required to ensure that a walk-through enclosure housing macropods provides at least one visitor exclusion area where animals are able to withdraw from visitor contact. Proposed standard S3.3 (ratites) has the same requirement for walk-through enclosures housing ratites. These standards would affect non-compliant[62] walk through enclosures for macropods and would include ratites excluding NSW and QLD, which have this requirement under the base case. This would affect 1, 1, and 6 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in VIC and WA.

Under proposed standard S3.4 (macropods), operators of non-compliant macropod walk-through enclosures would be required to provide visitors with information on appropriate visitor behaviour in the enclosure - apart from QLD where such information is already required under the base case. This would affect 1, 2, and 9 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in NSW, VIC and WA.

Under proposed standard S3.5 (macropods), operators would be required to incorporate either a non-climbable enclosure barrier; a 500mm inhang; or a secure

[62] 5% of enclosures.

roof for enclosures housing macropods capable of climbing such as the musky rat-kangaroo, tree-kangaroo and rock-wallaby. This would provide minor animal welfare benefits to animals in all jurisdictions except for NSW, QLD and VIC where operators do not currently incorporate such features in enclosures. The number of enclosures that this would affect and size of facilities remains unknown.

Under proposed standard S3.7 (macropods), operators would be required to ensure that display and walk through enclosures housing rock wallabies provide physical features including, but not limited to, boulder piles and tree trunks. This would affect 5% of rock wallaby enclosures belonging to medium and small facilities – apart from NSW, QLD and VIC, where such enrichment is already required under the base case. This would affect 2 enclosures in medium size facilities and 10 enclosures in small facilities, respectively. The majority of enclosures in small facilities would be in WA.

Under proposed standard S3.8 (macropods), operators would be required to ensure that macropod enclosures meet the minimum floor area requirements specified in Appendix 1 of the proposed standards. This would be relevant for all jurisdictions except for NSW, VIC and QLD where existing codes already specify these requirements under the base case. This would affect 1, 2, and 10 non-walkthrough and walkthrough display enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in WA.

Under proposed standard S5.1 (macropods), operators would be required to ensure that macropod enclosures provide elevated positions where all animals in the enclosure can avoid wet, boggy conditions. This would be relevant for all jurisdictions excluding NSW, VIC, QLD and WA - which have this requirement under the base case. This would affect 1, 1, and 4 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in TAS.

Under Clauses S6.1 and S8.1 (macropods), operators of 1 medium and 6 small facilities[63] would voluntarily develop maintain and implement:

- animal collection management plans (where breeding of Macropods is desired) (*except NSW and VIC*); and
- written procedures for capture and restraint are developed, maintained and implemented and guidelines that deal with capture myopathy.

Under proposed standard S11.1 (macropods) the operator would be required to ensure macropod transportation containers do not have slatted floors providing for more appropriate transport arrangements. The benefits in terms of numbers of animals affected by proposed standard S11.1 remains unquantifiable as the number of containers typically used for macropod transport in jurisdictions, or Australia for that matter, is unknown.

Crocodiles

Under proposed standard S1.2 (crocodiles) there would be a requirement for operators to develop maintain and implement written procedures for keepers undertaking hand

[63] Such plans and procedures are already developed maintained and implemented by large facilities.

feeding procedures. This would affect 3 small size facilities and 1 medium size facility.

Under proposed standard S5.4 (crocodiles) there would be a requirement for 3 small and 1 medium size facility operators in NSW, VIC, QLD, WA, SA, NT, TAS, and ACT to develop maintain and implement written procedures to confirm equipment is functioning properly and temperatures adjusted as necessary where any artificial means of heating is required for land areas or ponds.

Under the crocodile taxon standards the operator would also be required to ensure:

- crocodilians are provided with ponds and basking areas unless otherwise prescribed by a veterinarian (proposed standard S3.3);
- crocodile enclosures meet minimum land area equivalent to a square where each side is a minimum 2 x snout-vent length of the longest crocodilian and the land area is increased by 50% of the base minimum land area for each additional crocodilian (proposed standard S3.4) (*except for QLD)*;
- each pond has a base minimum water surface area with at least:

    i. one horizontal surface dimension 4 x snout-vent length of the longest crocodilian it houses; and
    ii. one area with a minimum width of 1 x snout-vent length of the longest crocodilian in the enclosure. This width must cover the horizontal dimension calculated in 3.5.i.

- that the water surface area is increased by 50% of the base minimum water surface area for each additional crocodilian (proposed standard S3.5) *(except for QLD)*; and

- crocodilians are able to submerge, to whichever is the greater, so that:

    i. a minimum of 200 mm of water covers their highest point; or
    ii. a depth of water equivalent to 0.2 x snout-vent length covers their highest point (proposed standard S3.6) *(except for QLD)*

Proposed standards S3.4, S3.5 and S3.6 (crocodiles) would be relevant for all jurisdictions except for QLD where existing codes already specify these requirements under the base case. This would affect 2, 9, and 7 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small and medium facilities would be in NSW, QLD and WA. With respect to proposed standard S3.3 (crocodiles) (i.e. ponds and basking areas) this would affect crocodiles in all jurisdictions and would impact 2, 12, and 9 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in NSW, VIC, QLD and WA.

Under the taxon standards for crocodiles an operator would also be required to ensure that:

- a holding enclosure for an individual crocodilian is a minimum of:

    i. 2.5 x snout-vent length long; and
    ii. 1.5 x snout-vent length wide (proposed standard S3.7) *(except NSW)*.

- holding enclosures that do not allow effective thermoregulatory behaviours protect crocodilians from extremes of temperature (proposed standard S3.8).

This would affect holding enclosures for individual crocodilians for facilities in all jurisdictions except for NSW. This would affect 3, 10, and 4 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small and medium facilities would be in VIC, QLD and WA. With respect to protecting crocodilians from extreme temperatures, this would affect all jurisdictions including NSW and would impact on 3, 14 and 6 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small and medium facilities would be in NSW, VIC, QLD and WA.

Under proposed standard S6.2 (crocodiles) there would be a requirement for 3 small and 1 medium size facility operators in NSW, VIC, QLD, WA, SA, NT, TAS, and ACT to develop maintain and implement written procedures to enable the collection of eggs.

Ratites

Under proposed standard S3.4 (ratites), the operator would be required to ensure ratite display enclosures included a species appropriate wallow[64]. Proposed standard S3.5 (ratites) would require operators to ensure that cassowaries are provided with shade. proposed standard S3.6 (ratites) would require operators to ensure ratite enclosures meet the minimum floor area requirements. These clauses would apply to 5% of ratite enclosures apart from QLD where this is required under the base case. This would affect 1, 3, and 5 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small and medium facilities would be in NSW, VIC and WA.

Under proposed standard S6.1 (ratites), an operator would be required to ensure that written procedures are developed, maintained and implemented for the collection of eggs. This would affect 5 small and 1 medium size facilities.

Koalas

Under proposed standard S3.3 (koalas), the operator be required to ensure a minimum of two resting forks, one at least 1800 mm above the ground and one at least 1500 mm above the ground, are provided for each independent koala in an enclosure. With holding enclosures containing a single koala it would need to contain a minimum of one resting fork unless otherwise prescribed by a veterinarian. Animal welfare benefits would apply to 5% of display and holding enclosures except for NSW and QLD where this requirement exists under the base case. This would affect animals in 1 to 2 enclosures in a medium facility with the majority of medium facilities in VIC and WA.

Under proposed standard S3.8 (koalas), the operator would be required to ensure a koala in a fully enclosed enclosure can perch in the highest fork without being restricted by the ceiling of the enclosure. Also under proposed standard S3.9 (koalas), the operator would be required to ensure holding enclosures provide sufficient height above the resting fork(s) to:

[64] All ratites, particularly cassowaries and emus, like to swim or wallow in water.

i. allow the koalas to sit upright; and
ii. provide clearance from enclosure barriers to allow the koalas to rest without contacting the barriers.

An incremental benefit would apply to all jurisdictions except NSW (as height requirements already apply to this jurisdiction under the base case). This would affect animals in 7 enclosures in large facilities and 67 enclosures in medium facilities and with the majority of medium size facilities in VIC, QLD and WA.

Under Clauses S3.6 and S3.7 (koalas) the operator would be required to ensure koala enclosures meet the minimum floor area requirements specified. Proposed standard S3.6 would be relevant for all jurisdictions except for QLD where existing codes already specify these requirements under the base case and proposed standard S3.7 would be relevant for all jurisdictions except for NSW. Furthermore, under proposed standard S5.2 (koalas) the operator would be required to ensure that all koalas within an enclosure are able to simultaneously access shade at all times and would provide additional benefits to all jurisdictions apart from NSW. These clauses would affect 2 enclosures in large size facilities and 13 enclosures in medium size facilities – with the majority of medium size facilities in VIC, QLD and WA.

Under proposed standard S5.1 (koalas), the operator would be required to ensure that each koala is weighed at least monthly as part of routine health monitoring. Under proposed standard S10.7 (koalas), the operator would be required to ensure that each koala used for handling is weighed a minimum of fortnightly to confirm:

i. maintenance of body weight in mature adults; or
ii. appropriate rates of growth in juvenile or sub-adult individuals.

Under proposed standard S10.9 (koalas), the operator would be required to ensure that records of koala identification and handling times are kept daily in a consistent format and retained on file for the life of the animal plus two years. Furthermore under proposed standard S12.1 (koalas), the operator would be required to ensure that the weight of individual koalas is recorded monthly in accordance with proposed standard S5.1 of these standards. Finally, under proposed standard S12.2 (koalas), the operator would be required to ensure that the handling of each koala is recorded. These records would include:

i. date of handling; and
ii. handling time; and
iii. the keeper who handled the koala; and
iv. purpose of handling the koala; and
v. any adverse behaviours of the koala before, during and after handling.

These aforementioned Clauses regard record keeping (i.e. Clauses S5.1 to S12.2) would affect koalas in 1 enclosure in a large size facility and 5 enclosures in medium size facilities and with the majority of medium size facilities in VIC, QLD and WA.

Under proposed standard S5.3 (koalas), the operator would be required to ensure that newly acquired koalas undergo a minimum 30-day period of quarantine, unless advised otherwise by a veterinarian. Given that this situation occurs randomly the

unquantifiable incremental benefit of keeping new koalas in quarantine by jurisdiction remains unknown.

Under proposed standard S10.1 (koalas), the operator would need to ensure that written procedures are developed, maintained and implemented for interactive programs utilising koalas and this would benefit animals in 1 enclosure in a medium size facility.

Under proposed standard S11.1 (koalas), the operator sending a koala would be required to ensure independent koalas are transported individually. Independent koalas with dependent offspring would be exempt. Under proposed standard S11.2 (koalas), the operator sending a koala would be required to ensure transportation containers are of a sufficient size to allow the koala to maintain a normal resting posture without being in contact with the container's sides or roof. The frequency and incidence of koala transport remains unknown as does the jurisdictions affected.

Wombats

Under proposed standard S3.3 (wombats), the operator would be required to ensure that each adult wombat has access to substrate to a minimum depth of 500 mm over an area not less than four square metres (except for QLD). Under proposed standard S3.4 (wombats), the operator would be required to ensure that for each additional adult wombat the area of substrate with a minimum depth of 500 mm is increased by two square metres. Under proposed standard S3.5 (wombats), the operator would be required to ensure that substrate deeper than 500 mm must be of a type that does not pose a risk of collapse and burial of the wombat. Under proposed standard S3.6 (wombats), the operator would be required to ensure wombats are provided with shaded retreats at all times and digging opportunities within the enclosure (except for QLD).

Under proposed standard S3.8 (wombats), the operator would be required to ensure that a wombat enclosure for up to two adult specimens has a minimum floor area of 45 square metres (except for QLD) and that under proposed standard S3.9 (wombats), the operator would be required to ensure that for each additional adult wombat the floor area is increased by a minimum of ten square metres (except for QLD). Under proposed standard S3.10 (wombats), the operator would be required to ensure enclosures that provide housing for wombats at night time meet all enclosure standards (except for QLD). Finally, under proposed standard S5.2 (wombats), the operator (except for QLD), unless otherwise advised by a veterinarian, would be required to ensure that wombats are provided with the opportunity to:

i. behaviourally thermoregulate; and
ii. withdraw from other wombats; and
iii. withdraw from viewing the public.

This would affect 1, 10, and 9 enclosures in large, medium and small facilities, respectively. The majority of enclosures in medium and small facilities would be in NSW, VIC and WA.

Under proposed standard S11.1 (wombats), the operator sending a wombat would be required to ensure that the wombat is transported in a solid, secure container measuring at least 10% longer than the length of the animal and with sufficient width that enables the wombat to lie comfortably on its side. Also, under proposed standard S11.2 (wombats), the operator sending a wombat would be required to ensure that each adult wombat is transported individually. Wombats carrying pre-emerged pouch young would be exempt. The frequency and incidence of wombat transport remains unknown as does the jurisdictions affected.

Drivers of unquantifiable ecological benefits – Criterion II

Under the proposed standards there would be a requirement for non-compliant medium size facilities such as wildlife fauna parks for the implementation of secure fencing under proposed standard S2.1, such as cyclone fencing. It is noted that large and small facilities in total, as well as facilities in NSW, VIC, and WA already have secure perimeter fencing as part of their normal *operations under the base case.* Therefore, roughly 1 medium size facility is potentially affected in each remaining jurisdiction including QLD, SA, TAS and NT.

Where electric fences are the primary containment barrier for enclosures, there would be the required adoption of backup generators under proposed standard S3.4 including two additional backup generators in medium size facilities and eight to nine additional backup generators in small size facilities.

Under the proposed standards there would be the requirement for the development of procedures and plans targeting risk management to the ecology including:

- procedures to reasonably prevent an animal escaping (proposed standard S2.7) *(except SA exotics)*;
- procedures for recapturing any escaped animal (proposed standard S2.8) *(except QLD)*;
- program for the control of insects, parasites and vertebrate pests (proposed standard S5.9) (*except WA*);
- plan for animal collection management (proposed standard S6.1) (*except QLD and SA exotics*);
- procedure for the safe and expedient capture and restraint of animals (proposed standard S8.1) (*except WA and SA exotics*); and
- plan for animal transport (proposed standard S11.6) (*except QLD and SA exotics*).

Under proposed standard S3.6 (macropods) operators with respect to 12.5%[65] of enclosures, except in NSW, QLD and VIC, would be required to ensure a fence of at least the following height:

i. 1800 mm for large macropods (red kangaroos, grey kangaroos and wallaroos); and
ii. 1400 mm for medium macropods (e.g. swamp wallabies, agile wallabies, whiptail wallabies and red-necked wallabies); and
iii. 1000 mm small macropods (e.g. mala, bettongs, potoroos, pademelons, musky rat-kangaroos); and
iv. 1500 mm non-climbable or 1500 mm wire-mesh with a 500 mm inhang for tree-kangaroos; and
v. 2000 mm with 500 mm inhang for rock-wallabies; and
vi. unless otherwise approved by the relevant government authority

[65] Based on ECF advice.

This would affect 5, 9, and 57 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small facilities would be in WA and TAS.

Under proposed standard S3.3 (ratites), non-compliant operators would be required to ensure that enclosure barriers for adult ratites provide containment to at least the following height:

i. ostriches and cassowaries – 1800 mm;
ii. emus – 1500 mm;
iii. rheas – 1200 mm.

Moreover, benefits would apply to all jurisdictions except QLD and would affect 3, 21 and 23 enclosures in large, medium and small facilities, respectively. The majority of enclosures in small and medium facilities would be in NSW, VIC and WA.

4.3.2 Cost drivers of the proposed national standards – Criterion III

A summary of the 10-year quantifiable costs of the proposed general standards under Option B is presented in Table 7 and is estimated to be $6.24m (i.e. an average of $0.624m p.a. in today's dollars) with approximately 62% of the cost being incurred by small facilities and mainly with respect to training and record keeping.

Table 7: Summary of 10-year incremental quantifiable costs of general standards (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	Cost to Large Facilities $AUD	Cost to Medium Facilities $AUD	Cost to Small Facilities $AUD	Cost to all facilities 7% discount $AUD	Cost to all facilities 3% discount $AUD	Cost to all facilities 10% discount $AUD
Training proficient keepers	S1.4	0.081	0.063	0.598	0.742	0.845	0.681
Recording assessment of keeper proficiency	S1.6	0.000	0.003	0.007	0.009	0.011	0.008
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	0.000	0.019	0.118	0.137	0.142	0.133
Secure perimeter fence	S2.1	0.000	0.233	0.000	0.233	0.242	0.226
Training for emergency procedures	S2.13	0.000	0.018	0.048	0.066	0.080	0.058
Backup power for electric barriers	S3.5	0.000	0.002	0.010	0.012	0.012	0.012
Providing information to the public	S3.8	0.000	0.001	0.002	0.003	0.003	0.003
Providing furniture from enrichment	S3.22	0.008	0.018	0.026	0.052	0.054	0.050
Holding enclosure	S3.30	0.012	0.016	0.036	0.063	0.066	0.061

Category of incremental cost	Std/s	Cost to Large Facilities $AUD	Cost to Medium Facilities $AUD	Cost to Small Facilities $AUD	Cost to all facilities 7% discount $AUD	Cost to all facilities 3% discount $AUD	Cost to all facilities 10% discount $AUD
spatial requirements							
Risk assessments for interactive programs	S10.4	0.000	0.007	0.044	0.051	0.062	0.044
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	0.675	1.222	2.970	4.867	5.911	4.258
Total quantifiable incremental cost of general standards		0.776	1.600	3.859	6.235	7.428	5.535
% of quantifiable incremental cost		12.45 %	25.66 %	61.89 %	100.00 %		

A summary of the 10-year quantifiable costs of the proposed general standards under Option B is presented in Table 8 by state and territory with the majority of the cost being incurred by NSW, VIC, QLD and WA and mainly with respect to training and record keeping (except for NSW where there are $0 costs under proposed standard S1.4).

Table 8: Summary of 10-year incremental quantifiable costs of general standards by state and territory (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Training proficient keepers	S1.4	0.000	0.199	0.213	0.028	0.190	0.062	0.035	0.016	0.742
Recording assessment of keeper proficiency	S1.6	0.003	0.002	0.002	0.000	0.002	0.001	0.000	0.000	0.009
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	0.043	0.031	0.023	0.003	0.025	0.008	0.004	0.001	0.137
Secure perimeter fence	S2.1	0.000	0.000	0.058	0.058	0.000	0.058	0.058	0.000	0.233
Training for emergency procedures	S2.13	0.019	0.013	0.014	0.001	0.013	0.004	0.002	0.000	0.066
Backup power for electric	S3.5	0.003	0.002	0.003	0.000	0.002	0.001	0.000	0.000	0.012

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
barriers										
Providing information to the public	S3.8	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.003
Providing furniture from enrichment	S3.22	0.000	0.018	0.019	0.003	0.000	0.006	0.003	0.002	0.052
Holding enclosure spatial requirements	S3.30	0.016	0.012	0.013	0.003	0.011	0.004	0.003	0.002	0.063
Risk assessments for interactive programs	S10.4	0.014	0.010	0.011	0.001	0.010	0.003	0.001	0.000	0.051
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	1.261	0.931	0.993	0.188	0.890	0.312	0.188	0.105	4.867
Total quantifiable incremental cost of general standards	Total	1.359	1.219	1.350	0.286	1.143	0.458	0.294	0.126	6.235
% of quantifiable incremental cost		21.79 %	19.55 %	21.65 %	4.58 %	18.34 %	7.34 %	4.71 %	2.03 %	100.00 %

The list of unquantifiable costs under general standards, is given as follows:

- proposed standard S3.6 – unquantifiable cost of ensuring expression of natural behaviours for up to 420 non-walk through display enclosures.[66]
- proposed standard S3.28 – unquantifiable cost of not being permitted to continuously keep an animal in a holding enclosure for a period longer than 90 days.[67]
- proposed standard S3.29 – unquantifiable cost of ensuring that a holding enclosure complies with the holding enclosure spatial requirements for up to 124 holding enclosures.[68]
- proposed standard S3.31 –unquantifiable cost of ensuring that a holding enclosure is not used for routine management to rotate an animal for up to 124 holding enclosures.[69]

[66] See Part A3.9 of Appendix 3 for a detailed discussion.
[67] See Part A3.13.1 of Appendix 3 for a detailed discussion.
[68] See Part A3.13.3 of Appendix 3 for a detailed discussion.

- proposed standard S3.32 – unquantifiable cost of seeking written advice from the treating veterinarian for continued holding of an animal in a holding enclosure if an animal undergoing veterinary treatment is held for more than seven days in that holding enclosure.[70]

Industry-wide standards would also result in an unquantifiable reduction[71] in regulatory burden by removing any compliance costs associated with a lack of national consistency. Moreover clear and verifiable national standards would make their integration into industry programs such as training and quality assurance (QA) much easier.

Clear and verifiable national standards would also reduce future uncertainty for exhibitors, especially in jurisdictions without any standards as yet. If governments are to take action with respect to animal exhibitors it would be beneficial if exhibitors had some certainty and stability regarding what is expected of them. Such certainty and stability can be provided in the form of transparent national standards, developed as a result of the codification of community values and expectations.

Specifically, consistency in animal welfare standards would reduce the regulatory burden for exhibited animal businesses operating or transporting animals across state or territory borders, where different standards may apply (see Part 2.1.5 of this RIS for a more detailed discussion of inconsistencies). The proposed industry-wide standards would reduce the resistance from some exhibitors and regulators to allowing animals to be sent to destination states where animals may lawfully be kept at lower standards than originating states.

Consistency in standards would also reduce the level of additional costs for exhibitor businesses typically incurred by operating temporary exhibits or establishing permanent exhibitor facilities in other jurisdictions. Specifically, there would be a savings in the costs normally associated with having to analyse and assess business impacts, train staff and ensure compliance arising from vastly different sets of requirements in each jurisdiction.

Finally, cost savings may be provided as result of the reduced need for industry associations to liaise with eight different jurisdictions in their efforts to ensure appropriate animal welfare standards in each jurisdiction.

However, no statistics are currently available on either:

- the extent of transport of exhibited animals across state borders;
- the extent of operations in relation to operating temporary exhibits or establishing permanent exhibitor facilities in other jurisdictions; or

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[69] See Part A3.13.5 of Appendix 3 for a detailed discussion.
[70] See Part A3.13.6 of Appendix 3 for a detailed discussion.
[71] There is also the potential to reduce regulatory burden by removing unnecessary existing standards and while none have yet been identified, this is a question that those making submissions during the public consultation period may wish to comment upon.

- the frequency of liaising between Industry associations and the eight different jurisdictions; and

therefore, these cost savings associated with these issues are unquantifiable.

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option B is presented in Table 9.

Table 9: Summary of incremental quantifiable costs of taxon standards (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	10-year PV cost Large Facilities $AUD	10-year PV Cost Medium Facilities $AUD	10-year PV Cost Small Facilities $AUD	10-year PV Cost 7% $AUD	10-year PV Cost 3% $AUD	10-year PV cost 10% $AUD
Fox proofing enclosures (macropods)	S3.2	0.005	0.009	0.061	0.075	0.078	0.073
Exclusion areas for walk through enclosures (macropods)	S3.3	0.000	0.001	0.003	0.004	0.004	0.004
Providing visitor information (macropods)	S3.4	0.000	0.000	0.001	0.002	0.002	0.002
Fencing requirements (macropods)	S3.6	0.008	0.014	0.084	0.106	0.110	0.103
Enrichment to rock wallaby enclosures (macropods)	S3.7	0.000	0.000	0.001	0.001	0.002	0.001
Minimum spatial requirements (macropods)	S3.8	0.000	0.000	0.002	0.002	0.002	0.002
Providing for elevated positions (macropods)	S5.1	0.001	0.000	0.002	0.003	0.003	0.003
Animal collection management plans and procedures (macropods)	S6.1, S8.1	0.000	0.005	0.032	0.037	0.039	0.036
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	0.000	0.002	0.010	0.012	0.012	0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	0.028	0.144	0.104	0.276	0.287	0.268
Holding enclosure requirements (crocodiles)	S3.7, S3.8	0.001	0.002	0.001	0.004	0.004	0.004
Providing for appropriate enclosure height (ratites)	S3.3	0.006	0.038	0.041	0.084	0.087	0.082
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	0.002	0.006	0.009	0.017	0.017	0.016
Procedures for the collection of eggs (ratites)	S6.1	0.000	0.001	0.005	0.006	0.006	0.006
Enclosure furniture requirements (koalas)	S3.3	0.001	0.004	0.000	0.005	0.005	0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	0.002	0.024	0.000	0.026	0.027	0.026
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	0.001	0.010	0.000	0.011	0.011	0.010
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	0.013	0.087	0.000	0.100	0.122	0.088

Category of incremental cost	Std/s	10-year PV cost Large Facilities $AUD	10-year PV Cost Medium Facilities $AUD	10-year PV Cost Small Facilities $AUD	10-year PV Cost 7% $AUD	10-year PV Cost 3% $AUD	10-year PV cost 10% $AUD
Procedure requirements (koalas)	S10.1	0.000	0.001	0.000	0.001	0.001	0.001
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	0.001	0.021	0.019	0.041	0.043	0.040
Total quantifiable incremental cost of taxon standards		0.069	0.368	0.375	0.812	$0.861	0.780
Percentage of quantifiable incremental cost		8.51 %	45.33 %	46.17 %	100.00 %		

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option B is presented in Table 10 by state and territory with the majority of the cost being incurred by NSW, VIC, QLD, WA and TAS and mainly with respect to: enclosure, furniture and spatial requirements for crocodiles; fox proofing enclosures for macropods[72]; fencing requirements for macropods[73]; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; weighing and recording requirements for koalas[74].

Table 10: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Fox proofing enclosures (macropods)	S3.2	0.000	0.000	0.048	0.006	0.000	0.013	0.006	0.002	0.075
Exclusion areas for walk through enclosures (macropods)	S3.3	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.004
Providing visitor information (macropods)	S3.4	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Fencing requirements (macropods)	S3.6	0.000	0.008	0.000	0.009	0.059	0.018	0.009	0.003	0.106
Enrichment to rock wallaby enclosures (macropods)	S3.7	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001
Minimum spatial requirements (macropods)	S3.8	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.002
Providing for elevated positions	S5.1	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.003

[72] Except for NSW.
[73] Except for NSW.
[74] Except for NSW.

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
(macropods)										
Animal collection management plans and procedures (macropods)	S6.1, S8.1	0.019	0.013	0.001	0.000	0.002	0.001	0.000	0.000	0.037
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	0.004	0.001	0.005	0.000	0.001	0.000	0.000	0.000	0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	0.090	0.066	0.008	0.012	0.063	0.021	0.012	0.005	0.276
Holding enclosure requirements (crocodiles)	S3.7, S3.8	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.004
Providing for appropriate enclosure height (ratites)	S3.3	0.029	0.021	0.000	0.003	0.020	0.006	0.003	0.001	0.084
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	0.006	0.004	0.000	0.001	0.004	0.001	0.001	0.000	0.017
Procedures for the collection of eggs (ratites)	S6.1	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.006
Enclosure furniture requirements (koalas)	S3.3	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	0.000	0.007	0.008	0.001	0.007	0.002	0.001	0.001	0.026
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	0.002	0.003	0.002	0.000	0.003	0.001	0.000	0.000	0.011
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	0.000	0.026	0.028	0.005	0.025	0.008	0.005	0.002	0.100
Procedure requirements (koalas)	S10.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	0.014	0.010	0.000	0.001	0.010	0.003	0.001	0.000	0.041

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Total quantifiable incremental cost of taxon standards		0.167	0.166	0.101	0.041	0.201	0.077	0.041	0.018	0.812
Percentage of quantifiable incremental cost		20.58 %	20.43 %	12.49 %	5.07 %	24.72 %	9.48 %	5.06 %	2.17 %	100.00 %

The list of unquantifiable costs under the proposed taxon standards under Option B, is given as follows:

- proposed standard S11.1 – unquantifiable cost of ensuring macropod transportation containers do not have slatted floors.[75]
- proposed standard S5.3 –unquantifiable cost of ensuring that newly acquired koalas undergo a minimum 30 day period of quarantine, unless advised otherwise by a veterinarian.[76]
- proposed standard S11.1 –unquantifiable cost of ensuring independent koalas are transported individually.[77]
- proposed standard S11.2 – unquantifiable cost of ensuring transportation containers are of a sufficient size to allow the koala to maintain a normal resting posture without being in contact with the container's sides or roof.[78]
- proposed standard S11.1 – unquantifiable cost of ensuring that the wombat is transported in a solid, secure container measuring at least 10% longer than the length of the animal and with sufficient width that enables the wombat to lie comfortably on its side.[79]
- proposed standard S11.2 – unquantifiable cost of ensuring that each adult wombat is transported individually.[80]

The compliance costs of the proposed standards in Option B are likely to be offset to some extent by a consistency in animal welfare standards for exhibited animal businesses operating or transporting animals across state or territory borders, where different standards may apply. However, no statistics are currently available on the extent of transport of exhibited animals across state borders.

Cost savings may also be achieved by exhibitor businesses operating temporary exhibits or establishing permanent exhibitor facilities in other jurisdictions. Additional costs would otherwise be incurred as a result of the need to analyse and assess business impacts, train staff and ensure compliance with vastly different sets of requirements in each jurisdiction. Industry associations would no longer need to liaise with eight different jurisdictions in their efforts to ensure appropriate animal welfare standards in each jurisdiction.

[75] See Part A4.9 of Appendix 4 for a detailed discussion.
[76] See Part A4.21 of Appendix 4 for a detailed discussion.
[77] See Part A4.23 of Appendix 4 for a detailed discussion.
[78] See Part A4.23 of Appendix 4 for a detailed discussion.
[79] See Part A4.25 of Appendix 4 for a detailed discussion.
[80] See Part A4.25 of Appendix 4 for a detailed discussion.

The deficiencies and inconsistencies in standards also create difficulties for the industry in developing and implementing national species management plans. These are directed at maximising the conservation value of their species collections and in minimising impact on industry members by reducing the need to import animals from overseas, either from the wild or from other captive collections. They wish to optimise animal transfers to meet genetic and breeding objectives but are hampered by the fact that individual members operate under differing state and territory regulatory schemes, e.g. an operator in a state without standards may not be able to commit to participate in a program if they don't know what requirements might be imposed by their state regulators. Consistent national standards may significantly reduce the red tape they face in dealing with the current situation of different regulatory standards in each jurisdiction.

The extent of exhibited businesses operating in more than one jurisdiction and the number of animals that are affected adversely is currently unknown; and this is also a question that those making submissions during the public consultation period may wish to comment upon.

Public consultation question 9: a. Do you have evidence that a percentage of exhibited animal businesses operate in more than one state or territory? b. If yes, please provide percentage estimates for various combinations of states and territories.

Some governments have not been able to adequately resource development of their own enforceable standards but would benefit from the availability of national standards and the opportunity to be part of a system of jointly developed standards.

4.3.3 Option A: (non-regulatory option – voluntary national guidelines)

Option A would involve the issuing and promotion of agreed national risk-based guidelines once every 5 years by AMF, to meet the policy objective as discussed in Part 2.2 of this RIS. These agreed national guidelines would encompass 'should statements' as opposed to 'must statements' and, unlike the proposed standards, these guidelines would not become regulations and therefore would not be mandatory (i.e. adherence[81] would be voluntary).

These agreed national guidelines would be additional to industry in the 'base case', such as those provided by ZAA (see Part 1.2.3 of this RIS). The voluntary national guidelines would also be additional to existing state or territory standards and codes of practice and guidelines under the 'base case'.

Unquantifiable incremental net benefits of Option A (Criterion I - animal welfare)

Option A would lead to improved animal welfare outcomes, depending on the level of voluntary adherence with the national guidelines, through a better management of risks to animal welfare in exhibited animal facilities. For a detailed discussion of benefit drivers for animal welfare see Part 4.3.1 of this RIS. However, any resulting improvement over the base case is likely to be significantly less than that which

[81] Compliance is not relevant as guidelines are not binding or enforceable.

would occur under a situation of mandatory compliance with enforceable risk-based standards.

Unquantifiable incremental net benefits of Option A (Criterion II - ecology)
Option A would lead to better ecological outcomes than the 'base case'. Option A would be marginally more effective in dealing with any pest potential arising from intentional theft, natural disasters, poor transport procedures; or escapes of exotic animals.[82] For a more detailed discussion on the benefit drivers for ecology see Part 4.3.1 of this RIS. However, the reduction in ecological risks under Option A would again depend on the level of adherence to voluntary guidelines.

Potential and unquantifiable incremental net costs of Option A (Criterion III – voluntary adherence costs)
Under Option A, operators of exhibited animal facilities would incur voluntary costs, depending on the degree of adherence to the voluntary guidelines. However there would be *no incremental costs imposed under Option A* as compared to the 'base case'. Importantly, *any voluntary cost incurred* would be driven by the degree of adherence to the guidelines. A description of potential voluntary costs with respect to general and taxon guidelines that might be incurred is summarised in Tables 7 and 9 in Part 4.3.2 of this RIS. The potential voluntary costs with respect to general and taxon guidelines per state or territory under Option A (as illustrated in Tables 8 and 10 in Part 4.3.2) will again depend on the degree of adherence to the guidelines.

Option A would be likely to be marginally more effective in promoting consistency than the base case, albeit only by the *encouragement* of consistent guidelines. Industry-wide guidelines would be likely to have some positive effect on the economy and reducing transaction costs by having a 'one-stop-shop' in relation to guidelines for exhibited animals. However, this option would be limited in its ability to facilitate improved consistency of animal welfare outcomes across states and territories. Option A would be limited in its ability to reduce any potential regulatory burden with respect to the transport of exhibited animals, setting up temporary or permanent across border establishments, or liaising by Industry associations, in particular.

Public consultation question 10: a. Do you believe that the net benefits likely to be achieved under **Option A**, including the benefits to animal welfare, agriculture and the environment, are justified? b. Do you believe that the combination of costs and benefits under **Option A** are superior to other options?

4.3.4 Option B: (the proposed national standards)

Option B would involve the issuing and promotion of agreed national risk-based standards once every 5 years by the AMF, to meet the policy objective as discussed in Part 2.2 of this RIS. These agreed national standards would encompass 'must statements' and, unlike Option A, these standards would become regulations and would be mandatory (i.e. compliance would be mandatory).

[82] See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

These agreed national standards would be additional to industry standards in the 'base case', such as those provided by ZAA (see Part 1.2.3 of this RIS). The mandatory national standards would also be additional to existing state or territory standards and codes of practice and guidelines under the 'base case', to the extent that they impose requirements that are not already required by jurisdictions.

Unquantifiable incremental net benefits of Option B (Criterion I - animal welfare)

As compared with Option A, Option B would lead to much improved animal welfare outcomes, through a better management of risks to animal welfare in exhibited animal facilities due to mandatory compliance with enforceable risk-based standards. Specifically, there would be improvements in the welfare of animals with respect to the provision of food and water, suitable environments, health care, opportunity to express most normal behaviours and protection from fear and distress.[83] For a more detailed discussion of the benefit drivers of animal welfare under the proposed general and taxon standards, see Part 4.3.1 of this RIS.

Unquantifiable incremental net benefits of Option B (Criterion II - ecology)

Option B would lead to better ecological outcomes than the 'base case' than under Option A and would be more effective in dealing with any pest potential arising from intentional theft, natural disasters, poor transport procedures or escapes of exotic animals.[84] For a more detailed discussion of the benefit drivers of reduced ecological risk under the proposed general and taxon standards, see Part 4.3.1 of this RIS.

Quantifiable and unquantifiable incremental net costs of Option B (Criterion III – compliance costs)

Quantifiable costs of general standards:

With respect to the general standards – Option B would lead to higher incremental costs than the 'base case', of approximately ***$6.24m*** over 10 years in 2012-13 dollars (discounted at a rate of 7%), as summarised in Table 7 in this RIS. Also, as shown in Table 7, the distribution of incremental costs would be 12.45%, 25.66%, and 61.89% for large, medium and small size facilities, respectively. As shown in Table 8 in this RIS, the quantifiable costs of the general standards would fall mainly on NSW, QLD, VIC and WA with cost shares of 21.79%, 21.65%, 19.55% and 18.34%, respectively. These costs would mainly be incurred with respect to training of keepers and record keeping.

Unquantifiable cost savings of general standards:

Option B would be effective in promoting industry-wide standards, would have a positive effect on the economy and would reduce transaction costs of compliance. The proposed standards would facilitate improved consistency of animal welfare outcomes across states and territories. This would mean more certainty and increased compliance, as well as reduced regulatory burden.

Quantifiable costs of taxon standards:

[83] Biosecurity Queensland, 2008.

[84] See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

With respect to taxon standards – Option B would lead to higher incremental costs than the 'base case', of approximately ***$0.81m*** over 10 years in 2012-13 dollars (discounted at a rate of 7%), as summarised in Table 9 in this RIS. Also, as shown in Table 9, the distribution of incremental costs would be 8.51%, 45.33% and 46.17% for large, medium and small size facilities, respectively. As shown in Table 10 in this RIS, the quantifiable costs of the taxon guidelines would fall mainly on WA, NSW, VIC and QLD with cost shares of 24.72%, 20.58%, 20.43% and 12.49%, respectively. Costs would mainly be incurred with respect to enclosure furniture and spatial requirements for crocodiles; fox proofing enclosures for macropods[85]; fencing requirements for macropods[86]; providing for appropriate enclosure height for ratites; and weighing and recording requirements for koalas[87].

The total quantifiable incremental cost of general and taxon standards under Option B would therefore be approximately ***$7.05m*** over 10 years in 2012-13 dollars.

There would also be some potential unquantifiable incremental costs under general and taxon standards under Option B, as discussed in part 4.3.2 of this RIS.

Public consultation question 11: Do you think that the proposed national standards under **Option B** reflect community values and expectations regarding the acceptable treatment of exhibited animals?

Public consultation question 12: a. Do you believe that the net benefits likely to be achieved under **Option B** including the benefits to animal welfare, agriculture and the environment are justified? b. Do you believe the combination of costs and benefits under **Option B** are superior to other options?

4.3.5 Options C1 and C2: (variations of the proposed national general and taxon standards)

As with Option B, Options C1 and C2 would each involve the issuing and promotion of agreed national risk-based standards once every 5 years by AMF, to meet the policy objective as discussed in Part 2.2 of this RIS. These agreed national standards would become regulations and would be mandatory.

These agreed national standards under Options C1 and C2 would be additional to industry in the 'base case', such as those provided by ZAA (see Part 1.2.3 of this RIS). The mandatory national standards would also be additional to existing state or territory standards and codes of practice and guidelines under the 'base case'.

Option C1 would be a variation of the proposed national standards that would amend taxon proposed standard S3.2 for Macropods, to *require fox-proof fence or effective alternative*. Ground baiting of foxes could be an alternative measure to fox proofing of fences and would involve using fox bait containing sodium fluoroacetate (1080).

[85] Except for NSW.
[86] Except for NSW.
[87] Except for NSW.

Option C2 would be a variation of the proposed national standards that would amend general Standard S3.28 to state *a maximum period in a holding enclosure of 30 days without government approval instead of 90 days*.

Unquantifiable incremental net benefits of Options C1 and C2 (Criterion I - animal welfare)

As with Option B, Options C1 and C2 would lead to improved animal welfare outcomes, through a better management of risks to animal welfare in exhibited animal facilities due to mandatory compliance with enforceable risk-based standards. As with Option B, there would be improvements the welfare of animals with respect to the provision of food and water, suitable environments, health care, opportunity to express most normal behaviours and protection from fear and distress.[88] However, Option C2 would lead to greater animal welfare outcomes than Options B and C1 as there would be a reduction in the number of days an animal would be kept in a holding enclosure given that this option requires that a holding enclosure only needs to be 1/3 of the specified exhibit size.

Unquantifiable incremental net benefits of Options C1 and C2 (Criterion II - ecology)

As with Option B, Options C1 and C2 would lead to an improvement over both the 'base case' and Option A, and would be more effective in dealing with any pest potential arising from intentional theft; natural disasters; poor transport procedures; or escapes of exotic animals[89].

Quantifiable and unquantifiable incremental net costs of Options C1 and C2 (Criterion III – compliance costs)

Quantifiable costs of general standards:

Options C1 and C2 would lead to the same quantifiable incremental costs for the general standards as Option B (see Table 7) of approximately ***$6.24m*** over 10 years in 2012-13 dollars.

Unquantifiable costs of general standards:

With regard to the unquantifiable costs for the general Standards, Option C1 would be identical to Option B (see Part 4.3.2 of this RIS). However, Option C2 would result in additional unquantifiable costs by requiring a maximum period in a holding enclosure of 30 days without government approval instead of 90 days under an amended proposed standard S3.28. This is likely to result in a slightly higher cost than under Options B and C1.

Unquantifiable cost savings of general standards:

Options C1 and C2 would be as effective in promoting consistency as Option B. As with Option B, this would be likely to result in more certainty and increased compliance, as well as reduced regulatory burden.

Quantifiable costs of taxon standards:

[88] Biosecurity Queensland, 2008.

[89] See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

Option C2 would lead to the same quantifiable incremental costs for the taxon standards as Option B (see Table 9 in this RIS) of approximately ***$0.81m*** over 10 years in 2012-13 dollars.

Option C1 which would allow for an alternative to fox proofing macropod enclosures would result in the same incremental costs for the taxon Standards as Option B – except that the incremental cost of proposed taxon standard S3.2 would have an annual cost of $25,251 and a one-off cost of $4,570 or **$0.18m**[90] over 10 years, instead of **$**0.08m[91] over 10 years, a net increase of **$0.1m** over Option B. Moreover, 81.2% of the cost would be incurred by small size facilities and particularly in QLD. This would make the total quantifiable cost of taxon standards under Option C1 equal to approximately ***$0.91m***[92] over 10 years in 2012-13 dollars.

Unquantifiable costs of taxon standards:
With regard to the unquantifiable costs for the taxon Standards, Options C1 and C2 would be identical to Option B.

Public consultation question 13: a. Do you believe that the benefits likely to be achieved under **Variations C1** and/or **C2** of **Option B**, are justified? b. Do you believe the combination of costs and benefits under **Variations C1** and/or **C2** of **Option B** are superior to other options?

4.4 Preferred option

Comparing the costs and benefits against the base case is hindered by the inherent inability to quantify benefits to animal welfare, ecological benefits and consistency, and the difficulty in this case of quantifying some of the costs.

The three evaluation criteria are:

I. Animal welfare benefits;
II. Ecological benefits; and
III. Net compliance costs to industry and government

The incremental costs and benefits of the options relative to the base case are summarised in Table 11.

Table 11: Summary of relative costs[93] and benefits (Options A, B, C1 and C2)

Criterion	I	II	III
Option			
A (guidelines only)	> base case	> base case	0
B (proposed national standards)	> Option A and = to C1	> Option A and = to C1 and C2	$6.24m for general and $0.81m for taxon Standards > Option A

[90] See Part A4.2 of Appendix 4 for source of estimate.
[91] See Part A4.1 of Appendix 4 for source of estimate.
[92] 0.81 + 0.18 - 0.08 = $0.91m.
[93] Over 10 years.

Criterion	I	II	III
C1 (fox proofing or alternative)	> Option A and = to Option B	> Option A and = to Option B and C2	$6.24m for general and $0.91m for taxon standards > Option A and > Option B (for taxon standards only)
C2 (maximum 30 days in holding enclosure without approval from Government)	> Option A, B and C1	> Option A and = to Option B and C1	> $6.24m for general and $0.81m for taxon Standards > Option A and > Option B (for general standard only where unquantifiable cost is likely to be slightly > B)
Rank 1 highest benefit or lowest cost per criteria	**C2**	B, C1 and **C2**	A
Rank 2 highest benefit or lowest cost per criteria	B and C1	A	B
Rank 3 highest benefit or lowest cost per criteria	A	N/A	C1 and **C2**

The above table shows that all options would provide greater benefits than the base case; but all options would, other than Option A, be more costly than the base case. Options B, C1 and C2 would provide greater benefits than Option A; but would also be more costly than Option A.

Options C1 and C2 are not mutually exclusive. Option C1 *(variation of taxon Standard S3.2 to enable baiting as an alternative to fox proof fencing)*, would not provide additional benefits as compared to Option B but would entail a higher cost than Option B if fox baiting is used.

A sensitivity analysis at the 3% discount rate reveals that incremental cost of the taxon proposed standard S3.2 for fox proofing macropod enclosures increases from $861,178 under Option B to $1,003,221 under Option C1 (an increase of $142,043) (see Tables A4.43 and A4.45 in Appendix 4 for source of estimates).

A sensitivity analysis at the 10% discount rate reveals that incremental cost of the taxon proposed standard S3.2 for fox proofing macropod enclosures increases from $780,092 under Option B to $866,563 under Option C1 (an increase of $86,471) (see Tables A4.43 and A4.45 in Appendix 4 for source of estimates).

On the other hand, Option C2 (variation of the proposed general Standard S3.28 which allows *a maximum period in a holding enclosure of 30 days without government approval instead of 90 days*) is likely to provide additional animal welfare benefits under Criterion I, but with a slightly larger unquantifiable cost under Criterion III.

The prevalence of Option C2 in Table 11 suggests that, in terms of ranking, this option is likely to achieve the highest net benefit. ***Therefore Option C2 is deemed to be the preferred option*** and the most likely to achieve the objectives as discussed in Part 2.2 of this RIS.

4.5 Breakeven analysis of the preferred option

The quantifiable cost of the general standards under Option C2 is estimated at approximately $6.24m over 10 years in present value dollars. There are an estimated 255,807 animals exhibited by ZAA and non-ZAA members (i.e. 3.79[94] times the 67,473 animals exhibited by ZAA members, as shown in Table 3 in this RIS). Assuming that welfare gains are possible for 5% of these animals, the break-even additional benefit required per animal at risk is $487.45 over 10 years. This would be equal to *$48.75 per annum per animal at risk* or the equivalent of 1.95 adult entry tickets (assuming the average price of an adult ticket of $25). The welfare of an exhibited animal is considered likely to be valued by the community at more than 1.95 adult entry tickets a year.

With regard to the taxon standards under Option C2 the quantifiable costs are estimated to be $0.81m over 10 years in present value dollars. Estimating that there are 16,937 taxon animals and assuming that welfare gains are possible for 5% of these animals, the break-even benefit required per animal at risk is $959 over 10 years. Per annum per animal, this would be $95.89 or the equivalent of 3.84 adult tickets. The welfare of an exhibited taxon animal is considered likely to be valued by the community at more than 3.84 adult tickets.

In conclusion, while welfare cannot be monetised, the welfare benefit of animals being derived from the Option C2 is likely to exceed the monetary cost and therefore, on breakeven grounds, is likely to provide a net benefit.

5.0 Nature and impacts of preferred option

The preferred option, i.e. the variation of the proposed national standards (Option C2), addresses the identified problems far more comprehensively than the base case, i.e. the existing legislation and standards as listed in Appendix 1 to this RIS.

5.1 Implementation

The intent of preparing the variation of the proposed national standards is to replace current jurisdictional standards, but it is ultimately a matter for each jurisdiction as to whether and how they will implement the national standards, if and when adopted by AMF.

5.2. Impact on competition

The markets affected by the proposed national standards under Option C2 are the markets for recreation, tourism and education. National Competition Policy (NCP) applies to businesses rather than to individuals engaging in non-business activities. To the extent that the proposed national standards would impact on businesses, namely zoos, wildlife parks and aquariums, the incremental costs per business are unlikely to be large enough to create a barrier to entry; and such businesses would be equally

[94] This multiplier 3.79 is calculated as the ratio of the total number of taxon animals exhibited in NSW by ZAA and non-ZAA members, as shown in Table A2.6 (2,252) - to the total number of taxon animals exhibited in NSW by ZAA members only, as shown in Table A2.5 (594).

affected by the same regulatory environment. Thus the proposed national standards would be unlikely to restrict competition.

Table 12 estimates the distributional impact of the quantifiable general standards and taxon standards on samples of small, medium and large facilities arising under Option C2. As shown in Table 12, annualised average cost of general standards per facility as a proportion of admissions revenue represents 0.005% for a medium facility to a maximum of 1.26%. In relation to small facilities, which are the majority representation, costs are likely to represent a proportion of revenue in the vicinity of 0.118% to 0.734%. Therefore, the general standards are unlikely to create a barrier to entry. As shown in Table A3.28 in Appendix 3 – the main cost to small facilities is record keeping (an ongoing cost) and represents 76.97% of all costs. Therefore, the bulk of the average 10-year cost $22,113 to small facilities (see Table A3.28) is likely to be incurred over time (i.e. $2,211 per annum), as opposed to upfront.

Table 12: Distributional impact of general and taxon standards on samples of small, medium and large facilities – Option C2

Size of facility	Estimated admissions revenue	Annualised average cost per facility	Annualised average cost per facility as a % of estimated admission revenue
		General standards[95]	
Large	$5,045,427[96]	$9,702	0.192%
Large	$28,188,493[97]	$9,702	0.034%
Large	$30,100,000[98]	$9,702	0.032%
Medium	$104,000,000[99]	$5,614	0.005%
Medium	$445,500[100]	$5,614	1.260%
Small	$301,125[101]	$2,211	0.734%
Small	$1,875,000[102]	$2,211	0.118%
		Taxon standards[103]	

[95] See Tables A3.28, A3.29 and A3.30 for costs of general standards for small, medium and large facilities, respectively
[96] http://taronga.org.au/sites/default/files/ann-rep-2011-2012.pdf
[97] http://taronga.org.au/sites/default/files/ann-rep-2011-2012.pdf
[98] http://www.australiazoo.com/get-involved/
[99] http://www.dreamworld.com.au/Visitor-Information/Great-Value-Tickets.aspx
[100] Estimate only based on conservative daily admissions of 50 persons with source of data points not provided due to commercial in confidence requirements.
[101] Source of data points not provided due to commercial in confidence requirements
[102] Source of data points not provided due to commercial in confidence requirements
[103] See Tables A4.49, S4.50 and A4.51 for costs of taxon standards for small, medium and large facilities, respectively

Size of facility	Estimated admissions revenue	Annualised average cost per facility	Annualised average cost per facility as a % of estimated admission revenue
Large	$5,045,427	$874	0.017%
Large	$28,188,493	$874	0.003%
Large	$30,100,000	$874	0.003%
Medium	$104,000,000	$1,289	0.001%
Medium	$445,500	$1,289	0.289%
Small	$301,125	$215	0.071%
Small	$1,875,000	$215	0.011%

With regard to the quantifiable taxon standards under C2, annualised average cost per facility as a proportion of admissions revenue represents 0.001% for a medium facility to a maximum of 0.289%. In relation to small facilities, which are the majority representation, costs are likely to represent a proportion of revenue in the vicinity of 0.011% to 0.071%. For these reasons the taxon standards are unlikely to create a barrier to entry.

6.0 Evaluation and review strategy

The effectiveness of the proposed national standards will be evaluated when the standards are next reviewed. Indicators will include the extent to which the standards have been:

- officially adopted by the various government jurisdictions;
- implemented by the exhibited animals industries;
- accepted by the Australian community.

7.0 Conclusions and findings

The main conclusions and findings of the RIS are as follows:

1. Animal exhibition facilities include zoos, wildlife or fauna parks, aquariums and museums with live exhibits.
2. Based on an economic survey conducted for the former Australasian Regional Association of Zoological Parks and Aquaria (now ZAA) in 2009, the total estimated production by Australian zoos is worth about $424 million per annum. This consists of annual operating expenditure of about $358 million and capital expenditure of about $66 million. Zoos employ about 5300 people, including 3700 full-time employees and 1600 part-time employees. International visitors to zoos are estimated to create an estimated net benefit to the Australian economy of about $58 million per annum in addition to their payments for admissions to zoos. Allowing for a multiplier of up to 2.0, this could convert to a total value of about $116 million per annum.

3. There are specific risks to the welfare of captive animals. Non-domestic animals come from a variety of environments, with differing climates, geography, food sources and interactions. They may be solitary animals or part of complex social groups. Non-domestic animals have evolved to survive in a particular environment and are highly adapted to their environment. Because each animal has a different set of needs, some of which can be complex, risks to animal welfare may result.

4. The purpose of the proposed national standards is to specify uniform standards that ensure the welfare and security of animals used for exhibition purposes across Australia. The standards are complemented by guidelines providing advice and/or recommendations to achieve desirable animal welfare and environmental security outcomes. The standards and guidelines apply to those people and industries responsible for the care and management of animals kept for exhibition purposes at facilities for animals temporarily removed from such facilities and to animals being transported to or from such facilities.

5. The main problems underlying the development of the proposed national standards are those relating to a lack of national consistency and lack of clear and verifiable standards, leading to uncoordinated risk management. While the likelihood of these risks becoming problems may generally be low, the consequences could be high if adequate standards are not in place and enforced. These potential risks include:

   - risks to the welfare of exhibited animals; and
   - risks to the environment and agriculture from escaped animals becoming pests and/or spreading diseases.

6. In relation to the proposed national standards the following overarching policy objective is identified:

   To meet community values and expectations regarding the welfare of exhibited animals, and associated protection of the environment and agriculture, in ways that are practical for implementation and industry compliance.

7. Market forces alone would not be expected to solve these problems and intervention in the form of regulated standards is necessary.

8. The options assessed in terms of costs and benefits are:

   - **Option A:** converting the proposed national standards into national voluntary guidelines (the minimum intervention option);
   - **Option B:** the proposed national standards as currently drafted;
   - **Option C:** variations of the proposed national standards as follows:
     - *Option C1*: amend proposed Macropod Standard S3.2 regarding fox-proof fencing to allow for alternative fox management measures such as baiting (records of measures to be kept by operator).

- *Option C2*: amend General Standard S3.28 to state a maximum period in a holding enclosure of 30 days without government approval instead of 90 days.

9. The incremental costs and benefits of the options relative to the base case are summarised in the following Table:

Table 11: Summary of relative costs[104] and benefits (Options A, B, C1 and C2)

Criterion	I	II	III
Option			
A (guidelines only)	> base case	> base case	0
B (proposed national standards)	> Option A and = to C1	> Option A and = to C1 and C2	$6.24m for general and $0.81m for taxon Standards > Option A
C1 (fox proofing or alternative)	> Option A and = to Option B	> Option A and = to Option B and C2	$6.24m for general and $0.91m for taxon standards > Option A and > Option B (for taxon standards only)
C2 (maximum 30 days in holding enclosure without approval from Government)	> Option A, B and C1	> Option A and = to Option B and C1	> $6.24m for general and $0.81m for taxon Standards > Option A and > Option B (for general standard only where unquantifiable cost is likely to be slightly > B)
Rank 1 highest benefit or lowest cost per criteria	**C2**	B, C1 and **C2**	A
Rank 2 highest benefit or lowest cost per criteria	B and C1	A	B
Rank 3 highest benefit or lowest cost per criteria	A	N/A	C1 and **C2**

Option C2 (*variation of the proposed general Standard S3.28 which allows a maximum period in a holding enclosure of 30 days without government approval instead of 90 days*) is likely to provide additional animal welfare benefits under Criterion I, but with a slightly larger cost under Criterion III. The prevalence of Option C2 in Table 11 suggests that, in terms of ranking, this option is likely to achieve the highest net benefit. ***Therefore Option C2 is selected as the preferred option*** and the most likely to achieve the objectives as discussed in Part 2.2 of this RIS.

The preferred option, i.e. the variation of the proposed national standards (Option C2), addresses the identified problems far more comprehensively than the base case, i.e. the existing legislation and standards as listed in Appendix 1 to this RIS. The intent of preparing the variation of the proposed national standards is to replace current jurisdictional standards, but it is ultimately a matter for each jurisdiction as to whether and how they will implement the national standards, if and when adopted by AMF.

10. The incremental costs per business are unlikely to be large enough to create a barrier to entry; and such businesses would be equally affected by the same

[104] Over 10 years.

regulatory environment. Thus the proposed national standards would be unlikely to restrict competition.

Glossary of terms and acronyms

ABS:	Australian Bureau of Statistics
AMF	Agriculture Ministers Forum
animal:	all members of the *animal* kingdom (other than humans), including in the pre-natal, pre-hatched, larval or other such developmental stage, that are kept for *exhibition purposes*.
base case:	means the situation that would exist if the proposed national standards were not adopted.
COAG	Council of Australian Governments
enclosure:	an area or space used to accommodate an *animal* that is surrounded by a barrier capable of containing the animal..
EU:	European Union
euthanasia:	the humane killing of an *animal*.
externality:	means the cost or benefit related to a good or service that accrues to persons other than the buyer or the seller of that good or service.
exhibition purposes	public display, conservation, public education and public entertainment or other prescribed purposes
facility	any premises used for *animal exhibition purposes*
facility perimeter fence:	a structure surrounding a *facility* that discourages and makes difficult unauthorised human entry to the *facility*.
furniture:	any structure or thing within an *enclosure* that the *animal* has access to. This includes perches, shelter, troughs, ropes, pools, *enrichment* toys, trees, vegetation and logs.
guidelines:	the recommended practices to achieve desirable animal welfare outcomes. The guidelines complement the standards. They should be used as guidance. Guidelines use the word 'should'. Non-compliance with one or more guidelines will not in itself constitute an offence under law. Compare with *Standards.*
holding enclosure	an enclosure which is smaller than the enclosure size required by the relevant taxon standard for the animal it holds but does not include an animal container being used during transportation.
interactive program:	activities supervised by one or more keepers which encourage a member of the public to touch, feed and/or have close contact with an animal, either inside or outside the animal's normal enclosure. It is not considered to be an interactive program when members of the public enter a designated walk-through animal enclosure such as a macropod walk-through or a walk-through aviary.
macropod:	a member of the Suborder *Macropodiformes*, including kangaroos, wallaroos, tree-kangaroos, wallabies, hare-wallabies, rock-wallabies, pademelons, quokka, bettongs, potoroos and rat-kangaroos.
market:	means an area of close competition between firms, or the field of rivalry in which firms operate.

market failure:	means the situation which occurs when freely functioning markets, operating without government intervention, fail to deliver an efficient or optimal allocation of resources.
OIE:	World Organisation for Animal Health
operator:	a *licence holder* or a natural person nominated by the *licence holder* to be the person in charge of a *facility*, or, where no licence is held, the person in charge of *animals* held for *exhibition purposes*.
prescribed:	specified by regulations made under an Act.
proficient keeper:	a person who is at least 18 years old employed or engaged under the direction of the *operator* or the *operator's* appointed agent who has a responsibility towards an *animal* or group of *animals* and who has, with respect to an *animal*, demonstrated skills and knowledge in the matters specified in the standards definitions.
public good:	a good or service that will not be produced in private markets because there is no way for the producer to keep those who do not pay for the good or service from using it.
RIS:	Regulation impact statement.
RSPCA:	Royal Society for the Prevention of Cruelty to Animals
SCoPI	the former Standing Council on Primary Industries (SCoPI), which ceased to exist in December 2013.
social cost:	the total of all costs of a particular economic activity borne by all economic agents in society, including consumers, producers and government.
standards:	the acceptable animal welfare and security requirements designated in this document. They are requirements that must be met under law with respect to animals kept for exhibition purposes.
stress:	a response by animals that activates their behavioural, physiological or psychological coping mechanisms.
ZAA	Zoo and Aquarium Association

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Appendices

Appendix 1 – Details of relevant federal, state and territory legislation

Appendix 2 – Estimation of animal exhibit facilities, keepers and animals

Appendix 3 – Estimation of quantifiable incremental costs of the proposed general standards and discussion of unquantifiable costs

Appendix 4 – Estimation of quantifiable incremental costs of the proposed taxon standards and discussion of unquantifiable costs

Appendix 5 – Complete list of public consultation questions

Appendix 1 - Details of relevant federal, state and territory legislation

A1.1 States and territories

Under constitutional arrangements, the primary responsibility for animal welfare within Australia rests with individual states and territories, which exercise legislative control through 'prevention of cruelty to animals Acts' and other legislation (refer to Table A2.1). New South Wales is the only jurisdiction that has legislation specifically for exhibited animals.

Each state or territory has a bureau or office that deals with animal welfare. In many cases designated officers of the Royal Society for the Prevention of Cruelty to Animals (RSPCA) also have authority under state or territory legislation to prosecute offenders for cruelty offences.

Animal welfare concerns arising in particular industries are often addressed in codes of practice or standards developed jointly by government and the industry. All jurisdictions except TAS, NT and ACT have existing codes or standards relating to the welfare of exhibited animals. The proposed national standards are collectively more comprehensive than those of any individual jurisdiction; but otherwise there are no significant conflicts or inconsistencies between the proposed national standards and existing state or territory standards.

All jurisdictions can make compliance with animal welfare standards mandatory. They can either make regulations to require compliance with specified standards or they can incorporate the requirements of standards into the regulations themselves.

Each State and Territory government except WA has an Animal Welfare Advisory Committee (AWAC) that provides advice on animal welfare issues and on associated legislation and codes of practice.[105]

A1.2 Federal and national government

The Federal Government has limited direct responsibility for animal welfare, mainly limited to export processing establishments, the live animal export trade and quarantine.

The main method of dealing with animal welfare issues at the national level to date has been through the development of national model codes of practice in consultation with industry and other stakeholders, for endorsement by the former Primary Industries Ministerial Council, and then the former Standing Council on Primary Industries (SCoPI). The model codes have been used as a guide by the various state and territory governments in the development of their own legislation and codes of practice. These model codes of practice are progressively being converted into national mandatory standards. As these model codes or standards are developed primarily for government purposes, they are separate to the various voluntary codes of

[105] In Western Australia, specialist animal welfare advisory committees are established from time to time as the need arises.

practice and quality assurance programs that may be developed from time to time by industry associations.

The model codes of practice developed to date have focused on livestock species primarily and no national model code of practice has been developed specifically for exhibited animals.

Table A1.1: Summary of relevant state and territory legislation

State or Territory	Act	Existing regulations	Existing standards (red=standards, blue=mixture of standards and guidelines)
ACT	**Animal Welfare Act 1992 .**	*Animal Welfare Regulation 2001*	Nil
NSW	**Exhibited Animals Protection Act 1986**	*Exhibited Animals Protection Regulation 2010*	General Standards for Exhibiting Animals in New South Wales (as amended 15 March 2004). Policy on Exhibiting Primates in New South Wales (published in March 2000) Standards for Exhibiting Animals during Temporary Removals in New South Wales (published in October 2008) Standards for Exhibiting Australian Mammals in New South Wales (published in April 2006) Standards for Exhibiting Bottle-nosed Dolphins (Tursiops truncatus) in New South Wales (published in April 1994) Standards for Exhibiting Captive Raptors in New South Wales (published in May 2010) Standards for Exhibiting Carnivores in New South Wales (published in May 2005) Standards for Exhibiting Seals in New South Wales (published in October 2008)
	Non-Indigenous Animals Act 1987	*Non-Indigenous Animals Regulation 2012*	
	Prevention of Cruelty to Animals Act 1979	*Prevention of Cruelty to Animals Regulation, 2006*	
	Zoological Parks Board Act 1973	*Zoological Parks Regulation 2009*	
NT	**Animal Welfare Act**	*Animal Welfare Regulations*[106]	Nil
QLD	**Animal Care and Protection Act 2001**	*Animal Care and Protection Regulation 2002*	

[106] Regulations are not needed in NT to adopt standards. Standards can be adopted by the Minister by notice in the gazette.

State or Territory	Act	Existing regulations	Existing standards (red=standards, blue=mixture of standards and guidelines)
	Nature Conservation Act 1992 **Land (Pest and Stock Route Management) Act 2002.**	*Nature Conservation (Wildlife) Regulation 2006* *Nature Conservation (Wildlife Management) Regulation 2006* *Nature Conservation (Administration) Regulation 2006* *Land Protection (Pest and Stock Route Management) Regulation 2003.*	Code of Practice for Minimum Standards for Exhibiting Wildlife in Qld (8 March 2010)
SA	**Animal Welfare Act 1985**	*Animal Welfare Regulations 2000*	Policy for the Import, Movement and Keeping of Exotic Vertebrates in South Australia (28 September 2005)
TAS	**Animal Welfare Act 1993**	*Animal Welfare Regulations 2008*	Nil
VIC	**Prevention of Cruelty to Animals Act 1986** **Zoological Parks and Gardens Act 1995** **Wildlife Act 1975**	*Prevention of Cruelty to Animals Regulations 1997* *Zoological Parks and Gardens Regulations 2003* *Wildlife Regulations 2002.*	Code of Practice for the Public Display of Exhibition of Animals (October 2001)
WA	**Animal Welfare Act 2002**	*Animal Welfare (General) Regulations 2003*	Code Of Practice For Exhibited Animals In Western Australia (March 2003)

Table A1.2 Proposed exhibited animals welfare standards 2013 – General standards Comparison with existing standards in each jurisdiction

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
1 RESPONSIBILITIES								
General								
S1.1	☑	☑ vet only						
S1.2								
S1.3	☑	☑ zoos only		☑ exotics only				
S1.4	☑			☑ exotics only				
S1.5				☑ exotics only				
S1.6	☑[107]			☑ exotics only				
S1.7								
S1.8								
2. SECURITY								
General								
S2.1	☑	☑ in part	☑ in part		☑			
S2.2	☑	☑ zoos only	☑ zoos only	☑ exotics only	☑			
S2.3			☑ part only					
S2.4								
S2.5								
S2.6								
S2.7				☑ exotics only				
S2.8		☑ zoos only						
S2.9	☑							
S2.10								
S2.11	☑							
Emergency Procedures								
S2.12		☑ zoos only						
S2.13								
S2.14								
3 ENCLOSURES								
General								

[107] Consequential to S1.4.

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
S3.1		☑ part only	☑ part only					
S3.2	☑	☑ part only	☑ part only		☑			
S3.3	☑	☑ part only	☑ part only		☑			
S3.4								
S3.5								
S3.6								
S3.7								
S3.8								
S3.9	☑							
Gates and Doors								
S3.10	☑							
S3.11	☑				☑			
Drive-Through Enclosures								
S3.12								
S3.13	☑							
S3.14								
S3.15								
S3.16								
S3.17								
S3.18								
S3.19					☑ part only			
Substrate and Drainage								
S3.20	☑	☑ part only			☑			
S3.21					☑			
Enclosure Furniture								
S3.22	☑				☑			
S3.23								
S3.24								
S3.25								
S3.26								
Spatial Requirements								
S3.27	☑				☑			
Holding Enclosures								
S3.28	☑	☑ part only			☑			
S3.29								
S3.30								
S3.31								
S3.32								
4 DIETARY AND WATER REQUIREMENTS								
Food								
S4.1	☑	☑ part			☑			

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
		only						
S4.2	☑							
S4.3								
S4.4		☑ part only			☑			
Water								
S4.5	☑	☑ part only	☑		☑			
S4.6								
5 HEALTH AND WELLBEING								
General								
S5.1								
S5.2								
S5.3								
S5.4		☑ in part	☑		☑			
S5.5					☑			
S5.6								
S5.7		☑						
S5.8								
S5.9					☑			
Enrichment								
S5.10								
S5.11								
S5.12					☑			
Quarantine								
S5.13			☑					
6 REPRODUCTIVE MANAGEMENT								
S6.1		☑ zoos only		☑ exotics only				
S6.2	☑	☑ zoos only						
S6.3		☑ zoos only						
S6.4		☑ zoos only						
S6.5	☑	☑ zoos only						
S6.6		☑ zoos only						
7 EUTHANASIA								
S7.1								
S7.2								
S7.3								
S7.4								
8 CAPTURE AND RESTRAINT								
S8.1				☑ exotics only				
S8.2								

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
S8.3								
S8.4								
S8.5	☑							
9 TRAINING								
S9.1								
S9.2	☑							
S9.3								
S9.4								
S9.5								
10 INTERACTIVE PROGRAMS								
S10.1		☑ in part	☑ wildlife parks only	☑ exotics only	☑			
S10.2								
S10.3					☑			
S10.4								
S10.5								
S10.6					☑			
S10.7		☑ in part						
S10.8			☑ wildlife parks only					
S10.9								
S10.10								
S10.11								
S10.12								
11 TRANSPORTATION								
S11.1								
S11.2	☑	☑ in part						
S11.3	☑	☑ in part						
S11.4		☑ in part		☑ exotics only				
S11.5								
S11.6		☑ in part		☑ exotics only				
S11.7								
S11.8								
S11.9		☑ in part						
S11.10								
12 ANIMAL IDENTIFICATION AND RECORDS								
Animal Identification								
S12.1	☑ in part	☑ zoos only						
S12.2								
Records								
S12.3	☑							
S12.4								

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
S12.5		☑		☑ exotics only	☑ in part			
S12.6	☑	☑						
S12.7								
S12.8								
S12.9								

Appendix 2 – Estimation of animal exhibit facilities, keepers and animals

The estimation of costs and benefits in Appendix 2 are based on critical population statistics on the number of licensed animal exhibit facilities (hereto referred to simply as 'licensed facilities') and keepers associated with these facilities, as well as the number of enclosures and animals kept in these facilities. These statistics are discussed in sections A2.1 and A2.2.

A2.1 Estimated number of licensed facilities and keepers

Statistics on the estimated number of licensed facilities and keepers are provided as they are utilised in the cost benefit analysis in this RIS. As shown in Table A2.1 below the total national number of estimated licensed facilities is given as 211.

Table A2.1: Estimated number of licensed facilities by jurisdiction – 2012

State/Territory	No. of licensed facilities (a)	% of total no. facilities (b)
NSW	58	27.49%
VIC	42	19.91%
QLD	45	21.33%
SA	6	2.84%
WA	40	18.96%
TAS	12	5.69%
NT	6	2.84%
ACT	2	0.95%
Total (Australia)	211	100.00%

Source of table:

- Victoria – Department of Sustainability and Environment (DSE) advised of 39 facilities involving native animals but not including *Melbourne Zoo*, *Werribee Zoo*, or *Healesville Sanctuary*. Information on facilities with exotic animals was not provided by the Department of Primary Industries (DPI);
- South Australia – Biosecurity South Australia (division of PIRSA) advised of 3 licensed zoos (Adelaide Zoo, Monarto Zoological Park, and Gorge Wildlife Park) – ZAA also lists Cleland Wildlife Park – and 2 additional facilities have been identified in <http://australia.gov.au/about-australia/australian-story/zoos-in-australia&http://www.ozanimals.com/nature-travel-touristattractions/Australia/zoo/na.html&http://www.australasianzookeeping.org/Links%20-%20Australian%20Zoos.htm> – excludes facilities that are no longer in operation;
- Western Australia - Department of Environment and Conservation (DEC) advised of 40 facilities – excludes facilities that are no longer in operation, only 1 of those listed with ZAA;
- Tasmania - Department of Primary Industries, Parks, Water and Environment (DPIPWE) advised of 12 facilities;
- NT – no response from Parks and Wildlife – ZAA lists 3 facilities – 3 additional ones have been identified and listed at <http://australia.gov.au/about-australia/australian-story/zoos-in-australia> & <http://www.ozanimals.com/nature-travel-tourist-attractions/Australia/zoo/na.html> & <http://www.australasianzookeeping.org/Links%20-%20Australian%20Zoos.htm>) – excludes facilities that are no longer in operation – The Curator of Life Sciences, Territory Wildlife Park advises of 6 facilities;
- ACT - ZAA lists 2 member facilities

In order to determine the distribution of facilities (i.e. large, medium and small) by number of persons employed – ABS data is used and an assumption is made that such a distribution is constant over time. (More current data is not available regarding this distribution). In June 1997 there were 65 businesses with the following break-up of sized based on the number of persons employed[108]:

- 8 large (50 persons or more)
- 8 medium (20 to 49 persons) – (14.04% of 57 medium and small facilities)
- 49 small (less than 20 persons) – (85.96% of 57 medium and small facilities)

Holding the number of large facilities with 50 persons or more constant at eight and assuming the same proportions for the remaining medium and small facilities for 2011-12 (i.e. 85.96% and 14.04%, respectively) – the following distribution of facilities is provided in Table A2.2 based on an estimated 211 animal exhibit facilities by state and territory.

Table A2.2: Distribution in the estimated number of facilities and by facility size – Australia (2012)

State/Territory	No. of licensed facilities (a)[109]	Large (50 persons or more) (c) = 8	Medium (20 to 49 persons) (d) = [(a)-(b)]*14.04%	Small (less than 20 persons) (e) = [(a)-(b)]*85.96%
NSW	58	1	8	49
VIC	42	1	6	35
QLD	45	1	6	38
SA	6	1	1	4
WA	40	1	5	34
TAS	12	1	2	9
NT	6	1	1	4
ACT	2	1	0	1
Total (Australia)	211	8	28	175

The average number of keepers based on the extent of employment (size of facility) is provided by ZAA based on data collected between 2007 and 2011 through the Association's Accreditation process and between 2011 and 2012 through the Association membership process. The number of representative keeping staff in Table A2.3 is summarised by size of facility.

[108] ABS (1998) Zoos, Parks and Gardens Industry, 1996-97, Catalogue 8699.0.
[109] See Table A2.1 column (a) for source of estimate.

Table A2.3: Average number of keepers by extent of employment (facility size) – Australia (2012)

Size (extent of employment)	Number of data collections (f)	No. of keeping staff reported (full time/part time and casual) by facility size (g)	Average number of keeping staff reported by facility size (h) = (g)/(h)
Small (less than 20 persons)	10	45	5
Medium (20 to 49 persons)	11	110	10
Large (50 persons or more)	11	418	38

The estimated number of keepers across facility size and distribution by state and territory is summarised in Table A2.4 and is based on average number of keeping staff by facility size in Table A2.3 and the distribution of facilities across states and territories by facility size in Table A2.2.

Table A2.4: Estimated number of keepers by facility size and distribution by state and territory – Australia (2012)

State/Territory	No. keeping staff in large facilities (i)= (h)[110]*(c)[111]	No. keeping staff in medium facilities (j) = (h)*(d)	No. keeping staff in small facilities (k) = (h)*(e)	Total no. of keeping staff (l) = (i)+(j)+(h)
NSW	38	80	221	338
VIC	38	57	159	254
QLD	38	61	170	270
SA	38	7	19	64
WA	38	54	151	243
TAS	38	15	43	96
NT	38	7	19	64
ACT	38	1	4	43
Total (Australia)	304	284	785	1373

A2.2 Estimated number of exhibited animals by species, taxon and jurisdiction

Table A2.5 illustrates the number of animals exhibited by jurisdiction, species group and by taxon based on ZAA membership and associates *representing only 56 out of 211 licensed facilities*.

Table A2.5: Number of exhibited animals by species group, taxon and jurisdiction – for the 56 ZAA members and associates *only* - by jurisdiction (2011)

[110] See Table A2.3 column (h) for source of estimates.
[111] See Table A2.2 column (c) for source of estimates.

Species	Taxon standard animal	NSW (11)	VIC (7)	QLD (26)	SA (4)	WA (1)	TAS (2)	NT (3)	ACT (2)	AUSTRALIA (56)
Mammals	Macropods	361	396	962	448	53	101	46	185	**2552**
	Wombats	13	22	61	15	2	10	0	1	**124**
	Koalas	73	32	400	61	4	1	0	8	**579**
	Other	1286	1018	1003	976	285	109	417	161	**5255**
	Total	***1733***	***1468***	***2426***	***1500***	***344***	***221***	***463***	***355***	***8510***
Birds	Ratites	59	62	89	46	5	0	10	3	**274**
	Other	2211	1516	3607	2712	227	82	621	137	**11113**
	Total	***2270***	***1578***	***3696***	***2758***	***232***	***82***	***631***	***140***	***11387***
Fish	***Total***	***4096***	***289***	***23467***	***183***	***93***	***1***	***964***	***495***	***29588***
Reptiles	Crocodilians	88	31	797	13	2	3	388	6	**1328**
	Other	1223	829	2116	429	309	13	323	67	**5309**
	Total	***1311***	***860***	***2913***	***442***	***311***	***16***	***711***	***73***	***6637***
Amphibians	***Total***	***919***	***597***	***318***	***30***	***295***	***0***	***17***	***1429***	***3605***
Invertebrates	***Total***	***3140***	***3101***	***132***	***870***	***6***	***0***	***487***	***10***	***7746***
All species		***13469***	***7893***	***32952***	***5783***	***1281***	***320***	***3273***	***2502***	***67473***

Source: This table has been compiled from 2011 census data from the Zoo and Aquarium Association's *Diversity Index Table* (see http://www.zooaquarium.org.au/)

Actual NSW data as of 30 April 2011 for the number of animals covered by the taxon standards is provided by DPI NSW and is summarised in Table A2.6. It includes both ZAA members and non-members in NSW.

Table A2.6: Number of exhibited taxon standard animal animals (ZAA members and non-members) - NSW (2011)

Taxon standard animal	Number of animals belonging to ZAA members and non-ZAA members
Macropods	1643
Wombats	62
Koalas	193
Ratites	205
Crocodilians	149
Total	2252

By extrapolation using the NSW ratios, the estimated total numbers of exhibited animals covered by the proposed specific taxon standards are shown in Table A2.7.

Table A2.7: Estimated number of exhibited animals by taxon standard (ZAA members and non-members) – by State or Territory (2011)

Taxon standard animal (No. of facilities 2012)	Total NSW (58)	Total Vic (42)	Total QLD (45)	Total SA (6)	Total WA (40)	Total TAS (12)	Total NT (6)	Total ACT (2)	Total Australia (211)
Macropods	1643	1802	4378	2039	241	460	209	842	11615
Wombats	62	105	291	72	10	48	0	5	591
Koalas	193	85	1058	161	11	3	0	21	1531
Ratites	205	215	309	160	17	0	35	10	952
Crocodilians	149	52	1350	22	3	5	657	10	2248
Total taxon standard animals	***2252***	***2260***	***7386***	***2454***	***282***	***515***	***901***	***888***	***16937***

A2.3 Estimated number of enclosures per facility size by species group or taxon standard animal

The average number of enclosures per facility size by species group or taxon standard animal is estimated from data provided via a survey conducted in June 2012 by ZAA of members/associates. The findings of the survey are summarised by facility size in Tables A2.8 to A2.13.

Table A2.8: Average number of enclosures (large facility) by species group – 2012

Nature of enclosure	Mammals	Birds	Reptiles	Amphibians
Number of ***walk-through*** display enclosures for this group	3	3	0	0
Number of ***non-walk-through*** display enclosures for this group	30	9	33	4
Number of non-display (holding) enclosures for this group	85	26	137	64

Table A2.9: Average number of enclosures (large facility) by taxon standard animal – 2012

Nature of enclosure	Macropods	Crocodilians	Ratites	Koalas	Wombats
Number of ***walk-through*** display enclosures for this taxon	2	0	0	0	0
Number of ***non-walk-through*** display enclosures for this taxon	3	5	2	2	1
Number of non-display (holding) enclosures for this taxon	3	9	1	5	1

Table A2.10: Average number of enclosures (medium facility) by species group – 2012

Nature of enclosure	Mammals	Birds	Reptiles	Amphibians
Number of ***walk-through*** display enclosures for this group	2	2	0	0
Number of ***non-walk-through*** display enclosures for this group	25	7	44	3
Number of non-display (holding) enclosures for this group	26	30	55	6

Table A2.11: Average number of enclosures (medium facility) by taxon standard animal – 2012

Nature of enclosure	Macropods	Crocodilians	Ratites	Koalas	Wombats
Number of ***walk-through*** display	2	0	0	1	0

Nature of enclosure	Macropods	Crocodilians	Ratites	Koalas	Wombats
enclosures for this taxon					
Number of *non-walk-through* display enclosures for this taxon	3	9	3	5	3
Number of non-display (holding) enclosures for this taxon	4	10	5	21	6

Table A2.12: Average number of enclosures (small facility) by species group – 2012

Nature of enclosure	Mammals	Birds	Reptiles	Amphibians
Number of *walk-through* display enclosures for this group	1	1	0	0
Number of *non-walk-through* display enclosures for this group	6	4	21	1
Number of non-display (holding) enclosures for this group	11	5	25	2

Table A2.13: Average number of enclosures (small facility) by taxon standard animal – 2012

Nature of enclosure	Macropods	Crocodilians	Ratites	Koalas	Wombats
Number of *walk-through* display enclosures for this taxon	1	0	0	0	0
Number of *non-walk-through* display enclosures for this taxon	3	1	1	0	1
Number of non-display (holding) enclosures for this taxon	4	1	1	0	1

Tables A2.14 summarises the estimated number of total enclosures by facility size and by species group by taking the product of the distribution of the number of large, medium and small facilities in Table A2.2 in each jurisdiction and the number of average enclosures for each type of facility size for each group of species (i.e. Tables A2.8, A2.10 and A2.12).

Table A2.14: Estimated number of total enclosures by species group, facility size and jurisdiction – 2012

Jurisdiction (facility size) and nature of enclosure	Mammals (m)	Birds (n)	Reptiles (o)	Amphibians (p)
NSW 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
NSW 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	16	16	0	0
Number of non-walk-through display enclosures for group	200	56	348	20
Number of non-display (holding) enclosures for group	208	240	440	48
NSW <20 persons (small)				
Number of walk-through display enclosures for group	65	49	16	16
Number of non-walk-through display enclosures for group	294	180	1045	49
Number of non-display (holding) enclosures for group	539	261	1241	114
VIC 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0

Jurisdiction (facility size) and nature of enclosure	Mammals (m)	Birds (n)	Reptiles (o)	Amphibians (p)
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
VIC 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	12	12	0	0
Number of non-walk-through display enclosures for group	144	40	250	14
Number of non-display (holding) enclosures for group	150	173	316	35
VIC <20 persons (small)				
Number of walk-through display enclosures for group	47	35	12	12
Number of non-walk-through display enclosures for group	211	129	752	35
Number of non-display (holding) enclosures for group	388	188	893	82
QLD 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
QLD 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	12	12	0	0
Number of non-walk-through display enclosures for group	154	43	269	15
Number of non-display (holding) enclosures for group	161	185	340	37
QLD <20 persons (small)				
Number of walk-through display enclosures for group	50	38	13	13
Number of non-walk-through display enclosures for group	227	139	807	38
Number of non-display (holding) enclosures for group	416	202	958	88
SA 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
SA 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	1	1	0	0
Number of non-walk-through display enclosures for group	18	5	31	2
Number of non-display (holding) enclosures for group	18	21	39	4
SA <20 persons (small)				
Number of walk-through display enclosures for group	6	4	1	1
Number of non-walk-through display enclosures for group	26	16	92	4
Number of non-display (holding) enclosures for group	47	23	109	10
WA 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
WA 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	11	11	0	0
Number of non-walk-through display enclosures for group	137	38	238	14
Number of non-display (holding) enclosures for group	142	164	301	33

Jurisdiction (facility size) and nature of enclosure	Mammals (m)	Birds (n)	Reptiles (o)	Amphibians (p)
WA <20 persons (small)				
Number of walk-through display enclosures for group	45	34	11	11
Number of non-walk-through display enclosures for group	201	123	715	34
Number of non-display (holding) enclosures for group	369	179	849	78
TAS 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
TAS 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	39	11	67	4
Number of non-display (holding) enclosures for group	40	46	85	9
TAS <20 persons (small)				
Number of walk-through display enclosures for group	13	9	3	3
Number of non-walk-through display enclosures for group	57	35	202	9
Number of non-display (holding) enclosures for group	104	50	240	22
NT 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
NT 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	1	1	0	0
Number of non-walk-through display enclosures for group	18	5	31	2
Number of non-display (holding) enclosures for group	18	21	39	4
NT <20 persons (small)				
Number of walk-through display enclosures for group	6	4	1	1
Number of non-walk-through display enclosures for group	26	16	92	4
Number of non-display (holding) enclosures for group	47	23	109	10
ACT 50 persons or > (large)				
Number of walk-through display enclosures for group	3	3	0	0
Number of non-walk-through display enclosures for group	30	9	33	4
Number of non-display (holding) enclosures for group	85	26	137	64
ACT 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	0	0	0	0
Number of non-walk-through display enclosures for group	4	1	6	0
Number of non-display (holding) enclosures for group	4	4	8	1
ACT <20 persons (small)				
Number of walk-through display enclosures for group	1	1	0	0
Number of non-walk-through display enclosures for group	5	3	18	1
Number of non-display (holding) enclosures for group	9	5	22	2
Australia 50 persons or > (large)				
Number of walk-through display enclosures for group	22	24	0	0

Jurisdiction (facility size) and nature of enclosure	Mammals (m)	Birds (n)	Reptiles (o)	Amphibians (p)
Number of non-walk-through display enclosures for group	237	69	261	29
Number of non-display (holding) enclosures for group	683	206	1094	509
Australia 20 to 49 persons (medium)				
Number of walk-through display enclosures for group	57	57	0	0
Number of non-walk-through display enclosures for group	712	199	1239	71
Number of non-display (holding) enclosures for group	741	855	1567	171
Australia <20 persons (small)				
Number of walk-through display enclosures for group	233	175	58	58
Number of non-walk-through display enclosures for group	1047	640	3723	175
Number of non-display (holding) enclosures for group	1920	931	4421	407
Total Australia	Mammals	Birds	Reptiles	Amphibians
Number of walk-through display enclosures for group	312	255	58	58
Number of non-walk-through display enclosures for group	1996	908	5223	275
Number of non-display (holding) enclosures for group	3344	1992	7082	1087

Tables A2.15 summarises the estimated number of total enclosures by facility size and by taxon standard animal by taking the product of the distribution of the number of large, medium and small facilities in Table A2.2 in each jurisdiction and the number of average enclosures for each type of facility size for taxon standard animals (i.e. Tables A2.9, A2.11 and A2.13).

Table A2.15: Estimated number of total enclosures by taxon standard animal, facility size and jurisdiction – 2012

Jurisdiction and nature of enclosure	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
NSW 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
NSW 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	16	0	0	4	0
Number of non-walk-through display enclosures for taxon	20	68	20	40	24
Number of non-display (holding) enclosures for taxon	28	76	40	168	48
NSW <20 persons (small)					
Number of walk-through display enclosures for taxon	65	0	0	0	0
Number of non-walk-through display enclosures for taxon	131	49	33	0	33
Number of non-display (holding) enclosures for taxon	196	33	33	0	33
VIC 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1

Jurisdiction and nature of enclosure	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
VIC 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	12	0	0	3	0
Number of non-walk-through display enclosures for taxon	14	49	14	29	17
Number of non-display (holding) enclosures for taxon	20	55	29	121	35
VIC <20 persons (small)					
Number of walk-through display enclosures for taxon	47	0	0	0	0
Number of non-walk-through display enclosures for taxon	94	35	23	0	23
Number of non-display (holding) enclosures for taxon	141	23	23	0	23
QLD 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
QLD 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	12	0	0	3	0
Number of non-walk-through display enclosures for taxon	15	52	15	31	19
Number of non-display (holding) enclosures for taxon	22	59	31	130	37
QLD <20 persons (small)					
Number of walk-through display enclosures for taxon	50	0	0	0	0
Number of non-walk-through display enclosures for taxon	101	38	25	0	25
Number of non-display (holding) enclosures for taxon	151	25	25	0	25
SA 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
SA 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	1	0	0	0	0
Number of non-walk-through display enclosures for taxon	2	6	2	4	2
Number of non-display (holding) enclosures for taxon	2	7	4	15	4
SA <20 persons (small)					
Number of walk-through display enclosures for taxon	6	0	0	0	0
Number of non-walk-through display enclosures for taxon	11	4	3	0	3
Number of non-display (holding) enclosures for taxon	17	3	3	0	3
WA 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
WA 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	11	0	0	3	0

Jurisdiction and nature of enclosure	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Number of non-walk-through display enclosures for taxon	14	47	14	27	16
Number of non-display (holding) enclosures for taxon	19	52	27	115	33
WA <20 persons (small)					
Number of walk-through display enclosures for taxon	45	0	0	0	0
Number of non-walk-through display enclosures for taxon	89	34	22	0	22
Number of non-display (holding) enclosures for taxon	134	22	22	0	22
TAS 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
TAS 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	3	0	0	1	0
Number of non-walk-through display enclosures for taxon	4	13	4	8	5
Number of non-display (holding) enclosures for taxon	5	15	8	32	9
TAS <20 persons (small)					
Number of walk-through display enclosures for taxon	13	0	0	0	0
Number of non-walk-through display enclosures for taxon	25	9	6	0	6
Number of non-display (holding) enclosures for taxon	38	6	6	0	6
NT 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
NT 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	1	0	0	0	0
Number of non-walk-through display enclosures for taxon	2	6	2	4	2
Number of non-display (holding) enclosures for taxon	2	7	4	15	4
NT <20 persons (small)					
Number of walk-through display enclosures for taxon	6	0	0	0	0
Number of non-walk-through display enclosures for taxon	11	4	3	0	3
Number of non-display (holding) enclosures for taxon	17	3	3	0	3
ACT 50 persons or > (large)					
Number of walk-through display enclosures for taxon	2	0	0	0	0
Number of non-walk-through display enclosures for taxon	3	5	2	2	1
Number of non-display (holding) enclosures for taxon	3	9	1	5	1
ACT 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	0	0	0	0	0
Number of non-walk-through display enclosures for taxon	0	1	0	1	0
Number of non-display (holding) enclosures for taxon	0	1	1	3	1
ACT <20 persons (small)					

Jurisdiction and nature of enclosure	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Number of walk-through display enclosures for taxon	1	0	0	0	0
Number of non-walk-through display enclosures for taxon	2	1	1	0	1
Number of non-display (holding) enclosures for taxon	3	1	1	0	1
Australia 50 persons or > (large)					
Number of walk-through display enclosures for taxon	16	0	3	3	0
Number of non-walk-through display enclosures for taxon	27	43	19	18	10
Number of non-display (holding) enclosures for taxon	24	69	6	43	8
Australia 20 to 49 persons (medium)					
Number of walk-through display enclosures for taxon	57	0	0	14	0
Number of non-walk-through display enclosures for taxon	71	242	71	142	85
Number of non-display (holding) enclosures for taxon	100	271	142	598	171
Australia <20 persons (small)					
Number of walk-through display enclosures for taxon	233	0	0	0	0
Number of non-walk-through display enclosures for taxon	465	175	116	0	116
Number of non-display (holding) enclosures for taxon	698	116	116	0	116
Total Australia					
Number of walk-through display enclosures for taxon	306	0	3	17	0
Number of non-walk-through display enclosures for taxon	564	460	207	160	211
Number of non-display (holding) enclosures for taxon	822	456	265	642	295

A2.4 Estimated number of facilities operating across taxon standard animals

In order to estimate the number of facilities involved with a particular taxon standard animal for estimating incremental costs in Appendix 3, the following percentages of facilities representing each taxon are given by jurisdiction in Table A2.16. The distribution across an individual taxon represents 115[112] or roughly 54.5% of 211 facilities[113].

Table A2.16: Distribution of animal exhibit facilities amongst individual taxon standard animals by jurisdiction

Jurisdiction	No. of facilities	Macropods (v)	Wombats (w)	Koalas (x)	Ratites (y)	Crocodilians (z)
NSW	22	63.64%	54.55%	50.00%	59.09%	40.91%
VIC	31	61.29%	38.71%	51.61%	48.39%	22.58%
QLD	34	79.41%	50.00%	61.76%	61.76%	70.59%
SA	5	80.00%	80.00%	60.00%	80.00%	40.00%
WA	9	66.67%	55.56%	55.56%	55.56%	11.11%
TAS	6	66.67%	66.67%	66.67%	0.00%	16.67%
NT	6	50.00%	0.00%	0.00%	50.00%	50.00%

[112] Based on ZAA database and manual desktop investigation of facilities which are not ZAA members or associates.

[113] See Table A2.1 for number of total facilities.

ACT	2	100.00%	50.00%	100.00%	50.00%	50.00%
Australia	115	68.70%	47.83%	53.91%	53.91%	41.74%

Taking the product of columns (d) and (e) for medium and small facilities in Table A2.2 and columns (v) to(z) showing the distribution of taxon animal exhibits by state or territory in Table A2.14 – the following estimated distribution of facilities by state or territory, size and taxon is shown in Table A2.17. Large facilities (i.e. 50 persons or greater), which are given as one per state or territory, are simply taken to operate across all taxon listed.

Table A2.17: Estimated distribution of facilities exhibiting taxon standard animal by jurisdiction and facility size - 2012

Jurisdiction (size of facility)	Macropods (a1) = (d) or (e)*(v)	Wombats (b1) = (d) or (e)*(w)	Koalas (c1) = (d) or (e)*(x)	Ratites (d1) = (d) or (e)*(y)	Crocodilians (e1) = (d) or (e)*(z)
NSW <20 persons (small)	31	27	25	29	20
NSW 20 to 49 persons (medium)	5	4	4	5	3
NSW 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon NSW	**37**	**32**	**30**	**35**	**24**
VIC <20 persons (small)	22	14	18	17	8
VIC 20 to 49 persons (medium)	4	2	3	3	1
VIC 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon VIC	**26**	**17**	**22**	**21**	**10**
QLD <20 persons (small)	30	19	23	23	27
QLD 20 to 49 persons (medium)	5	3	4	4	4
QLD 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon QLD	**36**	**23**	**28**	**28**	**32**
SA <20 persons (small)	3	3	3	3	2
SA 20 to 49 persons (medium)	1	1	0	1	0
SA 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon SA	**5**	**5**	**4**	**5**	**3**
WA <20 persons (small)	22	19	19	19	4
WA 20 to 49 persons (medium)	4	3	3	3	1
WA 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon WA	**27**	**23**	**23**	**23**	**5**
TAS <20 persons (small)	6	6	6	0	2
TAS 20 to 49 persons (medium)	1	1	1	0	0
TAS 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon TAS	**8**	**8**	**8**	**1**	**3**
NT <20 persons (small)	2	0	0	2	2
NT 20 to 49 persons (medium)	0	0	0	0	0
NT 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon NT	**4**	**1**	**1**	**4**	**4**
ACT <20 persons (small)	1	0	1	0	0
ACT 20 to 49 persons (medium)	0	0	0	0	0
ACT 50 persons or > (large)	1	1	1	1	1
Total facilities exhibiting taxon ACT	**2**	**1**	**2**	**1**	**1**
AUS <20 persons (small)	118	88	94	94	64
AUS 20 to 49 persons (medium)	19	14	15	15	10
AUS 50 persons or > (large)	8	8	8	8	8
Total facilities exhibiting taxon Australia	**145**	**110**	**118**	**117**	**83**

A2.5 Estimated number of keepers operating across taxon standard animals

The number of keepers involved with a particular taxon standard animal for estimating incremental costs of keepers in Appendix 3 is estimated taking the product of columns (i) (j) and (k) (i.e. the number of keepers by jurisdiction for large, medium small facilities, respectively) in Table A2.4 and columns (v) to (z) (i.e. the distribution of animal exhibits by jurisdiction) in Table A2.16. The following estimated distribution of keepers amongst taxon standard animals by jurisdiction and size of facility is shown in Table A2.18. Note that keepers may work across multiple taxon standard animals.

Table A2.18: Estimated distribution of keepers working with taxon standard animal by jurisdiction and facility size - 2012

Jurisdiction (size of facility)	Macropods (f1) = (i) or (j) or (k)*(v)	Wombats (g1) = (i) or (j) or (k)*(w)	Koalas (h1) = (i) or (j) or (k)*(x)	Ratites (i1) =(i) or (j) or (k)*(y)	Crocodilians (j1) = (i) or (j) or (k)*(z)
NSW <20 persons (small)	140	120	110	130	90
NSW 20 to 49 persons (medium)	51	43	40	47	33
NSW 50 persons or > (large)	24	21	19	22	16
Total keepers by taxon NSW	**215**	**184**	**169**	**200**	**138**
VIC <20 persons (small)	97	61	82	77	36
VIC 20 to 49 persons (medium)	35	22	30	28	13
VIC 50 persons or > (large)	23	15	20	18	9
Total keepers by taxon VIC	**156**	**98**	**131**	**123**	**57**
QLD <20 persons (small)	135	85	105	105	120
QLD 20 to 49 persons (medium)	49	31	38	38	43
QLD 50 persons or > (large)	30	19	23	23	27
Total keepers by taxon QLD	**214**	**135**	**167**	**167**	**190**
SA <20 persons (small)	15	15	12	15	8
SA 20 to 49 persons (medium)	6	6	4	6	3
SA 50 persons or > (large)	30	30	23	30	15
Total keepers by taxon SA	**51**	**51**	**39**	**51**	**26**
WA <20 persons (small)	101	84	84	84	17
WA 20 to 49 persons (medium)	36	30	30	30	6
WA 50 persons or > (large)	25	21	21	21	4
Total keepers by taxon WA	**162**	**135**	**135**	**135**	**27**
TAS <20 persons (small)	28	28	28	0	7
TAS 20 to 49 persons (medium)	10	10	10	0	3
TAS 50 persons or > (large)	25	25	25	0	6
Total keepers by taxon TAS	**64**	**64**	**64**	**0**	**16**
NT <20 persons (small)	10	0	0	10	10
NT 20 to 49 persons (medium)	3	0	0	3	3
NT 50 persons or > (large)	19	0	0	19	19
Total keepers by taxon NT	**32**	**0**	**0**	**32**	**32**
ACT <20 persons (small)	4	2	4	2	2
ACT 20 to 49 persons (medium)	1	1	1	1	1
ACT 50 persons or > (large)	38	19	38	19	19
Total keepers by taxon ACT	**43**	**22**	**43**	**22**	**22**
AUS <20 persons (small)	531	396	425	423	289
AUS 20 to 49 persons (medium)	192	143	153	153	105
AUS 50 persons or > (large)	216	150	169	154	115
Total keepers by taxon Australia	938	690	748	730	509

A2.6 Estimated number of facilities operating across a particular species group

In order to estimate the number of facilities involved with a particular species group for estimating incremental costs in Appendix 3, the following percentages of facilities

representing each species group are given by jurisdiction in Table A2.19. The distribution across an individual taxon represents 115[114] or roughly 54.5% of 211 facilities[115].

Table A2.19: Distribution of animal exhibit facilities amongst individual species groups by jurisdiction – 2012

Jurisdiction	No. of facilities	Mammals (k1)	Birds (l1)	Reptiles (m1)	Amphibians (n1)
NSW	22	90.91%	77.27%	63.64%	36.36%
VIC	31	70.97%	70.97%	41.94%	29.03%
Qld	34	85.29%	70.59%	85.29%	58.82%
SA	5	80.00%	80.00%	80.00%	40.00%
WA	9	66.67%	77.78%	44.44%	22.22%
TAS	6	83.33%	83.33%	83.33%	0.00%
NT	6	50.00%	50.00%	83.33%	16.67%
ACT	2	100.00%	100.00%	100.00%	100.00%
Australia	115	79.13%	73.04%	66.09%	38.26%

Taking the product of columns (d) and (e) for medium and small facilities in Table A2.2 and columns (k1) to(n1) showing the distribution of species group exhibits by state or territory in Table A2.18 – the following estimated distribution of facilities by state or territory, size and taxon is shown in Table A2.20. Large facilities (i.e. 50 persons or greater), which are given as one per state or territory, are simply taken to operate across all taxon listed.

Table A2.20: Estimated distribution of facilities exhibiting species group by jurisdiction and facility size - 2012

Jurisdiction (size of facility)	Mammals (o1) = (d) or (e)*(k1)	Birds (p1) = (d) or (e)*(l1)	Reptiles (q1) = (d) or (e)*(m1)	Amphibians (r1) = (d) or (e)*(n1)
NSW <20 persons (small)	45	38	31	18
NSW 20 to 49 persons (medium)	7	6	5	3
NSW 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species group NSW	**53**	**45**	**37**	**22**
VIC <20 persons (small)	25	25	15	10
VIC 20 to 49 persons (medium)	4	4	2	2
VIC 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species VIC	**30**	**30**	**18**	**13**

[114] Based on ZAA database and manual desktop investigation of facilities which are not ZAA members or associates.

[115] See Table A2.1 for number of total facilities.

Jurisdiction (size of facility)	Mammals (o1) = (d) or (e)*(k1)	Birds (p1) = (d) or (e)*(l1)	Reptiles (q1) = (d) or (e)*(m1)	Amphibians (r1) = (d) or (e)*(n1)
QLD <20 persons (small)	32	27	32	22
QLD 20 to 49 persons (medium)	5	4	5	4
QLD 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species QLD	**39**	**32**	**39**	**27**
SA <20 persons (small)	3	3	3	2
SA 20 to 49 persons (medium)	1	1	1	0
SA 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species SA	**5**	**5**	**5**	**3**
WA <20 persons (small)	22	26	15	7
WA 20 to 49 persons (medium)	4	4	2	1
WA 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species WA	**27**	**31**	**18**	**10**
TAS <20 persons (small)	8	8	8	0
TAS 20 to 49 persons (medium)	1	1	1	0
TAS 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species TAS	**10**	**10**	**10**	**1**
NT <20 persons (small)	2	2	4	1
NT 20 to 49 persons (medium)	0	0	1	0
NT 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species NT	**4**	**4**	**5**	**2**
ACT <20 persons (small)	1	1	1	1
ACT 20 to 49 persons (medium)	0	0	0	0
ACT 50 persons or > (large)	1	1	1	1
Total facilities exhibiting species ACT	**2**	**2**	**2**	**2**
AUS <20 persons (small)	138	130	109	61
AUS 20 to 49 persons (medium)	22	21	18	10
AUS 50 persons or > (large)	8	8	8	8
Total facilities exhibiting species group Australia	**169**	**159**	**135**	**79**

A2.7 Estimated number of keepers operating across species groups

The number of keepers involved with a particular species group for estimating incremental costs of keepers in Appendix 3 is estimated taking the product of columns (i) (j) and (k) (i.e. the number of keepers by jurisdiction for large, medium small facilities, respectively) in Table A2.4 and columns (k1) to (n1) (i.e. the distribution of animal exhibits by jurisdiction) in Table A2.19. The following estimated distribution of keepers amongst taxon standard animals by jurisdiction and size of facility is shown in Table A2.21.

Table A2.21: Estimated distribution of keepers working with species groups by jurisdiction and facility size - 2012

Jurisdiction (size of facility)	Mammals (s1) = (i) or (j) or (k)*(k1)	Birds (t1) = (i) or (j) or (k)*(l1)	Reptiles (u1) = (i) or (j) or (k)*(m1)	Amphibians (v1) = (i) or (j) or (k)*(n1)
NSW <20 persons (small)	200	170	140	80
NSW 20 to 49 persons (medium)	72	62	51	29
NSW 50 persons or > (large)	35	29	24	14
Total keepers by species group NSW	**307**	**261**	**215**	**123**
VIC <20 persons (small)	113	113	67	46
VIC 20 to 49 persons (medium)	41	41	24	17
VIC 50 persons or > (large)	27	27	16	11
Total keepers by species group VIC	**180**	**180**	**106**	**74**
QLD <20 persons (small)	145	120	145	100
QLD 20 to 49 persons (medium)	52	43	52	36
QLD 50 persons or > (large)	32	27	32	22
Total keepers by species group QLD	**230**	**190**	**230**	**159**
SA <20 persons (small)	15	15	15	8
SA 20 to 49 persons (medium)	6	6	6	3
SA 50 persons or > (large)	30	30	30	15
Total keepers by species group SA	**51**	**51**	**51**	**26**
WA <20 persons (small)	101	117	67	34
WA 20 to 49 persons (medium)	36	42	24	12
WA 50 persons or > (large)	25	30	17	8
Total keepers by species group WA	**162**	**189**	**108**	**54**
TAS <20 persons (small)	35	35	35	0
TAS 20 to 49 persons (medium)	13	13	13	0
TAS 50 persons or > (large)	32	32	32	0
Total keepers by species group TAS	**80**	**80**	**80**	**0**
NT <20 persons (small)	10	10	16	3
NT 20 to 49 persons (medium)	3	3	6	1
NT 50 persons or > (large)	19	19	32	6
Total keepers by species group NT	**32**	**32**	**54**	**11**
ACT <20 persons (small)	4	4	4	4
ACT 20 to 49 persons (medium)	1	1	1	1
ACT 50 persons or > (large)	38	38	38	38
Total keepers by species group ACT	**43**	**43**	**43**	**43**
AUS <20 persons (small)	**623**	**585**	**490**	**275**
AUS 20 to 49 persons (medium)	**225**	**211**	**177**	**99**
AUS 50 persons or > (large)	**238**	**232**	**221**	**115**
Total keepers by species group Australia	**1087**	**1028**	**888**	**489**

A2.8 Estimated cost of proficient keepers

In order to estimate the costs of ensuring that there is a proficient keeper at animal exhibit facilities according to the needs of general and specific taxon standards, this section of Appendix 2 helps to establish the one-off cost of training for proficiency. For the purpose of this RIS, a proficient keeper is defined as: a person who is at least 18 years old employed or engaged under the direction of the *operator* or the *operator*'s appointed agent who has a responsibility towards an *animal* or group of *animals* and who has, with respect to an *animal*, demonstrated skills and knowledge in:

i. the basic biology and ecology of the *animal*;
ii. satisfying the physiological, environmental and behavioural (including social) requirements of the *animal*;
iii. recognising indicators of sickness or stress in the *animal*;
iv. the safe handling, *restraint* and transport of the *animal*;
v. minimising the risk of attacks by the *animal* on themselves, other persons or other *animals*;
vi. minimising negative stress impacts on the *animal*;
vii. providing the *animal* with appropriate diets;
viii. maintaining hygiene standards to prevent *disease*;
ix. treating the *animal* as directed by a *veterinarian*;
x. recording information about the *animal* as required by these Standards;
xi. maintaining *enclosure* security;
xii. implementing pest prevention and control measures.

For those already working as an animal keeper in a zoo, theme park, aquarium, or wildlife park, a Certificate III TAFE qualification certifies skills and knowledge regarding how to effectively work within a captive animal institution, how to present information to the public and how to comply with relevant legislation.[116] The course is designed to instruct keepers in the areas of capture, handling, care (including preparing animal diets, monitor feeding and identifying animal behavioural needs), and display of animals for educational and conservation purposes.[117] The course requirements of Certificate III provide information on the following typical example of core and elective units:

Core units	Elective units
• Work Within a Captive Animal Facility • Prepare And Present Information To The Public • Support Collection Management • Prepare And Maintain Animal Housing • Assist With Capturing, Restraining And Moving Animals • Monitor Animal Reproduction • Maintain And Monitor Animal Health And Wellbeing • Provide Enrichment For Animals • Plan For And Provide Nutritional Requirements For Animals	• Rehabilitate Native Wildlife • Release Native Animals To Natural Environment • Develop Institutional Husbandry Guidelines • Assist With Exhibit Design And Renovation Planning • Care For Young Animals • Rescue Animals And Apply Basic First Aid • Assist With Conditioning Animals • Provide Basic Care Of Amphibians • Provide Basic Care Of Birds • Provide Basic Care Of Common Native Mammals • Provide Basic Care Of Marine Fish • Provide Basic Care Of Freshwater Fish • Provide Basic Care Of Marine Aquatic Invertebrates • Provide Basic Care Of Terrestrial And Freshwater Invertebrates

[116] See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.
[117] See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.

• Contribute To OHS Processes • Participate In Environmentally Sustainable Work Practices	• Provide Basic Care Of Mammals • Provide Basic Care Of Non-Venomous Reptiles • Maintain Wildlife Habitat Refuges • Respond To Wildlife Emergencies

Source:< http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx>

The fee for service cost (i.e. economic resource cost) of ***$6,698*** for training proficient keepers at the Certificate III level is given as an average of the following two costs provided by Taronga Zoo[118] (i.e. $5,980) and Box Hill TAFE[119] (i.e. $7,416) and is on the job and self-paced.

A2.9 Estimated time cost of keepers and operators for record keeping

In order to estimate the cost of record keeping for general standards in Appendix 2 and specific taxon standards in Appendix 3 – the hourly charge out rate is estimated for keepers and operators.

The mean average weekly wage for fulltime persons who are skilled animal workers in 2011 is given as $900[120]. This is then annualised and converted to May 2012 values using a 3.09% growth in average wages between 2010 and 2011[121] giving **$48,246.12**.

The hourly charge out rate is then calculated by dividing annual earnings by the product of the number of weeks worked and hours per week and then multiplying this by the overhead cost and on-cost multipliers:

> Hourly charge out rate = annual earnings/(working weeks x hours per week) x on-cost multiplier x overhead cost multiplier

The on-cost multiplier (**1.165**)[122] represents salary on-costs of superannuation, payroll tax, Fringe Benefits Tax (FBT) and workers compensation by state and territory. Leave loading is already incorporated in annual earnings. The on-cost multiplier reflects the ratio of salary on-costs to total earnings as noted in 2002-03[123]. Other salary related on-costs are considered via the number of weeks worked per annum (**44 weeks**), which takes account of an average of two weeks of sick leave and public holidays plus four weeks of annual leave.[124] The **38hour working week** is based on the guarantee of maximum ordinary hours in the Australian Government Workplace Relations Act.

[118]See <http://www.taronga.org.au/education/taronga-training-institute/accredited-training-courses/certificate-iii-captive-animals/certificate-iii-captive-animals> Viewed 29 April 2013.
119See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.
[120] ABS (2011)a – Employee Earnings, Benefits and Trade Union Membership, Cat. 6310.0
[121] ABS (2011)b – Average Weekly Earnings, Australia, Cat. 6302.0
[122] Victorian Competition and Efficiency Commission, 2006.
[123]ABS(2003) – Labour Costs, Australia 2002-03, Table 1a. Major Labour Costs, State/Territory, Cat. 6348.0.55.001
[124] Victorian Competition and Efficiency Commission, 2006.

The overhead cost multiplier (**1.5**) incorporates non-salary related costs such as a vehicle and computer. This multiplier is based on a guidance note from the Victorian Competition and Efficiency commission, which states:

> The Australian Vice–Chancellor's Committee guidance to universities on bidding for research funding suggests multipliers of 1.52 for on-costs and 1.4 for non-laboratory infrastructure costs (excluding other direct, non-salary costs).

This suggests that an overhead multiplier of at least 1.5 may be appropriate.[125]

Therefore, the hourly charge out rate for keepers (i.e. skilled animal workers) is given as***$50.42***:

$48,246.12/(44 x 38) x1.165 x 1.5 =$50.42

In terms of operators the hourly charge out rate is based on the mean average weekly wage for fulltime persons who are office managers or program administrators in 2011 which is $1,812[126]. This is then annualised and converted to May 2012 values using a 3.09% growth in average wages between 2010 and 2011[127] giving **$97,135.52**.

Therefore, the hourly charge out rate for operators (i.e. program administrators) is given as ***$101.52***:

$97,135.52/(44 x 38) x1.165 x 1.5 =$101.52

[125] Victorian Competition and Efficiency Commission, 2006.
[126] ABS (2011)a – Employee Earnings, Benefits and Trade Union Membership, Cat. 6310.0
[127] ABS (2011)b – Average Weekly Earnings, Australia, Cat. 6302.0

Appendix 3 – Estimation of quantifiable incremental costs of the proposed general standards and discussion of unquantifiable costs

The purpose of Appendix 3 is to estimate the quantifiable incremental costs of the proposed animal welfare general standards and to discuss unquantifiable costs and their estimation difficulties. All cost estimates are based on the estimated population of facilities, keepers and enclosures as discussed in Appendix 2. Furthermore, all costs are presented for ten years and discounted at a rate of 7% according to OBPR requirements. It is assumed that the proposed standards will commence operation from 2013/14. Sensitivity tests are included with each of the incremental costs presented with the use of alternative discount rates of 3% and 10%.

A3.1 – Incremental cost of training proficient keepers/trainers – S1.4

Under proposed standard S1.4 of the standards, an operator of an animal exhibit facility must ensure that the husbandry of each animal is supervised by a proficient keeper. The incremental cost of this proposed standard of the standards is estimated using the following assumptions:

- The proportion of keepers requiring proficiency training to generate the sufficient number for compliance with the standards is minimal at 5%[128] as it is assumed that all large and medium facilities would have one or more proficient keepers;
- 1%[129] of small facilities would have to hire a proficient keeper;
- The keepers affected are in all jurisdictions (See Table A2.4 for estimates of keeper numbers) except for NSW as this requirement is already covered under clauses 4(c) and 5 of the NSW General Standards and SA for exotics this is already covered under the SA exotic policy p.24, 25, 27;
- The course fee is an average $6,698 per person (see Part A2.8 in Appendix 2);
- The course is part-time *on the job* and self-paced[130]; and
- The annual cost of a keeper is estimated to be $48,246.12

As shown in Table A3.1, the one-off estimated cost of proficiency training under proposed standard S1.4 would be **$0.34m**.

[128] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).
[129] Based on advice from ECF.
[130] See http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx. Viewed 29 April 2013.

Table A3.1: Estimated one-off cost of competency training for 5% of keepers – 2012-13 dollars[131]

Jurisdiction	Keepers in large facilities needing training (w1)= (i)*5% or (i)*0% for NSW or 30[132]*5% for SA	Keepers in medium facilities needing training (x1) = (j)*5% or (j)*0% for NSW or 6[133]*5% for SA	Keepers in small facilities needing training (y1) =(k)*5% or (k)*0% for NSW or 15[134]*5% for SA	Cost for keepers in large facilities (z1)=(w1) *$6698	Cost for keepers in medium facilities (a2) =(x1)* $6698	Cost for keepers in small facilities (b2) =(y1)* $6698	Total cost for keepers in all facilities (c2)=(z1)+ (a2)+(b2)
NSW	0	0	0	$0	$0	$0	$0
VIC	2	3	8	$12,732	$19,184	$53,117	$85,033
QLD	2	3	9	$12,732	$20,588	$57,004	$90,323
SA	2	0	1	$10,186	$1,872	$5,182	$17,240
WA	2	3	8	$12,732	$18,248	$50,526	$81,506
TAS	2	1	2	$12,732	$5,147	$14,251	$32,130
NT	2	0	1	$12,732	$2,339	$6,478	$21,549
ACT	2	0	0	$12,732	$468	$1,296	$14,496
Total one-off cost (Australia)	**13**	**10**	**28**	$86,580	$67,845	$187,852	$342,277

Furthermore, as shown in Table A3.2, the cost of employing a proficient keeper for 1% of small facilities would be **$0.06m** per annum.

[131] All values for number of keepers requiring training have been rounded to the nearest whole number for presentation purposes and contain rounding error.
[132] Maximum number of keepers working across non-exotic animals in large facilities in SA (see Table A2.18 column (f1) in Appendix 2).
[133] Maximum number of keepers working across non-exotic animals in medium facilities in SA (see Table A2.18 column (f1) in Appendix 2)
[134] Maximum number of keepers working across non-exotic animals in small facilities in SA (see Table A2.18 column (f1) in Appendix 2)

Table A3.2: Estimated annual cost of hiring a proficient keeper for small facilities– 2012-13 dollars

Jurisdiction	Annual cost of hiring a proficient keeper for small facilities (c^) = (e)*1%*$48,246.12 or (e)*0%*$48,246.12 for NSW or 3[135]*1%*$48,246.12 for SA
NSW	$0
VIC	$17,005
QLD	$18,249
SA	$1,659
WA	$16,175
TAS	$4,562
NT	$2,074
ACT	$415
Total annual cost (Australia)	$60,138

As shown in Table A3.3, the estimated 10-year cost of training and hiring proficient keepers under proposed standard S1.4 would equal ***$0.74m*** in present value 2012-13 dollars. Approximately, 80.5% of the cost would be borne by small facilities with VIC, QLD and WA affected in particular.

Table A3.3: Estimated 10-year cost of competency training and hiring proficient keepers under proposed standard S1.4 by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	All facilities
NSW	$0	$0	$0	$0
VIC	$11,899	$17,929	$169,075	$198,904
QLD	$11,899	$19,241	$181,447	$212,587
SA	$9,519	$1,749	$16,495	$27,764
WA	$11,899	$17,054	$160,828	$189,781
TAS	$11,899	$4,810	$45,362	$62,071
NT	$11,899	$2,186	$20,619	$34,705
ACT	$11,899	$437	$4,124	$16,460
Total 10-year cost (Australia) PV - 7% discount	**$80,915**	**$63,407**	**$597,950**	**$742,272**
% share of 10-year cost	10.94%	8.57%	80.49%	100.00%
10-year cost PV - 3% discount sensitivity	*$84,058*	*$65,869*	*$695,373*	*$845,301*
10-year cost PV - 10% discount sensitivity	*$78,709*	*$61,678*	*$540,299*	*$680,685*

[135] Maximum number of small facilities working across non-exotic animals in SA (see Table A2.17 column (a1) in Appendix 2)

A3.2 – Requirement for proficient keepers under Clauses – S1.5, S1.7, S2.6, S8.4, S8.5, S9.2, S10.2, S10.3 and S11.9

Under the proposed animal welfare standards there would be a requirement for proficient keepers or supervision by a proficient keeper/keeper numbers with respect to:

- the management of an animal (S1.5);
- working with a dangerous animal or entering or working in an enclosure containing a dangerous animal (S1.7);
- when an animal is removed from its enclosure (S2.6);
- handling of animals being captured or restrained (S8.4);
- effecting the safe capture or restraint of animals (S8.5);
- training (S9.2);
- overseeing and coordinating all interactive programs (S10.2);
- all interactive programs (S10.3); and
- the transportation of an animal from the time of loading until the moment the animal is offloaded (S11.9).

However, it was confirmed by the expert consultative forum (ECF) that each large or medium facility would have at least one if not more proficient keepers and that, along with the additional training and hiring under proposed standard S1.4, keepers in small facilities would be up to appropriate minimum proficiency levels with respect to the aforementioned Clauses. The proposed standards do not require a keeper to hold a qualification to be deemed proficient and thus many keepers may be regarded as proficient without having completed a recognised course but have the necessary experience. It is understood that a proficient keeper's restraint capabilities are defined under the standards as "any method, (whether physical, chemical or behavioural) of preventing an animal from performing an act or movement". Therefore, with respect to proposed standard S9.2 it is interpreted that a proficient keeper would already have experience with conditioning or training of animals. Therefore, the aforementioned Clauses would not be seen to impose an incremental cost.

Finally with respect to proposed standard S1.7 it is assumed that there would be at least one two way radio, phone or alarm (e.g. mobile phone) available per premises and that there would not be an incremental cost in providing those working with or entering an enclosure with a dangerous animal with such a device.

A3.3 – Incremental cost of recording assessment of keeper proficiency – S1.6

Under proposed standard S1.6 the operator must keep a record of the operator's assessment that a keeper is proficient. This cost is only the cost of documenting the assessment because it is assumed that keepers would otherwise already be assessed under the base case. The incremental cost of this proposed standard of the standards is estimated using the following assumptions:

- documenting assessments would require an operator 30 minutes per annum per keeper
- large facilities are assumed to already be documenting assessments;
- the hourly charge out rate for record keeping is $50.42 (as it is assumed that a keeper would document the assessment with sign-off by the operator); and

- 95% of medium and small operators are already compliant with this proposed standard.

As shown in Table A3.4, the estimated cost of annual record keeping under proposed standard S1.6 would be **$1,347** per annum.

Table A3.4: Estimated annual cost of record keeping for keeper competency assessments under proposed standard S6.1

Jurisdiction	Annual cost to medium facilities (d2) =(j)*0.5hrs*5% $50.42	Annual cost to small facilities (e2) =(k)*0.5hrs*5% $50.42	Total cost to all facilities (f2)=(d2)+ (e2)
NSW	$100	$278	$378
VIC	$72	$200	$272
QLD	$77	$215	$292
SA	$9	$24	$33
WA	$69	$190	$259
TAS	$19	$54	$73
NT	$9	$24	$33
ACT	$2	$5	$7
Total annual cost (Australia)	$358	$990	$1,347

As shown in Table A3.5, the estimated 10-year cost of record keeping would be ***$9,464*** in present value 2012-13 dollars with 73.47% of the cost incurred by small facilities, particularly in NSW, VIC, QLD and WA.

Table A3.5: Estimated 10-year cost of record keeping under proposed standard S1.6 by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$705	$1,952	$2,657
VIC	$507	$1,404	$1,911
QLD	$544	$1,507	$2,051
SA	$62	$171	$233
WA	$482	$1,336	$1,818
TAS	$136	$377	$513
NT	$62	$171	$233
ACT	$12	$34	$47
Total 10-year cost (Australia) PV - 7% discount	**$2,511**	**$6,953**	**$9,464**
% share of 10-year cost	26.53%	73.47%	100.00%
10 year cost PV - 3% discount sensitivity	*$3,050*	*$8,444*	*$11,494*
10-year cost PV - 10% discount sensitivity	*$2,197*	*$6,083*	*$8,280*

A3.4 – Incremental cost of developing and implementing plans, procedures or program under Clauses –S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6

Under the proposed animal welfare standards there would be a requirement for operators to maintain and implement:

- procedures that address the circumstances in which staff can access and enter enclosures used to hold dangerous animals (S1.8);
- procedures to reasonably prevent an animal escaping (S2.7) *(except SA exotics)*;
- procedures for recapturing any escaped animal (S2.8) *(except QLD)*;
- procedures for emergencies (S2.12) *(except QLD)*;
- plan for dealing with incidents including emergency evacuations (S3.18) with details of the plan in (S3.19);
- procedures for indicating how to maintain the acceptable range of an environmental parameter (S5.1)
- program for the control of insects, parasites and vertebrate pests (S5.9) (*except WA*);
- plan for animal collection management (S6.1) (*except QLD and SA exotics*);
- procedures for:(i) the use of euthanasia; and (ii) appropriate methods of euthanasia for each animal held (S7.1);
- procedure for the safe and expedient capture and restraint of animals (S8.1) (*except WA and SA exotics*);
- procedures regarding the health, safety and behavioural needs of the animal during training (S9.1);
- procedures for interactive programs (S10.5); and
- plan for animal transport (S11.6) (*except QLD and SA exotics*).

Furthermore, it is assumed that such plans, procedures and programs would already be provided by 95% of operators and therefore would affect 5% of operators and would involve a time cost of 21 days (i.e. one day for the development and half a day for the implementation of procedures, plans or program (14 in all). Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 157.5hrs per affected facility in NSW, VIC, NT, TAS, and ACT[136]. As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be ***$101.52*** including salary on-costs and overhead costs. This rate is used to determine the hourly time cost of plans, procedures and programs.

For QLD and SA there would only be 10 procedures, plans and program requiring a one-off dedication of 112.5hrs and for WA there would be 12 procedures and plans (no program) requiring 135hrs.

Finally it is assumed that large animal exhibits would already have such procedures, plans and program in place and therefore the only facilities affected would be medium and small ones.

As shown in Table A3.6, the estimated one-off cost of developing and implementing plans, procedures and programs under Clauses S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5 and S11.6 would be **$0.15m.**

[136] See Part 2.9 of Appendix 2 for source of estimate.

Table A3.6: Estimated one-off cost of developing and implementing plans procedures and programs

Jurisdiction	One-off cost to medium facilities (g2) = (d)[137]*5%*157.5hrs*$101.52 or (d)*5%*112.5hrs*$101.52 (QLD or SA) or (d)*5%*135hrs*$101.52 (WA)	One-off cost to small facilities (h2) = (e)[138]*5%*157.5hrs*$101.52 or (e)*5%*112.5hrs*$101.52 (QLD or SA) or (e)*5%*135hrs*$101.52 (WA)	Total one-off cost to all facilities (i2) =(g2)+(h2)
NSW	$6,396	$39,175	$45,571
VIC	$4,601	$28,178	$32,779
QLD	$3,527	$21,600	$25,127
SA	$401	$2,455	$2,855
WA	$3,751	$22,975	$26,726
TAS	$1,234	$7,560	$8,794
NT	$561	$3,436	$3,997
ACT	$112	$687	$799
Total one-off cost (Australia)	$20,582	$126,066	$146,648

As shown in Table A3.7, the estimated one-off cost of developing and implementing plans procedures and programs over 10 years would be ***$0.14m*** in present value 2012-13 dollars. Approximately, 86% of the cost would be incurred by small facilities, with facilities in NSW, VIC, WA and QLD affected in particular.

Table A3.7: Estimated one-off cost of developing and implementing plans procedures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium facilities	Small facilities	All facilities
NSW	$5,977	$36,612	$42,589
VIC	$4,300	$26,335	$30,634
QLD	$3,296	$20,187	$23,483
SA	$375	$2,294	$2,669
WA	$3,506	$21,472	$24,977
TAS	$1,154	$7,065	$8,219
NT	$524	$3,212	$3,736
ACT	$105	$642	$747
Total one-off cost (Australia) PV - 7% discount	$19,236	$117,819	$137,054
% share of one-off cost	14.04%	85.96%	100.00%
One-off cost PV - 3% discount sensitivity	$19,983	$122,394	$142,377
One-off cost PV - 10% discount sensitivity	$18,711	$114,605	$133,316

[137] See Table A2.2 of Appendix 2 for source of estimate.
[138] See Table A2.2 of Appendix 2 for source of estimate.

A3.5 – Incremental cost of secure perimeter fence – S2.1

Under proposed standard S2.1, the operator must ensure that facilities have a secure perimeter fence except for NSW, VIC and WA where this is already a requirement under the base case. This would result in non-compliant medium size facilities such as wildlife fauna parks requiring fencing, such as cyclone fencing. It is assumed that large and small facilities would already have such perimeter fencing as part of normal *operations under the base case.*[139]

For costing purposes it is assumed that these facilities cover an average of 10 hectares per facility or 100,000 square metres. For a square facility this would mean a perimeter of 1,265 metres. It is assumed that the fence would be cyclone fencing and would be around $15 per linear foot or $49.21 per metre. This would result in an average cost of around $62,250 per facility. As shown in Table A2.2 there are very few medium size facilities in the relevant jurisdictions affected ranging from only 1 in NT to about 6 in QLD. For the purpose of estimation it is assumed that one facility in each of the effected jurisdictions would need to put in a secure perimeter fence.

As shown in Table A3.8, the estimated one-off cost of perimeter fence requirements under proposed standard S2.1 would be **$0.25m.**

Table A3.8: Estimated one-off cost of perimeter fence requirements under proposed standard S2.1

Jurisdiction	Total cost to medium facilities
NSW	$0
VIC	$0
QLD	$62,250
SA	$62,250
WA	$0
TAS	$62,250
NT	$62,250
ACT	$0
Total one-off cost (Australia)	**$248,998**

As shown in Table A3.9, the estimated one-off cost of perimeter fence requirements under proposed standard S2.1 over 10 years would be ***$0.23m*** in present value 2012-13 dollars. All of the cost would be incurred by medium size facilities.

[139] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

Table A3.9: Estimated one-off cost of perimeter fence requirements under proposed standard S2.1 by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium facilities
NSW	$0
VIC	$0
QLD	$58,177
SA	$58,177
WA	$0
TAS	$58,177
NT	$58,177
ACT	$0
Total one-off cost (Australia) PV - 7% discount	$232,709
% share of one-off cost	100.00%
One-off cost PV - 3% discount sensitivity	$241,746
One-off cost PV - 10% discount sensitivity	$226,362

A3.6 – Incremental cost of training for emergency procedures – S2.13

Proposed standard S2.13 specifies that an operator must ensure that staff receive training which is appropriate to the duties allocated to them in the facility's emergency procedures. This would entail 5%[140] of all keepers in medium and small facilities requiring roughly 3.5hrs of training a year in emergency procedures involving evacuations, medical or other animal/non-animal related incidents. The hourly charge out rate would be at the keeper rate of *$50.42*.

The estimated annual cost of emergency training under proposed standard S2.13 would be **$9,385**, as shown in Table A3.10.

[140] Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

Table A3.10: Estimated annual cost of training for emergency procedures under proposed standard S2.13 – 2012-13 dollars

Jurisdiction	Cost to medium facilities (j2) = (j)*3.5hrs*5% $50.42	Cost to small facilities (k2) = (k)*3.5hrs*5% $50.42	Total cost to all facilities (l2)=(j2)+(k2)
NSW	$703	$1,946	$2,648
VIC	$505	$1,400	$1,905
QLD	$542	$1,502	$2,044
SA	$53	$132	$185
WA	$481	$1,331	$1,812
TAS	$136	$375	$511
NT	$62	$171	$232
ACT	$12	$34	$46
Total annual cost (Australia)	$2,494	$6,891	$9,385

As shown in Table A3.11, the estimated 10-year cost of training for emergency procedures under proposed standard S2.13 would be ***$0.66m*** in present value 2012-13 dollars. Most of the cost (73.43%) would be incurred by small facilities.

Table A3.11: Estimated 10-year cost of training for emergency procedures under proposed standard S2.13 by state and territory and size of facility– 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$4,936	$13,666	$18,602
VIC	$3,550	$9,830	$13,380
QLD	$3,810	$10,549	$14,359
SA	$372	$930	$1,302
WA	$3,377	$9,351	$12,728
TAS	$953	$2,637	$3,590
NT	$433	$1,199	$1,632
ACT	$87	$240	$326
Total 10-year cost (Australia) PV - 7% discount	**$17,517**	**$48,402**	**$65,919**
% share of 10-year cost	26.57%	73.43%	100.00%
10-year cost PV - 3% discount sensitivity	*$21,275*	*$58,784*	*$80,059*
10-year cost PV - 10% discount sensitivity	*$15,325*	*$42,344*	*$57,669*

A3.7 – Incremental cost of backup power for electric barrier – S3.5

Proposed standard S3.5 specifies that an operator must ensure that an electric barrier has a backup power source if it is the primary containment barrier for an enclosure. The one-off incremental cost of this proposed standard is estimated with the following assumptions:

- One-off cost of installing a generator (diesel) estimated cost at $1,259.95[141]; and
- 5% of medium and small facilities not having backup power;

As shown in Table A3.12, the estimated one-off cost of backup power under proposed standard S3.5 would be $12,788 and would essentially entail one to two additional backup generators required for medium size facilities and about eight to nine additional backup generators required for small size facilities.

Table A3.12: Estimated one-off cost of backup power under proposed standard S3.5

Jurisdiction	Cost to medium facilities (m2) = (d)[142]*5%*$1259.95	Cost to small facilities (n2) = (e)[143]*5%*$1259.95	Total cost to all facilities (o2) = (m2)+(n2)
NSW	$504	$3,087	$3,591
VIC	$363	$2,220	$2,583
QLD	$389	$2,383	$2,772
SA	$44	$271	$315
WA	$345	$2,112	$2,457
TAS	$97	$596	$693
NT	$44	$271	$315
ACT	$9	$54	$63
Total one-off cost (Australia)	$1,795	$10,994	$12,788

As shown in Table A3.13, the estimated one-off cost of backup power under proposed standard S3.5 over 10 years would be ***$11,952*** in present value 2012-13 dollars with 85.96% of the cost incurred by medium size facilities.

[141] See <http://www.oo.com.au/8KVA-Diesel-Generator_P118138.cfm?cm_mmc=Google-_-PLA-_-ToolsHardwareAuto-_-GeneratorsMotors&cagpspn=pla&gclid=CI7WhsKf5rECFcZKpgodZUAAfg> Viewed 29 April 2013.
[142] See Table A2.2 of Appendix 2 for source of estimate.
[143] See Table A2.2 of Appendix 2 for source of estimate.

Table A3.13: Estimated one-off cost of backup power under proposed standard S3.5 by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$471	$2,885	$3,356
VIC	$339	$2,075	$2,414
QLD	$364	$2,227	$2,591
SA	$41	$253	$294
WA	$322	$1,974	$2,296
TAS	$91	$557	$648
NT	$41	$253	$294
ACT	$8	$51	$59
Total one-off cost (Australia) PV - 7% discount	**$1,677**	**$10,274**	$11,952
% share of one-off cost	14.04%	85.96%	100.00%
One-off cost PV - 3% discount sensitivity	*$1,743*	*$10,673*	*$12,416*
One-off cost PV - 10% discount sensitivity	*$1,632*	*$9,994*	*$11,626*

A3.8 – Unquantifiable incremental cost of ensuring enclosures allow for expression of appropriate natural behaviours – S3.6

Under proposed standard S3.6, the operator must ensure that enclosures allow for the expression of appropriate natural behaviours of the animals in those enclosures. However, due to the variability of needs between different species within groupings, it is not possible to estimate the incremental cost of enclosure modification across the industry in terms of the general standards. The total number of non-walk through display enclosures affected assuming 5% non-compliance with the proposed standard, is estimated to be about 420 in total, as shown in Table A3.14.

Table A3.14: Estimated number of non-walk through display enclosures affected by proposed standard S3.6

	Mammals	Birds	Reptiles	Amphibians	Total Australia
Number of non-walk-through display enclosures for group[144]	1996	908	5223	275	8402
Number of non-walk-through display enclosures for group = 5%	100	45	261	14	420

A3.9 – Incremental cost of providing public information – S3.8

Proposed standard S3.8 specifies that an operator must provide all visitors with accurate information relating to animals within an enclosure, including identification of the species. This would entail a one off cost for walk through or display enclosures at $10 per plaque per enclosure and would be required for 5% of relevant enclosures apart from NSW where this is already a requirement under the 'base case'. Also it is assumes that large facilities would already comply with this clause under the base

[144] See Table A2.12 of Appendix 2 for source of estimates

case. The estimated one-off cost of providing public information about enclosure animals under proposed standard S3.8 would be **$3,037** (see Table A3.15).

Table A3.15: Estimated one-off cost of providing information to the public under proposed standard S3.8

Jurisdiction	Cost to medium facilities (p2)=[(m)+(n)+(o)+(p)] [145]*5%*$10	Cost to small facilities (q2)=[(m)+(n)+(o)+(p)] *5%*$10	Total cost to all facilities (r2) = (p2)+(q2)
NSW	$0	$0	$0
VIC	$236	$617	$853
QLD	$253	$662	$915
SA	$29	$75	$104
WA	$224	$587	$811
TAS	$63	$165	$229
NT	$29	$75	$104
ACT	$6	$15	$21
Total one-off cost (Australia)	$840	$2,196	$3,037

As shown in Table A3.16, the estimated one-off cost of providing public information under proposed standard S3.8 over 10 years would be ***$2,838*** in present value 2012-13 dollars with 72.33% of the cost incurred by medium size facilities.

Table A3.16: Estimated one-off cost of providing public information under proposed standard S3.8 by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$0	$0	$0
VIC	$220	$576	$797
QLD	$237	$619	$855
SA	$27	$70	$97
WA	$210	$548	$758
TAS	$59	$155	$214
NT	$27	$70	$97
ACT	$5	$14	$19
Total one-off cost (Australia) PV - 7% discount	**$785**	**$2,053**	**$2,838**
% share of one-off cost	27.67%	72.33%	100.00%
One-off cost PV - 3% discount sensitivity	*$816*	*$2,132*	*$2,948*
One-off cost PV - 10% discount sensitivity	*$764*	*$1,997*	*$2,760*

[145] See Table A2.12 of Appendix 2 for source of estimates for walk through and non-walk through enclosures only and for medium and small facilities

A3.10 – Substrate and drainage requirements – S3.20

Under proposed standard S3.20 the operator must ensure that substrate used within an enclosure:

i. is not be harmful to the animal; and
ii. is kept in a hygienic condition; and
iii. permits effective drainage; and
iv. allows for appropriate natural behaviours.

However, it is assumed that facilities already provide for substrate that would comply with the aforementioned conditions. Furthermore, market forces, POCTA, NSW Code 14, WA Code 7, QLD Code (in part), would already necessitate these relevant conditions under the base case, which are deemed appropriate and necessary for the welfare of animals.

A3.11 – Incremental cost of providing furniture for enrichment – S3.22

Under proposed standard S3.22 an operator must ensure that enclosures contain furniture that contributes to enrichment of the enclosed animal's life in captivity, unless otherwise directed by a veterinarian. This would entail 5%[146] of mammal non-walk through enclosures for large medium and small facilities requiring a one-off capital investment in enrichment (including toys) of around $1000 on average. This is a conservative estimate as enrichment could range from $100 to $10,000 depending on the mammal. Also the incremental cost would not include facilities in NSW and WA, as enrichment is already required under NSW Code 15 and WA Code 21 under the base case.

The estimated one-off cost of providing enrichment under proposed standard S3.22 would be **$0.05m**, as shown in Table A3.17.

[146] Recommended by the ECF.

Table A3.17: Estimated one-off cost of providing furniture for enrichment under proposed standard S3.22

Jurisdiction	Cost to large facilities (s2)=(m)[147]* 5%*$1000	Cost to medium facilities (t2)=(m)*5 %*$1000	Cost to small facilities (u2)=(m)*5% *$1000	Total cost to all facilities (v2) = (s2)+(t2)+(u2)
NSW	$0	$0	$0	$0
VIC	$1,480	$7,193	$10,574	$19,247
QLD	$1,480	$7,719	$11,347	$20,547
SA	$1,480	$877	$1,289	$3,647
WA	$0	$0	$0	$0
TAS	$1,480	$1,930	$2,837	$6,247
NT	$1,480	$877	$1,289	$3,647
ACT	$1,480	$175	$258	$1,913
Total one-off cost (Australia)	$8,880	$18,772	$27,595	$55,247

As shown in Table A3.18, the estimated one-off cost of providing furniture for enrichment under proposed standard S3.22 over 10 years would be ***$0.05m*** in present value 2012-13 dollars with 49.95% of the cost incurred by small size facilities.

Table A3.18: Estimated one-off cost of providing furniture for enrichment under proposed standard S3.22 by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	All Facilities
NSW	$0	$0	$0	$0
VIC	$1,383	$6,722	$9,882	$17,988
QLD	$1,383	$7,214	$10,605	$19,202
SA	$1,383	$820	$1,205	$3,408
WA	$0	$0	$0	$0
TAS	$1,383	$1,804	$2,651	$5,838
NT	$1,383	$820	$1,205	$3,408
ACT	$1,383	$164	$241	$1,788
Total one-off cost (Australia) PV - 7% discount	**$8,299**	**$17,544**	**$25,789**	**$51,632**
% share of one-off cost	16.07%	33.98%	49.95%	100.00%
One-off cost PV - 3% discount sensitivity	*$8,621*	*$18,225*	*$26,791*	*$53,638*
One-off cost PV - 10% discount sensitivity	*$8,073*	*$17,065*	*$25,086*	*$50,224*

[147] See Table A2.12 of Appendix 2 for source of estimates for non-walk through enclosures and for mammals only.

A3.12 – Incremental quantifiable and unquantifiable costs of holding enclosure requirements[148] – S3.28, S3.29, S3.30, S3.31, S3.32

A3.12.1 – Incremental unquantifiable minor cost of S3.28

Under proposed standard S3.28, the operator would not be permitted to continuously keep an animal in a holding enclosure for a period longer than 90 days unless the operator has been granted approval by the relevant government authority. For the most part it would be relatively easy for an operator to meet this requirement by reducing the 'continuous' number of days that an animal is kept in a holding enclosure for most of the following reasons:

i. cleaning of the animal's enclosure;
ii. repair and maintenance of the animal's enclosure;
iii. overnight security;
v. overnight sleeping dens; and
vi. as part of, or in preparation for, an animal demonstration.

Furthermore, this would already be a requirement under NSW Code 20, WA Code 18; and the QLD Code (in part) under the base case. However, it may be difficult for an operator to meet this requirement by reducing the 'continuous' number of days that an animal is kept in a holding enclosure for:

iv. capture, restraint, transport or veterinary reasons.

For example, it is conceivable that a sick animal (e.g. one suffering from broken bones) would have to be maintained and cared for in a holding enclosure for a longer period than the minimum continuous days allowed. In this case there would be an incremental cost of seeking approval by the relevant government authority. However, given that the frequency and magnitude of this occurring is unknown – this proposed standard remains unquantifiable.

A3.12.2 – Incremental unquantifiable minor cost of amended S3.28 – Option C2

Under Option C2, general Standard S3.28 would be amended to state a maximum period in a holding enclosure of 30 days without government approval instead of 90 days. This option is introduced to address the concern that the current time of 90 days could promote an animal welfare issue given that a holding enclosure only needs to be 1/3 of the specified exhibit size. This would require that government approval be sought more often with the use of holding enclosures particularly for veterinary reasons. This is likely to add a minor incremental cost however as with part A3.12.1, given that the frequency and magnitude of this occurring is unknown – this proposed standard remains unquantifiable.

[148] S3.27 relates to taxon standards and is discussed in particular taxon contexts in Appendix 4.

A3.12.3 – Incremental unquantifiable cost of S3.29

Proposed standard S3.29 requires that the operator must ensure that a holding enclosure complies with the holding enclosure spatial requirements stipulated by relevant taxon standards unless:

> i. the animal it encloses is being treated by a veterinarian and the veterinarian has determined that treatment of the animal's condition requires it to be held in a smaller enclosure; or
>
> ii. approval to hold the animal in a smaller enclosure has been granted by the relevant government authority.

Given that the rate at which the aforementioned scenarios would occur is unknown, this clause remains unquantifiable. However at 5% non-compliance there would potentially be 124 holding enclosures affected by the current taxon standards (see discussion in Appendix 4) as shown in Table A3.19.

Table A3.19: Estimated number of non-display (holding) enclosures affected by proposed standard S3.29

	Macropods	Crocodilians	Ratites	Koalas	Wombats	Total
Number of non-display (holding) enclosures for taxon[149]	822	456	265	642	295	2480
Number of non-display (holding) enclosures for taxon = 5%	41	23	13	32	15	124

A3.12.4 – Incremental cost of S3.30

Proposed standard S3.30 requires where no holding enclosure spatial requirements are stipulated by relevant taxon standards the operator must ensure that the spatial dimensions of a holding enclosure are a minimum of 1/3 of a non-walk through display enclosure. The implication of this is that for the 5% of non-compliant holding enclosures for species groups, this would involve moving or removing fencing at a rate of $50 per hour for 2hrs of labour time (i.e. $100 per holding enclosure). The estimated one-off cost of ensuring sufficient spatial dimensions of a holding enclosure under proposed standard S3.30 would be **$0.06m**, as shown in Table A3.20.

[149] See Table A2.13 in Appendix 2 for source of estimates.

Table A3.20: Estimated one-off cost of providing sufficient spatial dimensions for holding enclosures under proposed standard S3.30

Jurisdiction	Cost to large facilities (w2)= [(m)+(n)+(o)+(p)] 150 *5%*$100	Cost to medium facilities (x2)= [(m)+(n)+(o)+(p)] *5%*$100	Cost to small facilities (y2)= [(m)+(n)+(o)+(p)] *5%*$100	Total cost to all facilities (z2) = (w2)+(x2) +(y2)
NSW	$1,558	$4,680	$10,780	$17,018
VIC	$1,558	$3,366	$7,754	$12,678
QLD	$1,558	$3,613	$8,321	$13,492
SA	$1,558	$411	$946	$2,914
WA	$1,558	$3,202	$7,376	$12,136
TAS	$1,558	$903	$2,080	$4,542
NT	$1,558	$411	$946	$2,914
ACT	$1,558	$82	$189	$1,829
Total one-off cost (Australia)	$12,464	$16,667	$38,392	$67,523

As shown in Table A3.21, the estimated one-off cost of providing sufficient spatial dimensions for holding enclosures under proposed standard S3.30 over 10 years would be ***$0.06m*** in present value 2012-13 dollars with 56.86% of the cost incurred by small size facilities.

Table A3.21: Estimated one-off cost of providing sufficient spatial dimensions for holding enclosures under proposed standard S3.30 by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total facilities
NSW	$1,456	$4,374	$10,075	$15,905
VIC	$1,456	$3,146	$7,247	$11,849
QLD	$1,456	$3,376	$7,777	$12,609
SA	$1,456	$384	$884	$2,723
WA	$1,456	$2,993	$6,893	$11,342
TAS	$1,456	$844	$1,944	$4,244
NT	$1,456	$384	$884	$2,723
ACT	$1,456	$77	$177	$1,710
Total one-off cost (Australia) PV - 7% discount	**$11,649**	**$15,577**	**$35,880**	**$63,106**
% share of one-off cost	18.46%	24.68%	56.86%	100.00%
One-off cost PV - 3% discount sensitivity	*$12,101*	*$16,182*	*$37,274*	*$65,557*
One-off cost PV - 10% discount sensitivity	*$11,331*	*$15,152*	*$34,902*	*$61,385*

[150] See Table A2.12 of Appendix 2 for source of estimates for holding enclosures.

A3.12.5 – Incremental unquantifiable cost of S3.31

Proposed standard S3.31 requires that an operator must ensure that a holding enclosure is not used for routine management to rotate an animal through an enclosure unless:

> i. the holding enclosure meets the spatial requirements stipulated by relevant taxon standards; or
> ii. where no holding enclosure spatial requirements are stipulated by relevant taxon standards, the holding enclosure is a minimum of 1/3 the enclosure spatial requirements stipulated by relevant taxon standards; and
> iii. the animal is kept in the holding enclosure no more than 24 hours in any 48 hour period.

The incremental cost of (ii) has already been accounted for and it would be relatively simply for an operator to ensure that an animal is kept in a holding enclosure for a maximum of 24 hours over 2 days (i.e. iii). However, as with S3.29, there would an unknown proportion of approximately of 124 holding enclosures that would be affected by spatial requirements under (i). Therefore, for the same reasons as under proposed standard S3.29, the incremental cost of proposed standard S3.31 remains unquantifiable.

A3.12.6 – Incremental unquantifiable cost of S3.32

Under proposed standard S3.32 there would be an incremental cost to an operator for seeking written advice from the treating veterinarian that recommends continued holding of an animal in a holding enclosure if an animal undergoing veterinary treatment is held for more than seven days in that holding enclosure and it is either:

> i. smaller than the holding enclosure spatial requirements stipulated by relevant taxon standards; or
> ii. where no holding enclosure spatial requirements are stipulated by relevant taxon standards, smaller than 1/3 of the prescribed enclosure dimensions

However, given that the rate at which the aforementioned scenarios would occur is unknown, this proposed standard remains unquantifiable.

A3.13 – Incremental cost of risk assessments for interactive programs – S10.4

Under proposed standard S10.4 an operator must ensure that a risk assessment examining the risks to the animals is undertaken for each interactive program and is reviewed on a regular basis. For estimating this incremental cost it is assumed that 5% of medium and small facilities are non-compliant and that on average each facility would have two programs. There would be a cost of 3.5hrs per annum including development and annual review of risk assessments by the program administrator at an hourly charge out rate of $101.52 (including on-costs and overhead costs).

The estimated annual cost of undertaking risk assessment of interactive programs under proposed standard S10.4 would be **$7,213**, as shown in Table A3.22.

Table A3.22: Estimated annual cost of undertaking risk assessments for interactive programs under proposed standard S10.4

Jurisdiction	Cost to medium facilities (a3) = (d)[151]*5%*$101.52*2	Cost to small facilities (b3) = (e) *5%*$101.52*2	Total cost to all facilities (c3)=(a3)+(b3)
NSW	$284	$1,741	$2,025
VIC	$204	$1,252	$1,457
QLD	$219	$1,344	$1,563
SA	$25	$153	$178
WA	$194	$1,191	$1,386
TAS	$55	$336	$391
NT	$25	$153	$178
ACT	$5	$31	$36
Total annual cost (Australia)	$1,012	$6,201	$7,213

As shown in Table A3.23, the estimated 10-year cost of undertaking a risk assessment of interactive programs under proposed standard S10.4 would be ***$0.05m*** in present value 2012-13 dollars with 85.96% of the cost incurred by small size facilities.

Table A3.23: Estimated 10-year cost of undertaking risk assessment of interactive programs under proposed standard S10.4 by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$1,997	$12,229	$14,225
VIC	$1,436	$8,796	$10,232
QLD	$1,541	$9,440	$10,981
SA	$175	$1,073	$1,248
WA	$1,366	$8,367	$9,733
TAS	$385	$2,360	$2,745
NT	$175	$1,073	$1,248
ACT	$35	$215	$250
Total 10-year cost (Australia) PV - 7% discount	**$7,110**	**$43,551**	**$50,662**
% share of 10-year cost	14.04%	85.96%	100.00%
10-year cost PV - 3% discount sensitivity	*$8,636*	*$52,894*	*$61,529*
10-year cost PV - 10% discount sensitivity	*$6,221*	*$38,101*	*$44,321*

A3.14 – Incremental cost of keeping records – S10.11, S12.3, S12.5, S12.6, S12.7, S12.9 and S12.10

Under the standards a number of record keeping requirements would be required. The records of individual animals would assist with monitoring the health and welfare of an animal over time. Such records would provide a better capacity to monitor

[151] See Table A2.2 for source of estimates on number of medium and small facilities.

treatment and address problems both in the short and longer term. These record-keeping requirements would include the operator ensuring that:

- the time an animal is used in an interactive program is recorded (S10.11);
- an animal register and animal health records are kept and maintained for all animals in the facility (S12.3) with particular information included in the register (S12.5) and in the animal health record (S12.6);
- a copy of all animal register and animal health records of the animal being moved are provided to the receiving facility (S12.7);
- all reasonable steps are taken to ensure records are kept securely and cannot be damaged (S12.9); and
- significant loss or damage to records is reported in writing to the government authority (S12.10).

In order to estimate the incremental cost of record keeping, it is assumed that such activities could be represented by 2 minutes[152] of work by keepers at an hourly charge out rate of $50.42 per enclosure every day and would involve monitoring the health and welfare of animals in the enclosure. All calculations are based on walk through, non-walk through and holding enclosures. Moreover, it is assumed that there is 5% non-compliance.

The estimated annual cost of undertaking record keeping under proposed standards S10.11, S2.13, S12.5, S12.6, S12.7, S12.9 and S12.10 would be $0.69m, as shown in Table A3.24.

Table A3.24: Estimated annual cost of record keeping requirements

Jurisdiction	Cost to large facilities (d3)= [(m)+(n)+(o)+(p)][153] *5%*10min*$50.42	Cost to medium facilities (e3)= [(m)+(n)+(o)+(p)] *5%*10min*$50.42	Cost to small facilities (f3)= [(m)+(n)+(o)+(p)]*5 %*10min*$50.42	Total cost to all facilities (g3) = (d3)+(e3)+(f3)
NSW	$12,018	$48,835	$118,743	$179,596
VIC	$12,018	$35,127	$85,412	$132,557
QLD	$12,018	$37,697	$91,661	$141,377
SA	$12,018	$4,284	$10,416	$26,718
WA	$12,018	$33,413	$81,245	$126,677
TAS	$12,018	$9,424	$22,915	$44,358
NT	$12,018	$4,284	$10,416	$26,718
ACT	$12,018	$857	$2,083	$14,958
Total annual cost (Australia)	$96,148	$173,920	$422,892	$692,959

As shown in Table A3.25, the estimated 10-year cost of record keeping requirements would be ***$4.87m*** in present value 2012-13 dollars with approximately 61% of the cost incurred by small size facilities and particularly in NSW, VIC, QLD and WA.

[152] Based on industry estimates of an average 20 minutes to inspect 10 enclosures
[153] See Table A2.14 of Appendix 2 for source of estimates for holding enclosures.

Table A3.25: Estimated 10-year cost of record keeping requirements by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Large Facilities	Medium Facilities	Small Facilities	Total Facilities
NSW	$84,413	$342,994	$834,001	$1,261,408
VIC	$84,413	$246,715	$599,896	$931,023
QLD	$84,413	$264,767	$643,790	$992,971
SA	$84,413	$30,087	$73,158	$187,658
WA	$84,413	$234,680	$570,632	$889,725
TAS	$84,413	$66,192	$160,948	$311,552
NT	$84,413	$30,087	$73,158	$187,658
ACT	$84,413	$6,017	$14,632	$105,062
Total 10-year cost (Australia) PV - 7% discount	**$675,302**	**$1,221,540**	**$2,970,215**	$4,867,057
% share of 10-year cost	13.87%	25.10%	61.03%	100.00%
10-year cost PV - 3% discount sensitivity	*$820,160*	*$1,483,572*	*$3,607,353*	$5,911,085
10-year cost PV - 10% discount sensitivity	*$590,787*	*$1,068,662*	*$2,598,487*	$4,257,936

A3.15 – Summary of quantifiable incremental costs under the general standards Option B

A summary of the 10-year quantifiable costs of the proposed general standards under Option B is presented in Table A3.26 and is estimated to be $6.24m (discounted at 7%) with 61.89% of the cost being incurred by small facilities and mainly with respect to training and record keeping.

Table A3.26: Summary of 10-year incremental quantifiable costs of general standards (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	Cost to Large Facilities	Cost to Medium Facilities	Cost to Small Facilities	Cost to all facilities 7% discount	Cost to all facilities 3% discount	Cost to all facilities 10% discount
Training proficient keepers	S1.4	$0.081	$0.063	$0.598	$0.742	$0.845	$0.681
Recording assessment of keeper proficiency	S1.6	$0.000	$0.003	$0.007	$0.009	$0.011	$0.008
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	$0.000	$0.019	$0.118	$0.137	$0.142	$0.133
Secure perimeter fence	S2.1	$0.000	$0.233	$0.000	$0.233	$0.242	$0.226
Training for emergency	S2.13	$0.000	$0.018	$0.048	$0.066	$0.080	$0.058

procedures							
Backup power for electric barriers	S3.5	$0.000	$0.002	$0.010	$0.012	$0.012	$0.012
Providing information to the public	S3.8	$0.000	$0.001	$0.002	$0.003	$0.003	$0.003
Providing furniture from enrichment	S3.22	$0.008	$0.018	$0.026	$0.052	$0.054	$0.050
Holding enclosure spatial requirements	S3.30	$0.012	$0.016	$0.036	$0.063	$0.066	$0.061
Risk assessments for interactive programs	S10.4	$0.000	$0.007	$0.044	$0.051	$0.062	$0.044
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	$0.675	$1.222	$2.970	$4.867	$5.911	$4.258
Total quantifiable incremental cost of general standards		$0.776	$1.600	$3.859	$6.235	$7.428	$5.535
% of quantifiable incremental cost		12.45%	25.66%	61.89%	100.00%		

A summary of the 10-year quantifiable costs of the proposed general standards under Option B is presented in Table A3.27 by state and territory with the majority of the cost being incurred by NSW, VIC, QLD and WA and mainly with respect to training and record keeping (except for NSW where there are $0 costs under proposed standard S1.4).

Table A3.27: Summary of 10-year incremental quantifiable costs of general standards by state and territory (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Training proficient keepers	S1.4	0.000	0.199	0.213	0.028	0.190	0.062	0.035	0.016	0.742
Recording assessment of keeper proficiency	S1.6	0.003	0.002	0.002	0.000	0.002	0.001	0.000	0.000	0.009
Developing and implementing plans,	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1,	0.043	0.031	0.023	0.003	0.025	0.008	0.004	0.001	0.137

procedures and program	S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6									
Secure perimeter fence	S2.1	0.000	0.000	0.058	0.058	0.000	0.058	0.058	0.000	0.233
Training for emergency procedures	S2.13	0.019	0.013	0.014	0.001	0.013	0.004	0.002	0.000	0.066
Backup power for electric barriers	S3.5	0.003	0.002	0.003	0.000	0.002	0.001	0.000	0.000	0.012
Providing information to the public	S3.8	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.003
Providing furniture from enrichment	S3.22	0.000	0.018	0.019	0.003	0.000	0.006	0.003	0.002	0.052
Holding enclosure spatial requirements	S3.30	0.016	0.012	0.013	0.003	0.011	0.004	0.003	0.002	0.063
Risk assessments for interactive programs	S10.4	0.014	0.010	0.011	0.001	0.010	0.003	0.001	0.000	0.051
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	1.261	0.931	0.993	0.188	0.890	0.312	0.188	0.105	4.867
Total quantifiable incremental cost of general standards		1.359	1.219	1.350	0.286	1.143	0.458	0.294	0.126	6.235
% of quantifiable incremental cost		21.79 %	19.55 %	21.65 %	4.58 %	18.34 %	7.34 %	4.71 %	2.03 %	100.00 %

A3.16 – Summary of distribution of incremental costs under the general standards for Option B

A summary of the distribution of 10-year quantifiable costs by state and territory of the proposed general standards under Option B is presented in Tables A3.28 to A3.30 incurred by small facilities, medium facilities and large facilities, respectively. As shown in Table A3.28 the average annualised cost for a small facility is estimated to be $2,211 in present value dollars. For medium facilities the average annualised cost

is estimated to be $5,614 (see Table A3.29) and for large facilities it is $9,702 (see Table A3.30).

Table A3.28: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for small facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		49	35	38	4	34	9	4	1	175
Jurisdiction	**Std/s**	**NSW $AUD**	**VIC $AUD**	**QLD $AUD**	**SA $AUD**	**WA $AUD**	**TAS $AUD**	**NT $AUD**	**ACT $AUD**	**Total (Australia) $AUD**
Training proficient keepers	1.4	$0	$169,075	$181,447	$16,495	$160,828	$45,362	$20,619	$4,124	597,950
Recording assessment of keeper proficiency	S1.6	1,952	1,404	1,507	171	1,336	377	171	34	6,953
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	36,612	26,335	20,187	2,294	21,472	7,065	3,212	642	117,819
Secure perimeter fence	S2.1	0	0	0	0	0	0	0	0	0
Training for emergency procedures	S2.13	13,666	9,830	10,549	930	9,351	2,637	1,199	240	48,402
Backup power for electric barriers	S3.5	2,885	2,075	2,227	253	1,974	557	253	51	10,274
Providing information to the public	S3.8	0	576	619	70	548	155	70	14	2,053
Providing furniture from enrichment	S3.22	0	9,882	10,605	1,205	0	2,651	1,205	241	25,789
Holding enclosure spatial requirements	S3.30	10,075	7,247	7,777	884	6,893	1,944	884	177	35,880
Risk assessments for interactive programs	S10.4	12,229	8,796	9,440	1,073	8,367	2,360	1,073	215	43,551
Record keeping	S10.11, S2.13, S12.5, S12.6,	834,001	599,896	643,790	73,158	570,632	160,948	73,158	14,632	2,970,215

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
	S12.7, S12.9, S12.10									
Total cost general standards		911420	835117	888148	96533	781401	224056	101844	20369	3858887
Average 10-year cost per facility		18600	23694	23481	22459	23307	23694	23694	23694	22113
Average annualised cost per facility		1860	2369	2348	2246	2331	2369	2369	2369	2211

Table A3.29: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for medium facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		8	6	6	1	5	2	1	0	28
Jurisdiction	**Std/s**	**NSW $AUD**	**VIC $AUD**	**QLD $AUD**	**SA $AUD**	**WA $AUD**	**TAS $AUD**	**NT $AUD**	**ACT $AUD**	**Total (Australia) $AUD**
Training proficient keepers	S1.4	0	17,929	19,241	1,749	17,054	4,810	2,186	437	63,407
Recording assessment of keeper proficiency	1.6	705	$507	544	62	482	136	62	12	2,511
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	5,977	4,300	3,296	375	3,506	1,154	524	105	19,236
Secure perimeter fence	S2.1	0	0	58,177	58,177	0	58,177	58,177	0	232,709
Training for emergency procedures	S2.13	4,936	3,550	3,810	372	3,377	953	433	87	17,517
Backup power for electric barriers	S3.5	471	339	364	41	322	91	41	8	1,677
Providing information to the public	S3.8	0	220	237	27	210	59	27	5	785
Providing furniture from enrichment	S3.22	0	6,722	7,214	820	0	1,804	820	164	17,544

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Holding enclosure spatial requirements	S3.30	4,374	3,146	3,376	384	2,993	844	384	77	15,577
Risk assessments for interactive programs	S10.4	1,997	1,436	1,541	175	1,366	385	175	35	7,110
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	342,994	246,715	264767	30087	234680	66,192	30087	6,017	1221540
Total cost general standards		361454	284865	362567	92269	263990	134604	92917	6948	1599,614
Average 10-year cost per facility		45182	49504	58711	131483	48229	87187	132406	49504	56144
Average annualised cost per facility		4518	4950	5871	13148	4823	8719	13241	4950	5614

Table A3.30: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for large facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		1	1	1	1	1	1	1	1	8
Jurisdiction	**Std/s**	**NSW $AUD**	**VIC $AUD**	**QLD $AUD**	**SA $AUD**	**WA $AUD**	**TAS $AUD**	**NT $AUD**	**ACT $AUD**	**Total (Australia) $AUD**
Training proficient keepers	S1.4	$0	$11,899	$11,899	$9,519	$11,899	$11,899	$11,899	$11,899	$80,915
Recording assessment of keeper proficiency	S1.6	$0	$0	$0	$0	$0	$0	$0	$0	$0
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.18, S3.19, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.5, S11.6	$0	$0	$0	$0	$0	$0	$0	$0	$0
Secure perimeter fence	S2.1	$0	$0	$0	$0	$0	$0	$0	$0	$0
Training for emergency procedures	S2.13	$0	$0	$0	$0	$0	$0	$0	$0	$0

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Backup power for electric barriers	S3.5	$0	$0	$0	$0	$0	$0	$0	$0	$0
Providing information to the public	S3.8	$0	$0	$0	$0	$0	$0	$0	$0	$0
Providing furniture from enrichment	S3.22	$0	$1,383	$1,383	$1,383	$0	$1,383	$1,383	$1,383	$8,299
Holding enclosure spatial requirements	S3.30	$1,456	$1,456	$1,456	$1,456	$1,456	$1,456	$1,456	$1,456	$11,649
Risk assessments for interactive programs	S10.4	$0	$0	$0	$0	$0	$0	$0	$0	$0
Record keeping	S10.11, S2.13, S12.5, S12.6, S12.7, S12.9, S12.10	$84,413	$84,413	$84,413	$84,413	$84,413	$84,413	$84,413	$84,413	$675,302
Total cost general standards		$85,869	$99,151	$99,151	$96,771	$97,768	$99,151	$99,151	$99,151	$776,165
Average 10-year cost per facility		$85,869	$99,151	$99,151	$96,771	$97,768	$99,151	$99,151	$99,151	$97,021
Average annualised cost per facility		$8,587	$9,915	$9,915	$9,677	$9,777	$9,915	$9,915	$9,915	$9,702

Appendix 4 – Estimation of quantifiable incremental costs of the proposed taxon standards and discussion of unquantifiable costs

The purpose of Appendix 4 is to estimate the quantifiable incremental costs of the proposed animal welfare taxon standards and to discuss unquantifiable costs and their estimation difficulties. All cost estimates are based on the estimated population of facilities, keepers and enclosures as discussed in Appendix 2. Furthermore, all costs are presented for ten years and discounted at a rate of 7% according to OBPR requirements. It is assumed that the proposed standards will commence operation from 2013/14. Sensitivity tests are included with each of the incremental costs presented with the use of alternative discount rates of 3% and 10%.

A4.1 – Incremental cost of providing for fox proof enclosures – S3.2 (Macropods)

Under proposed standard S3.2, the operator would need to ensure that if macropods are kept in regions where wild fox populations occur they are held within a fox-proof enclosure. Enclosures containing only adults of *Macropus giganteus*, *M. rufus*, *M. robustus*, *M. antelopinus* and *M. bernardus* are exempt (as the idea is to protect smaller and younger macropods from fox predation). With respect to fox-proof fencing the guidelines have *suggested* the following design:

> G3.1 One design of a dog and fox proof enclosure that has been successfully used incorporates a 2.0 metre high 50 mm x 50 mm mesh fence, with electrified wires on outriggers attached 10 cm out from the outside of the mesh fence at 10 cm, 1.0 metre and 2.0 metres above ground, with a 900 mm wide footing mesh laid over the ground and clipped to the bottom of the vertical mesh to deter burrowing.

A submission from a small facility has noted a simpler design which incorporates a 560 mm wide stainless steel mesh footing laid over the ground and clipped to the bottom of the vertical mesh with the following cost components:

- Stainless steel hex mesh ($2240)
- Freight ($360)
- Clips and stainless steel pegs ($200)
- Labour ($640)

This would provide a total cost of around $3440 per holding and non-walkthrough enclosure. For the purpose of estimating the incremental cost it is assumed that all macropod holding and non-walkthrough display enclosures would potentially contain small or young macropods either currently or possibly at some time in the near future. Therefore cost estimates are undertaken for 5% of non-compliant relevant enclosures apart from NSW, VIC and WA where fox proofing is already required under the base case.

The estimated one-off cost of providing for fox proof enclosure under proposed standard S3.2 would be $0.08m, as shown in Table A4.1.

Table A4.1: Estimated one-off cost of providing fox proofing for macropod enclosures

Jurisdiction	Cost to large facilities (h3)= (q)[154]*5%*$3440	Cost to medium facilities (i3)= (q) *5%*$3440	Cost to small facilities (j3)= (q)*5%*$3440	Total cost to all facilities (k3) = (h3)+(i3)+(j3)
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$1,101	$6,373	$43,372	$50,846
SA	$1,101	$724	$4,929	$6,754
WA	$0	$0	$0	$0
TAS	$1,101	$1,593	$10,843	$13,537
NT	$1,101	$724	$4,929	$6,754
ACT	$1,101	$145	$986	$2,231
Total one-off cost (Australia)	$5,504	$9,560	$65,058	$80,122

As shown in Table A4.2, the estimated one-off cost of fox proofing requirements for macropod enclosures over 10 years would be ***$0.074m*** in present value 2012-13 dollars with 81.2% of the cost incurred by small size facilities and particularly in QLD and TAS.

Table A4.2: Estimated one-off cost of fox proofing requirements for macropod enclosures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$1,029	$5,956	$40,535	$47,520
SA	$1,029	$677	$4,606	$6,312
WA	$0	$0	$0	$0
TAS	$1,029	$1,489	$10,134	$12,651
NT	$1,029	$677	$4,606	$6,312
ACT	$1,029	$135	$921	$2,085
Total one-off cost (Australia) PV - 7% discount	**$5,144**	**$8,934**	**$60,802**	**$74,880**
% share of one-off cost	6.87%	11.93%	81.20%	100.00%
One-off cost PV – 3% discount sensitivity	*$5,344*	*$9,281*	*$63,163*	*$77,788*
One-off cost PV – 10% discount sensitivity	*$5,004*	*$8,691*	*$59,144*	*$72,838*

[154] See Table A2.13 of Appendix 2 for source of estimates for the sum holding and non-walkthrough enclosures for macropods.

A4.2 – Incremental cost of providing for alternative to fox proof enclosures – Option C1 (Macropods)

Under Option C1 proposed standard S3.2 (macropods) would be amended to *require fox-proof fence or effective alternative*. Ground baiting of foxes could be become an alternative measure to fox-proofing of fences and would involve using fox bait containing sodium fluoroacetate (1080). The likelihood of poisoning non-target species would be low given the nature of the controlled environment of an animal exhibit facility. Bait stations would be set up around the enclosures (1 per enclosure) and visitation by foxes would be monitored daily using sand pads (a $1m^2$ area of raked earth or sand established on top of the buried bait) to detect footprints.[155] Warning signs would need to be erected at specific points before laying baits with each sign specifying the date laid, which toxin has been used, and for which pest animal, and contact numbers for further queries. Fox baits would typically involve 3mg or 0.003g of 1080 per bait and applied in meat via injection baits and checked 1-2 times per week, with any baits taken replaced. The following assumptions are made for the purpose of estimation:

- Labour cost setting up a bait station including marking and identifying a station 0.5 hours;
- Signage at $171 per enclosure (see A4.4 for discussion of sign costs);
- Ongoing labour costs for monitoring bait station 0.5hrs per week or 21.5hours per year;
- Charge out rate of $50.42 per hour.

This would mean a set up cost of $196.21 per enclosure and on-going monitoring costs of $1084.13 per annum for affected enclosures (i.e. 5% non-compliant holding and non-walkthrough display enclosures and excluding NSW, VIC and WA).

The estimated annual cost of providing for fox-baiting under Option C1 for all facilities would be $25,251**,** as shown in Table A4.3.

Table A4.3: Estimated annual cost of providing fox bait for macropod enclosures

Jurisdiction	Cost to large facilities (l3)= (q)[156]*5%*$1084.13	Cost to medium facilities (m3)= (q) *5%*$1084.13	Cost to small facilities (n3)= (q)*5%*$1084.13	Total cost to all facilities (o3) = (l3)+(m3)+(n3)
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$347	$2,008	$13,669	$16,024
SA	$347	$228	$1,553	$2,128
WA	$0	$0	$0	$0
TAS	$347	$502	$3,417	$4,266
NT	$347	$228	$1,553	$2,128
ACT	$347	$46	$311	$703
Total annual cost (Australia)	$1,735	$3,013	$20,503	$25,251

[155] NSW Department of Primary Industries (2004), FOX001 Ground Baiting of Foxes with 1080.
[156] See Table A2.13 of Appendix 2 for source of estimates for the sum holding and non-walkthrough enclosures for macropods.

As shown in Table A4.4, the estimated 10-year cost of fox bait for macropod enclosures would be ***$0.18m*** in present value 2012-13 dollars with 81.2% of the cost incurred by small size facilities and particularly those in QLD.

Table A4.4: Estimated 10-year cost of fox proofing requirements for macropod enclosures by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$2,437	$14,107	$96,005	$112,548
SA	$2,437	$1,603	$10,910	$14,949
WA	$0	$0	$0	$0
TAS	$2,437	$3,527	$24,001	$29,965
NT	$2,437	$1,603	$10,910	$14,949
ACT	$2,437	$321	$2,182	$4,939
Total 10-year cost (Australia) PV - 7% discount	**$12,183**	**$21,160**	**$144,007**	$177,351
% share of 10-year cost	6.87%	11.93%	81.20%	100.00%
10-year cost PV - 3% discount sensitivity	*$14,797*	*$25,699*	*$174,898*	$215,394
10-year cost PV - 10% discount sensitivity	*$10,658*	*$18,512*	*$125,984*	$155,155

The estimated one-off cost of providing fox bait for macropod enclosures under Option C1 would be $4,570, as shown in Table A4.5.

Table A4.5: Estimated one-off cost of providing fox bait for macropod enclosures

Jurisdiction	Cost to large facilities (p3)= (q)[157]*5%*$196.21	Cost to medium facilities (q3)= (q) *5%*$196.21	Cost to small facilities (r3)= (q)*5%*$196.21	Total cost to all facilities (s3) = (p3)+(q3)+(r3)
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$63	$364	$2,474	$2,900
SA	$63	$41	$281	$385
WA	$0	$0	$0	$0
TAS	$63	$91	$618	$772
NT	$63	$41	$281	$385
ACT	$63	$8	$56	$127
Total one-off cost Australia	$314	$545	$3,711	$4,570

As shown in Table A4.6, the estimated one-off cost of providing fox bait for macropod enclosures over 10 years would be ***$4,271*** in present value 2012-13 dollars with 81.2% of the cost incurred by small size facilities and particularly in QLD.

[157] See Table A2.13 of Appendix 2 for source of estimates for the sum holding and non-walkthrough enclosures for macropods.

Table A4.6: Estimated one-off cost of providing fox bait for macropod enclosures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$59	$340	$2,312	$2,710
SA	$59	$39	$263	$360
WA	$0	$0	$0	$0
TAS	$59	$85	$578	$722
NT	$59	$39	$263	$360
ACT	$59	$8	$53	$119
Total one-off cost (Australia) PV - 7% discount	**$293**	**$510**	**$3,468**	**$4,271**
% share of one-off cost	6.87%	11.93%	81.20%	100.00%
One-off cost PV - 3% discount sensitivity	*$305*	*$529*	*$3,603*	*$4,437*
One-off cost PV - 10% discount sensitivity	*$285*	*$496*	*$3,373*	*$4,155*

A4.3 – Incremental cost of providing for an exclusion area – S3.3 (Macropods)

Under proposed standard S3.3 the operator must ensure that a walk-through enclosure housing macropods provides at least one visitor exclusion area where animals are able to withdraw from visitor contact. For 5% of non-compliant walk through enclosures for macropods (excluding NSW and QLD which have this requirement under the base case), this would involve adding a fence or other barrier within the existing walk through areas. This could be done at a cost of $500 per enclosure.

The estimated one-off cost of ensuring sufficient spatial dimensions of an exclusion area under proposed standard S3.3 would be $3,939 over 10 years**,** as shown in Table A4.7.

Table A4.7: Estimated one-off cost of providing sufficient spatial dimensions for exclusion areas for macropods

Jurisdiction	Cost to large facilities (t3)= (q)[158]*5%*$500	Cost to medium facilities (u3)= (q) *5%*$500	Cost to small facilities (v3)= (q)*5%*$500	Total cost to all facilities (w3) = (t3)+(u3)+(v3)
NSW	$0	$0	$0	$0
VIC	$50	$288	$1,175	$1,513
QLD	$0	$0	$0	$0
SA	$50	$35	$143	$228
WA	$50	$274	$1,118	$1,441
TAS	$50	$77	$315	$442
NT	$50	$35	$143	$228
ACT	$50	$7	$29	$86
Total one-off cost (Australia)	$300	$716	$2,923	$3,939

As shown in Table A4.8, the estimated one-off cost of providing sufficient spatial dimensions for exclusion areas for macropods over 10 years would be ***$3,681*** in present value 2012-13 dollars with 74.21% of the cost incurred by small size facilities and particularly in QLD and WA.

Table A4.8: Estimated one-off cost of providing sufficient spatial dimensions for exclusion areas for macropods by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$47	$269	$1,098	$1,414
QLD	$0	$0	$0	$0
SA	$47	$33	$134	$213
WA	$47	$256	$1,044	$1,347
TAS	$47	$72	$295	$413
NT	$47	$33	$134	$213
ACT	$47	$7	$27	$80
Total one-off cost (Australia) PV - 7% discount	**$280**	**$669**	**$2,732**	**$3,681**
% share of one-off cost	7.62%	18.17%	74.21%	100.00%
One-off cost PV - 3% discount sensitivity	*$291*	*$695*	*$2,838*	*$3,824*
One-off cost PV - 10% discount sensitivity	*$273*	*$651*	*$2,657*	*$3,581*

A4.4 – Incremental cost of providing visitor information on appropriate behaviour – S3.4 (Macropods)

Under proposed standard M3.4 the operator must provide visitors with information on appropriate behaviour in walk-through macropod enclosures. This would involve a

[158] See Table A2.13 of Appendix 2 for source of estimates for walk through enclosures for macropods.

minor incremental cost of providing additional signs or other information where not already provided (apart from QLD where such information is already required under the base case). A signpost[159] is estimated to cost $171 per affected enclosure (5% of all macropod walkthrough enclosures). The estimated one-off cost of providing visitor information on appropriate behaviour under proposed standard S3.4 would be $2,290**,** as shown in Table A4.9.

Table A4.9: Estimated one-off cost of providing visitor information on appropriate behaviour

Jurisdiction	Cost to large facilities (x3)=(q)[160]*5%*$171	Cost to medium facilities (y3)= (q)*5%*$171	Cost to small facilities (z3)= (q)*5%*$171	Total cost to all facilities (a4) = (x3)+(y3)+(z3)
NSW	$50	$137	$559	$745
VIC	$50	$98	$402	$550
QLD	$0	$0	$0	$0
SA	$50	$12	$49	$111
WA	$50	$94	$382	$526
TAS	$50	$26	$108	$184
NT	$50	$12	$49	$111
ACT	$50	$2	$10	$62
Total one-off cost (Australia)	$350	$382	$1,558	$2,290

As shown in Table A4.10, the estimated one-off cost of providing visitor information on appropriate behaviour over 10 years would be ***$2,140*** in present value 2012-13 dollars with 68.05% of the cost incurred by small size facilities and particularly in NSW, QLD and WA.

Table A4.10: Estimated one-off cost of providing visitor information on appropriate behaviour by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$47	$128	$522	$697
VIC	$47	$92	$376	$514
QLD	$0	$0	$0	$0
SA	$47	$11	$46	$104
WA	$47	$87	$357	$491
TAS	$47	$25	$101	$172
NT	$47	$11	$46	$104
ACT	$47	$2	$9	$58
Total one-off cost (Australia) PV - 7% discount	**$327**	**$357**	**$1,456**	**$2,140**
% share of one-off cost	15.29%	16.67%	68.05%	100.00%
One-off cost PV - 3% discount sensitivity	*$340*	*$370*	*$1,513*	*$2,223*
One-off cost PV - 10% discount sensitivity	*$318*	*$347*	*$1,417*	*$2,082*

[159] Sign Post Base-Alum Base 8.13 Lbs (See <http://www.seton.net.au/traffic-parking/posts-lights-delineators/sign-posts/seton-safety-stop-station-base-62428.html> Viewed 29 April 2013).

[160] See Table A2.13 of Appendix 2 for source of estimates for holding enclosures for macropods.

A4.5 – Incremental cost of changes to fencing – S3.6 (Macropods)

Under proposed standard S3.6 an operator would be required to ensure enclosures have a fence of at least the following height:

> i. 1800 mm for large macropods (red kangaroos, grey kangaroos and wallaroos); and
> ii. 1400 mm for medium macropods (e.g. swamp wallabies, agile wallabies, whiptail wallabies and red-necked wallabies); and
> iii. 1000 mm small macropods (e.g. mala, bettongs, potoroos, pademelons, musky rat-kangaroos); and
> iv. 1500 mm non-climbable or 1500 mm wire-mesh with a 500 mm inhang for tree-kangaroos; and
> v. 2000 mm with 500 mm in-hang for rock-wallabies; and

The ECF agreed that a 12.5% non-compliance rate was appropriate and that an incremental cost would apply to all jurisdictions except NSW, QLD and VIC. Incremental fencing costs are assumed to include the cost of raising or amending (e.g. creating an in-hang) and taken to be $13.20 a metre. Furthermore, it is assumed that the average square metres-per-animal is 60.8sqm (see average of all 5 different spatial requirements per macropod species in Appendix 1 of the standards). Also it is assumed that about 12 animals would be placed in an enclosure and given that spatial requirements are +25% for every other female and +50% for every other male and assuming 20% males and 80% females the average square metres per enclosure (non-walkthrough display, walkthrough or holding) becomes:

60.8sqm x 2 + (91.2sqm x (20% x 12 animals) – 1 male) + (76sqm x (80% x 12 animals) – 1 female) = 902.88sqm per enclosure

This would mean an average perimeter of 120.19 metres, which is calculated by taking the square root of the area and multiplying by 4. The cost per enclosure is therefore estimated to be $13.20/metre x 120.19 metres = $1,586.53. This cost would be incurred for all jurisdictions except for NSW, QLD and VIC (apart from rock wallabies). In relation to VIC, the proportion of rock wallaby enclosures is estimated to be approximately 12.5%, which is based on an average of the proportion of rock wallaby to macropod enclosures for two large facilities in VIC of 11% and 14% (based on 2011 ZAA census data).

The estimated one-off cost of providing changes to fencing under proposed standard S3.6 would be $0.113m, as shown in Table A4.11.

Table A4.11: Estimated one-off cost of changes to macropod fencing

Jurisdiction	Cost to large facilities (b4)= (q)[161]*12.5%*$1,586.53 or (q)*12.5%*12.5%[162]*$1,586.53 (for VIC)	Cost to medium facilities (c4)= (q) *12.5%*$1,586.53 or (q)*12.5%*12.5%*$1,586.53 (for VIC)	Cost to small facilities (d4)= (q) *12.5%*$1,586.53 or (q)*12.5%*12.5%*$1,586.53 (for VIC)	Total cost to all facilities (e4) = (b4)+(c4)+(d4)
NSW	$0	$0	$0	$0
VIC	$208	$1,141	$6,990	$8,339
QLD	$0	$0	$0	$0
SA	$1,666	$1,113	$6,819	$9,599
WA	$1,666	$8,684	$53,191	$63,541
TAS	$1,666	$2,449	$15,002	$19,118
NT	$1,666	$1,113	$6,819	$9,599
ACT	$1,666	$223	$1,364	$3,252
Total one-off cost (Australia)	$8,538	$14,724	$90,185	$113,447

As shown in Table A4.12, the estimated one-off cost of changes to macropod fencing under proposed standard S3.6 over 10 years would be ***$0.11m*** in present value 2012-13 dollars with 79.5% of the cost incurred by small size facilities and particularly in WA and TAS.

Table A4.12: Estimated one-off cost of changes to macropod fencing by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$195	$1,067	$6,533	$7,794
QLD	$0	$0	$0	$0
SA	$1,557	$1,041	$6,373	$8,971
WA	$1,557	$8,116	$49,711	$59,384
TAS	$1,557	$2,289	$14,021	$17,867
NT	$1,557	$1,041	$6,373	$8,971
ACT	$1,557	$208	$1,275	$3,040
Total one-off cost (Australia) PV - 7% discount	**$7,979**	**$13,761**	**$84,285**	**$106,025**
% share of one-off cost	7.53%	12.98%	79.50%	100.00%
One-off cost PV - 3% discount sensitivity	*$8,289*	*$14,295*	*$87,559*	*$110,143*
One-off cost PV - 10% discount sensitivity	*$7,761*	*$13,386*	*$81,987*	*$103,134*

[161] See Table A2.13 of Appendix 2 for source of estimates which are the sum of non-walk through and walk through display enclosures and holding enclosures for macropods.
[162] Assumed proportion of rock wallaby enclosures to total macropod enclosures.

A4.6 – Incremental cost of providing enrichment to rock wallaby enclosures – S3.7 (Macropods)

Under S3.7, the operator must ensure that display and walk through enclosures housing rock wallabies provide physical features including, but not limited to, boulder piles and tree trunks. It is assumed that 5% of rock wallaby enclosures belonging to medium and small facilities would be required to provide some enrichment at a conservative $1000 per enclosure (e.g. tree trunk, vegetation etc.) apart from NSW, QLD and VIC, where such enrichment is already required under the base case. It is assumed that all facilities would have rocks available for rock wallabies. Furthermore, it is assumed that rock wallaby enclosures make up 12.5% of all macropod enclosures.

The estimated one-off minor cost of providing changes to the physical features of rock wallaby enclosures under proposed standard S3.7 would be $1,552, as shown in Table A4.13. The implication of this is that the code would effectively encourage roughly 1.5 facilities to improve surroundings for their rock wallaby inhabitants.

Table A4.13: Estimated one-off cost of providing enrichment to rock wallaby enclosures

Jurisdiction	Cost to medium facilities (f4) = (q)[163]*5%*12.5%*$1000	Cost to small facilities (g4) = (q)*5%*12.5%*$1000	Total cost to all facilities (h4) = (f4)+(g4)
NSW	$0	$0	$0
VIC	$0	$0	$0
QLD	$0	$0	$0
SA	$20	$107	$127
WA	$154	$838	$992
TAS	$43	$236	$280
NT	$20	$107	$127
ACT	$4	$21	$25
Total one-off cost (Australia)	$241	$1,311	$1,552

As shown in Table A4.14, the estimated one-off cost of providing enrichment to rock wallaby enclosures over 10 years would be ***$1,450*** in present value 2012-13 dollars with 84.48% of the cost incurred by small size facilities and particularly in WA and TAS.

Table A4.14: Estimated one-off cost of providing enrichment to rock wallaby enclosures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$0	$0	$0
VIC	$0	$0	$0
QLD	$0	$0	$0

[163] See Table A2.13 of Appendix 2 for source of estimates which are the sum of non-walk through and walk through display enclosures for macropods.

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
SA	$18	$100	$119
WA	$144	$783	$927
TAS	$41	$221	$262
NT	$18	$100	$119
ACT	$4	$20	$24
Total one-off cost (Australia) PV - 7% discount	**$225**	**$1,225**	**$1,450**
% share of one-off cost	15.52%	84.48%	100.00%
One-off cost PV - 3% discount sensitivity	*$234*	*$1,273*	*$1,507*
One-off cost PV - 10% discount sensitivity	*$219*	*$1,192*	*$1,411*

A4.7 – Incremental cost of providing minimum spatial requirements – S3.8 (Macropods)

Under proposed standard S3.8, the operator must ensure macropod enclosures meet the minimum floor area requirements specified in Appendix 1. This would be relevant for all jurisdictions except for NSW, VIC and QLD where existing codes already specify these requirements under the base case. The implication of this is that for the 5% of non-compliant non-walkthrough and walkthrough display enclosures, this would involve moving or removing fencing at a rate of $50 per hour for 2hrs of labour time (i.e. $100 per non walk through and walk through enclosures). That is to say, the operator would have the option of combining enclosures to ensure that the minimum floor area requirements are met (i.e. removing fences) or moving fences.

The estimated one-off minor cost of spatial requirements under proposed standard S3.8 would be $2,391, as shown in Table A4.15. This code would encourage the improvement of spatial dimensions for about 22 macropod enclosures.

Table A4.15: Estimated one-off cost of spatial requirements for macropods

Jurisdiction	Cost to large facilities (i4)= (q)[164]*5%*$100	Cost to medium facilities (j4)= (q) *5%*$100	Cost to small facilities (k4)= (q)*5%*$100	Total cost to all facilities (l4) = (i4)+(j4)+(k4)
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$0	$0	$0	$0
SA	$27	$16	$86	$129
WA	$27	$123	$671	$821
TAS	$27	$35	$189	$251
NT	$27	$16	$86	$129
ACT	$27	$3	$1,032	$1,062
Total one-off cost (Australia)	$135	$193	$2,063	$2,391

As shown in Table A4.16, the estimated one-off cost of spatial requirements for macropods over 10 years would be ***$2,234*** in present value 2012-13 dollars with 86.3% of the cost incurred by small size facilities - particularly in WA and TAS.

Table A4.16: Estimated one-off cost of spatial requirements for macropods by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$0	$0	$0	$0
SA	$25	$15	$80	$120
WA	$25	$115	$627	$767
TAS	$25	$32	$177	$234
NT	$25	$15	$80	$120
ACT	$25	$3	$964	$992
Total one-off cost (Australia) PV - 7% discount	**$126**	**$180**	**$1,928**	**$2,234**
% share of one-off cost	5.65%	8.06%	86.30%	100.00%
One-off cost PV - 3% discount sensitivity	*$131*	*$187*	*$2,003*	*$2,321*
One-off cost PV - 10% discount sensitivity	*$123*	*$175*	*$1,876*	*$2,173*

A4.8 – Incremental cost of providing for elevated positions – S5.1 (Macropods)

Under proposed standard S5.1 the operator must ensure macropod enclosures provide elevated positions where all animals in the enclosure can avoid wet, boggy conditions. For 5% of non-compliant walk-through, non walk-through display and holding enclosures for macropods (excluding NSW, VIC, QLD and WA which have this

[164] See Table A2.13 of Appendix 2 for source of estimates for the sum of walk and non walk through display enclosures for macropods.

requirement under the base case), this would involve adding a mound or raised area at a cost of $500 per enclosure including the cost of a truck and bobcat (with additional soil) and labour.

The estimated one-off cost of providing for a raised area under proposed standard S5.1 would be ***$2,799***, as shown in Table A4.17.

Table A4.17: Estimated one-off cost of providing elevated positions for macropod enclosures

Jurisdiction	Cost to large facilities (m4)= (q)[165]*5%*$500	Cost to medium facilities (n4)= (q) *5%*$500	Cost to small facilities (o4)= (q)*5%*$500	Total cost to all facilities (p4) = (m4)+(n4)+(o4)
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$0	$0	$0	$0
SA	$135	$79	$430	$644
WA	$0	$0	$0	$0
TAS	$135	$174	$946	$1,254
NT	$135	$79	$430	$644
ACT	$135	$16	$86	$237
Total one-off cost (Australia)	$540	$347	$1,891	$2,779

As shown in Table A4.18, the estimated one-off cost of providing elevated positions for macropod enclosures over 10 years would be ***$2,597*** in present value 2012-13 dollars with 68.06% of the cost incurred by small size facilities - particularly in TAS, SA and NT.

Table A4.18: Estimated one-off cost of providing elevated positions for macropod enclosures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$0	$0	$0	$0
VIC	$0	$0	$0	$0
QLD	$0	$0	$0	$0
SA	$126	$74	$402	$602
WA	$0	$0	$0	$0
TAS	$126	$162	$884	$1,172
NT	$126	$74	$402	$602
ACT	$126	$15	$80	$221
Total one-off cost (Australia) PV - 7% discount	**$505**	**$325**	**$1,768**	**$2,597**
% share of one-off cost	19.43%	12.50%	68.06%	100.00%
One-off cost PV - 3% discount sensitivity	*$524*	*$337*	*$1,836*	*$2,698*
One-off cost PV - 10% discount sensitivity	*$491*	*$316*	*$1,719*	*$2,526*

[165] See Table A2.13 of Appendix 2 for source of estimates for the sum of walk and non walk through display enclosures for macropods.

A4.9 – Incremental cost of providing for animal collection management plans and procedures – S6.1, S8.1 (Macropods)

Under the proposed macropod taxon standards there would be a requirement for operators to develop, maintain and implement:

- animal collection management plans (where breeding of Macropods is desired) (*except NSW and VIC*); and
- written procedures for capture and restraint and guidelines that deal with capture myopathy

Furthermore, it is assumed that such plans and procedures would already be provided by 95% of operators and therefore would affect 5% of operators and would involve a time cost of 3 days i.e. one day for the development and half a day for the implementation of procedures and plans (one plan and one procedure in all). Furthermore it is assumed that large facilities already have such plans and procedures in place and, therefore, the estimation of incremental costs is undertaken for medium and small facilities only.

Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 22.5hrs per affected facility in QLD, WA, SA, NT, TAS, and ACT for those wishing to breed macropods otherwise it would be 11.25hrs. For the purpose of estimation, it is taken that only 50% of facilities in these jurisdictions operating across macropods[166] would be involved in breeding programs. For NSW, VIC the time cost would relate only to specific restraint and capture procedures for macropods (as opposed to general procedures in Appendix 3) and 11.25hrs. This is because requirements under proposed standard S6.1 are already covered under the base case for these jurisdictions (see NSW Code 59(1), Vic wildlife licence conditions[167]).

As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be *$101.52* including salary on-costs and overhead costs. This rate is used to determine the hourly time cost of plans and procedures. The estimated one-off cost of providing plans and procedures under Clauses S6.1 and S8.1 would be **$39,913**, as shown in Table A4.19.

As shown in Table A4.20, the estimated one-off cost of providing plans and procedures (macropods) over 10 years would be ***$37,302*** in present value 2012-13 dollars with 85.39% of the cost incurred by small size facilities - particularly in NSW, VIC, QLD and WA.

[166] See Table A2.17 column (a1) in Appendix 2 for source of these estimates.
[167] Victorian applicants for wildlife displayer licences are required to submit an animal collection management plan with their applications.

Table A4.19: Estimated cost of plans and procedures (macropods)

Jurisdiction	Cost to medium facilities (q4) = [(a1)[168]*5%*22.5hrs*$101.52]*50% +[(a1) *5%*11.25hrs*$101.52]*50% or (a1)*5%*11.25hrs*$101.52 (NSW or VIC)	Cost to small facilities (r4) = [(a1)[169]*5%*22.5hrs*$101.52]*50% +[(a1) *5%*11.25hrs*$101.52]*50% or (a1)*5%*11.25hrs*$101.52 (NSW or VIC)	Total cost to all facilities (s4) =(q4)+(r4)
NSW	$2,907	$17,807	$20,714
VIC	$2,014	$12,336	$14,350
QLD	$420	$1,029	$1,449
SA	$48	$196	$244
WA	$313	$1,915	$2,227
TAS	$88	$540	$628
NT	$30	$184	$214
ACT	$12	$74	$86
Total one-off cost (Australia)	$5,832	$34,081	$39,913

Table A4.20: Estimated one-off cost of providing plans and procedures (macropods) by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$2,717	$16,642	$19,359
VIC	$1,882	$11,529	$13,411
QLD	$393	$962	$1,354
SA	$45	$184	$228
WA	$292	$1,789	$2,081
TAS	$82	$505	$587
NT	$28	$172	$200
ACT	$11	$69	$80
Total one-off cost (Australia) PV - 7% discount	**$5,451**	**$31,851**	**$37,302**
% share of one-off cost	14.61%	85.39%	100.00%
One-off cost PV - 3% discount sensitivity	*$5,662*	*$33,088*	*$38,750*
One-off cost PV - 10% discount sensitivity	*$5,302*	*$30,982*	*$36,284*

A4.10 – Unquantifiable cost of providing additional containers for transport – S11.1 (Macropods)

Under proposed standard S11.1 the operator transporting a macropod must ensure macropod transportation containers do not have slatted floors. The incremental cost would result in a small percentage of containers having to be modified to allow for solid floors (e.g. by either covering with a continuous piece of timber sheeting or

[168] See Table A2.17 column (a1) in Appendix 2 for source of these estimates.
[169] See Table A2.17 column (a1) in Appendix 2 for source of these estimates.

filling in gaps between slates with additional slats). The cost of this would be minimal. Proposed standard S11.1 remains unquantifiable as the number of containers typically used for macropod transport in jurisdictions, or Australia for that matter, is unknown. However it is quite likely that this would be a minor cost.

A4.11 – Incremental cost of developing, maintaining and implementing procedures – S1.2, S5.4 and S6.2 (Crocodiles)

Under the proposed crocodile taxon standards there would be a requirement for operators to develop maintain and implement written procedures:

- for keepers undertaking hand feeding procedures (S1.2);
- to confirm equipment is functioning properly and temperatures adjusted as necessary where any artificial means of heating is required for land areas or ponds (S5.4); and
- to enable the collection of eggs (S6.2).

Furthermore, it is assumed that such procedures would already be provided by 95% of operators and therefore would affect 5% of operators and would involve a time cost of 4.5 days i.e. one day for the development and half a day for the implementation of procedures (3 procedures in all). Furthermore it is assumed that large facilities already have such procedures in place and, therefore, the estimation of incremental costs is undertaken for medium and small facilities only. Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 33.75hrs per affected facility[170] in NSW, VIC, QLD, WA, SA, NT, TAS, and ACT. As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be *$101.52* including salary on-costs and overhead costs. This rate is used to determine the hourly time cost of procedures.

The estimated one-off cost of providing plans and procedures under Clauses S1.2, S5.4 and S6.1 would be $12,739, as shown in Table A4.21.

Table A4.21: Estimated cost of providing plans procedures (crocodiles)

Jurisdiction	Cost to medium facilities (t4) = (e1)[171]*5%*33.75hrs* $101.52	Cost to small facilities (u4) = (e1) *5%*33.75hrs* $101.5	Total cost of all facilities (v4) =(t4)+(u4)
NSW	$561	$3,434	$3,995
VIC	$148	$1,363	$1,512
QLD	$747	$4,574	$5,321

[170] See Table A2.17 column (e1) in Appendix 2 for source of these estimates.
[171] See Table A2.17 column (e1) in Appendix 2 for source of these estimates.

Jurisdiction	Cost to medium facilities (t4) = (e1)[171]*5%*33.75hrs* $101.52	Cost to small facilities (u4) = (e1) *5%*33.75hrs* $101.5	Total cost of all facilities (v4) =(t4)+(u4)
SA	$48	$295	$343
WA	$104	$638	$742
TAS	$44	$270	$314
NT	$60	$368	$428
ACT	$10	$74	$84
Total one-off cost (Australia)	$1,722	$11,016	$12,739

As shown in Table A4.22, the estimated one-off cost of providing plans and procedures (crocodiles) over 10 years would be ***$11,905*** in present value 2012-13 dollars with 86.48% of the cost incurred by small size facilities - particularly in NSW, VIC, and QLD.

Table A4.22: Estimated one-off cost of providing plans and procedures (crocodiles) by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$524	$3,209	$3,733
VIC	$139	$1,274	$1,413
QLD	$698	$4,275	$4,973
SA	$45	$275	$320
WA	$97	$596	$694
TAS	$41	$252	$294
NT	$56	$344	$400
ACT	$9	$69	$78
Total one-off cost (Australia) PV - 7% discount	**$1,610**	**$10,296**	**$11,905**
% share of one-off cost	13.52%	86.48%	100.00%
One-off cost PV - 3% discount sensitivity	*$1,672*	*$10,695*	*$12,368*
One-off cost PV - 10% discount sensitivity	*$1,566*	*$10,015*	*$11,581*

A4.12 – Barrier requirements S3.1 and S6.4 (Crocodiles)

Under proposed standard S3.1, the operator must ensure crocodilian enclosure barriers comply with the enclosure barrier specifications in Appendix 1 or are approved by the relevant government authority as providing equal or better containment. Under proposed standard S6.4 the operator must ensure where natural incubation of eggs occurs that the enclosure barriers prevent escape of hatchlings. It is assumed that due to the dangerous nature of mature crocodiles – market forces would guard against inadequate barriers (i.e. barriers that would allow crocodile escapes). Furthermore, market forces would encourage facilities to protect assets (i.e. young crocodiles or crocodile hatchlings) and precautions to prevent escape would already be part of existing practice. Therefore, these clauses are not seen as generating incremental costs.

A4.13 – Incremental costs of enclosure furniture and spatial requirements S3.3, S3.4, S3.5 and S3.6 (Crocodiles)

Under the taxon standards the operator must ensure:

- crocodilians are provided with ponds and basking areas unless otherwise prescribed by a veterinarian **(S3.3)**;
- crocodile enclosures meet minimum land area equivalent to a square where each side is a minimum 2 x snout-vent length of the longest crocodilian and the land area is increased by 50% of the base minimum land area for each additional crocodilian **(S3.4) (***except for QLD)*;
- each pond has a base minimum water surface area with at least:

    i. one horizontal surface dimension 4 x snout-vent length of the longest crocodilian it houses; and
    ii. one area with a minimum width of 1 x snout-vent length of the longest crocodilian in the enclosure. This width must cover the horizontal dimension calculated in 3.5.i.

  and that the water surface area is increased by 50% of the base minimum water surface area for each additional crocodilian **(S3.5)** *(except for QLD)*; and

- crocodilians are able to submerge, to whichever is the greater, so that:

    i. a minimum of 200 mm of water covers their highest point; or
    ii. a depth of water equivalent to 0.2 x snout-vent length covers their highest point **(S3.6)** *(except for QLD)*

Clauses S3.4, S3.5 and S3.6 would be relevant for all jurisdictions except for QLD where existing codes already specify these requirements under the base case. The implication of this is that for the 5% of non-compliant non-walkthrough display enclosures, this would involve moving or removing barriers at a rate of $50 per hour for 14hrs (2 days) of labour time ($750) plus estimated material costs at $15,000[172] per enclosure representing a variety of materials either singly or in combination, such as concrete, sheet metal, wire mesh with various apertures, glass, cable, steel rods – (i.e. a total cost of $15,750 per non-walkthrough enclosure including ponds and basking areas). Proposed standard S3.3 (ponds and basking areas requirement) would be relevant to all jurisdictions and is assumed to be around $1,000 per enclosure. Therefore the total cost of furniture and spatial requirements would be $15,750 for all jurisdictions except for QLD where the cost per enclosure would be $1,750 (pond and basking area and labour only).

The estimated one-off cost of meeting furniture and spatial requirements under Clauses S3.3, S3.4, S3.5 and S3.6 would be $0.3m, as shown in Table A4.23. This would affect approximately 18 crocodile enclosures across Australia.

[172] Estimated cost of an enclosure for a salt water crocodile - See http://www.cooberriepark.com.au/ Viewed 29 April 2003.

Table A4.23: Estimated one-off cost of furniture and spatial requirements (crocodiles)

Jurisdiction	Cost to large facilities (w4)= (r)[173]*5%*$15750 or (r)*5%*$1750(QLD)	Cost to medium facilities (x4)= (r)*5%*$15750 or (r)*5%*$1750 (QLD)	Cost to small facilities (y4)= (r)*5%*$15750 or (r)*5%*$1750 (QLD)	Total cost to all facilities (z4) = (w4)+(x4)+(y4)
NSW	$4,253	$53,550	$38,588	$96,390
VIC	$4,253	$38,518	$27,756	$70,527
QLD	$473	$4,593	$3,310	$8,375
SA	$4,253	$4,697	$3,385	$12,335
WA	$4,253	$36,639	$26,402	$67,294
TAS	$4,253	$10,334	$7,447	$22,033
NT	$4,253	$4,697	$3,385	$12,335
ACT	$4,253	$939	$677	$5,869
Total one-off cost (Australia)	$30,240	$153,969	$110,948	$295,158

As shown in Table A4.24, the estimated one-off cost of furniture and spatial requirements (crocodiles) over 10 years would be ***$0.28m*** in present value 2012-13 dollars with 52.17% of the cost incurred by medium size facilities - particularly in NSW, VIC, and WA.

Table A4.24: Estimated one-off cost of furniture and spatial requirements (crocodiles) by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$3,974	$50,047	$36,063	$90,084
VIC	$3,974	$35,999	$25,940	$65,913
QLD	$442	$4,293	$3,093	$7,827
SA	$3,974	$4,390	$3,163	$11,528
WA	$3,974	$34,242	$24,675	$62,892
TAS	$3,974	$9,658	$6,960	$20,592
NT	$3,974	$4,390	$3,163	$11,528
ACT	$3,974	$878	$633	$5,485
Total one-off cost (Australia) PV - 7% discount	**$28,262**	**$143,897**	**$103,690**	**$275,848**
% share of one-off cost	10.25%	52.17%	37.59%	100.00%
One-off cost PV - 3% discount sensitivity	*$29,359*	*$149,485*	*$107,717*	*$286,561*
One-off cost PV - 10% discount sensitivity	*$27,491*	*$139,972*	*$100,862*	*$268,325*

[173] See Table A2.13 of Appendix 2 for source of estimates for non walk through display enclosures for crocodilians.

A4.14 – Incremental cost of holding enclosure requirements – S3.7 and S3.8 (Crocodiles)

Under the taxon standards an operator must ensure that:

- a holding enclosure for an individual crocodilian is a minimum of:
  - i. 2.5 x snout-vent length long; and
  - ii. 1.5 x snout-vent length wide **(S3.7)** *(except NSW)*.
- holding enclosures that do not allow effective thermoregulatory behaviours protect crocodilians from extremes of temperature **(S3.8)**.

The cost of holding enclosures for an individual crocodilian for 5% of all facilities in jurisdictions except for NSW would include an additional one-off capital cost of moving or removing fencing to allow for the necessary spatial requirements. This is estimated to be $50 for labour at 2hrs or $100.

To allow a crocodilian to regulate its heat a piece of suspended timber or plastic can be hung over a holding enclosure. On the other hand, heat lamps could be used in a holding enclosure to prevent over cooling. The cost of both of these is estimated to be around $100 per enclosure (made up of mainly ultra violet heat lamps). These would entail a very minor cost to 5% of all facilities (i.e. non-compliant holding enclosures) for all jurisdictions.

Subsequently the cost of holding enclosure requirements would be around $200 per non-compliant enclosure in all jurisdictions and $100 per non-compliant enclosure for NSW.

The one-off estimated cost of holding enclosure requirements under Clauses S3.7 and S3.8 would be $3,972, as shown in Table A4.25. This would affect approximately 18 crocodile holding enclosures across Australia.

Table A4.25: Estimated cost of holding enclosure requirements (crocodiles)

Jurisdiction	Cost to large facilities (a5)= (r)[174]*5%*$200 or (r)*5%*$100 (for NSW)	Cost to medium facilities (b5)= (r)*5%*$200 or (r)*5%*$100 (for NSW)	Cost to small facilities (c5)= (r)*5%*$200 or (r)*5%*$100 (for NSW)	Total cost to all facilities (d5) = (a5)+(b5)+(c5)
NSW	$43	$380	$163	$586
VIC	$86	$547	$235	$868
QLD	$86	$587	$252	$925
SA	$86	$67	$29	$181
WA	$86	$520	$224	$830
TAS	$86	$147	$63	$296
NT	$86	$67	$29	$181

[174] See Table A2.13 of Appendix 2 for source of estimates for holding enclosures for crocodilians.

Jurisdiction	Cost to large facilities (a5)= (r)[174]*5%*$200 or (r)*5%*$100 (for NSW)	Cost to medium facilities (b5)= (r)*5%*$200 or (r)*5%*$100 (for NSW)	Cost to small facilities (c5)= (r)*5%*$200 or (r)*5%*$100 (for NSW)	Total cost to all facilities (d5) = (a5)+(b5)+(c5)
ACT	$86	$13	$6	$105
Total one-off cost (Australia)	$645	$2,327	$1,000	$3,972

As shown in Table A4.26, the estimated one-off cost of holding enclosure requirements (crocodiles) over 10 years would be ***$3,712*** in present value 2012-13 dollars with 58.58% of the cost incurred by medium size facilities - particularly in NSW, VIC, QLD, and WA.

Table A4.26: Estimated one-off cost of holding enclosure requirements (crocodiles) by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$40	$355	$153	$548
VIC	$80	$511	$220	$811
QLD	$80	$548	$236	$864
SA	$80	$62	$27	$169
WA	$80	$486	$209	$775
TAS	$80	$137	$59	$276
NT	$80	$62	$27	$169
ACT	$80	$12	$5	$98
Total one-off cost (Australia) PV - 7% discount	**$603**	**$2,174**	**$935**	**$3,712**
% share of one-off cost	16.24%	58.58%	25.18%	100.00%
One-off cost PV - 3% discount sensitivity	*$626*	*$2,259*	*$971*	*$3,856*
One-off cost PV - 10% discount sensitivity	*$586*	*$2,115*	*$909*	*$3,611*

A4.15 – Providing for an exclusion area – S3.2 (Ratites)

Under proposed standard S3.2 the operator must ensure that a walk-through enclosure housing ratites provides at least one visitor exclusion area where animals are able to withdraw from visitor contact. For 5% of non-compliant walk through enclosures for ratites (excluding QLD which have this requirement under the base case), this would involve adding a fence or other barrier within the existing walk through area. This could be done at a cost of $500 per enclosure. Given that a walkthrough enclosure will typically house ratites along with other mammals such as macropods, this cost has already been included in part A4.2 of Appendix 4[175].

[175] Confirmed by ZAA that there would be very few dedicated walk-through ratite enclosures and instead walk-through enclosures would have a bush theme with a variety of species and taxa.

A4.16 – Incremental cost of providing for appropriate enclosure height – S3.3 (Ratites)

Under proposed standard S3.3, the operator would be required to ensure that enclosure barriers for adult ratites provide containment to at least the following height:

i. ostriches and cassowaries – 1800 mm;
ii. emus – 1500 mm;
iii. rheas – 1200 mm.

The ECF agreed that a 12.5% non-compliance rate was appropriate and that an incremental cost would apply to all jurisdictions except QLD. Incremental fencing costs are assumed to include the cost of raising fence heights and taken to be $13.20[176] a metre. Furthermore, given that spatial requirements are 200 square metres for a single specimen and 100 to 150 square metres for an additional adult (an average of 125 square metres) and assuming 10 animals per enclosure the average square metres per enclosure is equivalent 1,325:

200sqm + (125sqm x 9) = 1325sqm per enclosure

This would mean an average perimeter of 145.6 metres, which is calculated by taking the square root of the area and multiplying by 4. The cost per enclosure is therefore estimated to be $13.20/metre x 120.19 metres = $1,921.95.

The estimated one-off cost of providing changes to ratite fencing under proposed standard S3.3 would be $0.09m, as shown in Table A4.27.

Table A4.27: Estimated one-off cost of changes to ratite fencing

Jurisdiction	Cost to large facilities (e5)= (s)[177]*12.5%*$1,586.53	Cost to medium facilities (f5)= (s) *12.5%*$1,586.53	Cost to small facilities (g5)= (s) *12.5%*$1,586.53	Total cost to all facilities (h5) = (e5)+(f5)+(g5)
NSW	$865	$14,415	$15,696	$30,975
VIC	$865	$10,368	$11,290	$22,523
QLD	$0	$0	$0	$0
SA	$865	$1,264	$1,377	$3,506
WA	$865	$9,863	$10,739	$21,467
TAS	$865	$2,782	$3,029	$6,676
NT	$865	$1,264	$1,377	$3,506
ACT	$865	$253	$275	$1,393
Total one-off cost (Australia)	$6,054	$40,209	$43,783	$90,047

[176] Estimate to be confirmed.
[177] See column (s) in Table A2.13 of Appendix 2 for source of estimates which are the sum of non-walk through and walk through display enclosures and holding enclosures for ratites.

As shown in Table A4.28, the estimated one-off cost changes to ratite fencing over 10 years would be ***$0.08m*** in present value 2012-13 dollars with 48.62% of the cost incurred by small size facilities - particularly in NSW, VIC and WA and 44.65% of the cost incurred by medium size facilities – particularly in NSW, VIC and WA.

Table A4.28: Estimated one-off cost of changes to ratite fencing by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$808	$13,472	$14,669	$28,949
VIC	$808	$9,690	$10,551	$21,050
QLD	$0	$0	$0	$0
SA	$808	$1,182	$1,287	$3,277
WA	$808	$9,217	$10,037	$20,062
TAS	$808	$2,600	$2,831	$6,239
NT	$808	$1,182	$1,287	$3,277
ACT	$808	$236	$257	$1,302
Total one-off cost (Australia) PV - 7% discount	**$5,658**	**$37,579**	**$40,919**	**$84,156**
% share of one-off cost	6.72%	44.65%	48.62%	100.00%
One-off cost PV - 3% discount sensitivity	*$5,878*	*$39,038*	*$42,508*	*$87,424*
One-off cost PV - 10% discount sensitivity	*$5,504*	*$36,554*	*$39,803*	*$81,861*

A4.17 – Incremental cost of providing additional furniture and spatial requirements to ratite enclosures – S3.4, S3.5 and S3.6 (Ratites)

Under proposed standard S3.4, the operator would need to ensure ratite display enclosures included a species-appropriate wallow[178]. This would apply to 5% non-compliant ratite enclosures apart from QLD where this is required under the base case at a proxy[179] estimated cost of $1,750 per display enclosure (see A4.12 of Appendix 4 for cost of crocodilian pond and basking area).

Also under proposed standard S3.5, the operator would need to ensure that cassowaries are provided with shade. For 5% non-compliant ratite enclosures apart from QLD, this would involve putting in a shade tree at around $250 (average cost of an advanced 2.5m tree) plus 4hrs labour at $50.42 given a one-off cost of $300.42.

Under proposed standard S3.6, the operator must ensure ratite enclosures meet the minimum floor area requirements. This would be relevant for all jurisdictions except for QLD where existing codes already specify these requirements under the base case. The implication of this is that for the 5% of non-compliant display enclosures, this would involve moving or removing fencing at a rate of $50 per hour for 2hrs of labour time (i.e. $100 per non walk through display). That is to say, the operator would have the option of combining enclosures to ensure that the minimum floor area requirements are met (i.e. removing fences) or moving fences.

[178] All ratites, particularly cassowaries and emus, like to swim or wallow in water.
[179] Due to lack of data on the cost of ratite ponds.

The total cost per display enclosure under Clauses, S3.4, S3.5 and S3.6 is therefore given as $2,150.42

The estimated one-off cost of providing changes to furniture and space for ratite enclosures under Clauses S3.4, S3.5 and S3.6 would be $0.018m, as shown in Table A4.29.

Table A4.29: Estimated one-off cost of providing furniture and space for ratite enclosures

Jurisdiction	Cost to large facilities (i5)= (s)[180]*5%*$2,150.42	Cost to medium facilities (j5)= (s) *5%*$2,150.42	Cost to small facilities (k5)= (s) *5%*$2,150.42	Total cost to all facilities (l5) = (i5)+(j5)+(k5)
NSW	$301	$2,150	$3,512	$5,964
VIC	$301	$1,547	$2,526	$4,374
QLD	$0	$0	$0	$0
SA	$301	$189	$308	$798
WA	$301	$1,471	$2,403	$4,176
TAS	$301	$415	$678	$1,394
NT	$301	$189	$308	$798
ACT	$301	$38	$62	$400
Total one-off cost (Australia)	$2,107	$5,999	$9,798	$17,904

As shown in Table A4.30, the estimated one-off cost of providing furniture and space for ratite enclosures over 10 years would be ***$0.017m*** in present value 2012-13 dollars with 54.72% of the cost incurred by small size facilities - particularly in NSW, VIC and WA and 33.5% of the cost incurred by medium size facilities – particularly in NSW, VIC and WA.

Table A4.30: Estimated one-off cost of providing furniture and space for ratite enclosures by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$281	$2,010	$3,283	$5,574
VIC	$281	$1,446	$2,361	$4,088
QLD	$0	$0	$0	$0
SA	$281	$176	$288	$746
WA	$281	$1,375	$2,246	$3,902
TAS	$281	$388	$633	$1,303
NT	$281	$176	$288	$746
ACT	$281	$35	$58	$374
Total one-off cost (Australia) PV - 7% discount	**$1,970**	**$5,606**	**$9,157**	**$16,732**

[180] See column (s) in Table A2.13 of Appendix 2 for source of estimates which are the sum of non-walk through and walk through display enclosures for ratites.

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
% share of one-off cost	11.77%	33.50%	54.72%	100.00%
One-off cost PV - 3% discount sensitivity	*$2,046*	*$5,824*	*$9,512*	*$17,382*
One-off cost PV - 10% discount sensitivity	*$1,916*	*$5,453*	*$8,907*	*$16,276*

A4.18 – Incremental cost of procedures – S6.1 (Ratites)

Under proposed standard S6.1, an operator would need to ensure that written procedures are developed, maintained and implemented for the collection of eggs. Furthermore, it is assumed that such procedures would already be provided by 95% of operators and therefore would affect 5% of operators and would involve a time cost of 1.5 days i.e. one day for the development and half a day for the implementation of procedures (1 procedure in all). Furthermore it is assumed that large facilities already have such procedures in place and, therefore, the estimation of incremental costs is undertaken for medium and small facilities only. Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 11.25hrs per affected facility[181] in NSW, VIC, QLD, WA, SA, NT, TAS, and ACT. As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be *$101.52* including salary on-costs and overhead costs. This rate is used to determine the hourly time cost of procedures.

The estimated one-off cost of developing maintaining and implementing a procedure for the collection of ratite eggs under proposed standard S6.1 would be $6,241, as shown in Table A4.31.

Table A4.31: Estimated one-off cost of providing procedures for ratites

Jurisdiction	Cost to medium facilities (m5) = (d1)[182]*5%*11.25hrs *$101.52	Cost to small facilities (n5) = (d1) *5%*11.25hrs *$101.5	Total cost to all facilities (o5) =(m5)+(n5)
NSW	$270	$1,653	$1,923
VIC	$159	$974	$1,133
QLD	$218	$1,334	$1,552
SA	$32	$196	$228
WA	$174	$1,064	$1,237
TAS	$0	$0	$0
NT	$20	$123	$143
ACT	$0	$25	$25
Total one-off cost (Australia)	$873	$5,369	$6,241

As shown in Table A4.32, the estimated one-off cost of developing maintaining and implementing a procedure for the collection of ratite eggs over 10 years would be

[181] See Table A2.17 column (d1) in Appendix 2 for source of these estimates.
[182] See Table A2.17 column (d1) in Appendix 2 for source of these estimates.

$5,833 in present value 2012-13 dollars with 86.02% of the cost incurred by small size facilities - particularly in NSW, VIC, QLD and WA.

Table A4.32: Estimated one-off cost of developing maintaining and implementing a procedure for the collection of ratite eggs by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	$252	$1,545	$1,798
VIC	$149	$910	$1,059
QLD	$204	$1,247	$1,450
SA	$30	$184	$213
WA	$162	$994	$1,156
TAS	$0	$0	$0
NT	$19	$115	$133
ACT	$0	$23	$23
Total one-off cost (Australia) PV - 7% discount	**$815**	**$5,018**	**$5,833**
% share of one-off cost	13.98%	86.02%	100.00%
One-off cost PV - 3% discount sensitivity	*$847*	*$5,212*	*$6,060*
One-off cost PV - 10% discount sensitivity	*$793*	*$4,881*	*$5,674*

A4.19 – Incremental cost of enclosure furniture - S3.3 (Koalas)

Under proposed standard S3.3, the operator must ensure a minimum of two resting forks, one at least 1800 mm above the ground and one at least 1500 mm above the ground, are provided for each independent koala in an enclosure. A holding enclosure containing a single koala is exempt but must contain a minimum of one resting fork unless otherwise prescribed by a veterinarian.

This would apply to 5% of non-compliant display and holding enclosures except for NSW and QLD where this requirement exists under the base case (see NSW standards 8(1)(i); QLD code 2(i)). For the purpose of estimation it is assumed that a resting fork would be around $200[183] each including about 1 hour of labour cost to install. Moreover, it is assumed that there would be 2 forks needed per display enclosure (i.e. $400) and 1 fork needed per holding enclosure (i.e. $200).

The estimated one-off cost of providing resting forks under proposed standard S3.3 would be $5,026, as shown in Table A4.33. This estimation notes that small facilities typically do not have koala enclosures and with respect to large facilities it is quite likely the cost will be negligible as most would be meeting this requirement.

[183] $1500 buys materials needed for a Koala enclosure (see <http://www.cooberriepark.com.au/shop_summary.html>). Viewed 29 April 2003.

Table A4.33: Estimated one-off cost of providing enclosure furniture for koalas[184]

Jurisdiction	Cost to large facilities (p5)= (t)[185]*5%*$400 +(t)[186]*5%*$200	Cost to medium facilities (q5)= (t)*5%*$400 +(t)*5%*$200	Total cost to all facilities (s5) = (p5)+(q5)+(r5)
NSW	$0	$0	$0
VIC	$98	$1,784	$1,882
QLD	$0	$0	$0
SA	$98	$218	$316
WA	$98	$1,697	$1,795
TAS	$98	$479	$577
NT	$98	$218	$316
ACT	$98	$44	$142
Total one-off cost (Australia)	$588	$4,438	$5,026

As shown in Table A4.34, the estimated one-off cost of providing enclosure furniture for koalas over 10 years would be ***$4,697*** in present value 2012-13 dollars with 88.3% of the cost incurred by medium size facilities - particularly in VIC and WA.

Table A4.34: Estimated one-off cost of providing enclosure furniture for koalas by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	$0	$0	$0
VIC	$92	$1,667	$1,759
QLD	$0	$0	$0
SA	$92	$203	$295
WA	$92	$1,586	$1,677
TAS	$92	$447	$539
NT	$92	$203	$295
ACT	$92	$41	$132
Total one-off cost (Australia) PV - 7% discount	**$550**	**$4,148**	**$4,697**
% share of one-off cost	11.70%	88.30%	100.00%
One-off cost PV - 3% discount sensitivity	*$571*	*$4,309*	*$4,880*
One-off cost PV - 10% discount sensitivity	*$535*	*$4,034*	*$4,569*

A4.20 – Incremental cost of enclosure height requirements – S3.8 and S3.9 (Koalas)

[184] Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.
[185] See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.
[186] See column (t) in Table A2.13 of Appendix 2 for source of estimates for holding enclosures for koalas.

Under proposed standard S3.8, the operator would be required to ensure a koala in a fully enclosed enclosure could perch in the highest fork without being restricted by the ceiling of the enclosure. Also under proposed standard S3.9, the operator would be required to ensure holding enclosures provide sufficient height above the resting the fork(s) to:

> i. allow the koalas to sit upright; and
> ii. provide clearance from enclosure barriers to allow the koalas to rest without contacting the barriers.

The ECF agreed that a 12.5% non-compliance rate was appropriate and that an incremental cost would apply to all jurisdictions except NSW (as height requirements already apply to this jurisdiction under the base case). Incremental fencing costs are assumed to include the cost of raising or modifying fencing and taken to be $13.20[187] a metre[188].

Furthermore, for the purpose of estimating the perimeter of an average size enclosure each facility has been calculated to have 4 koalas, as many facilities will have between 3 to 5 resident koalas although some facilities house up to 50 to 60 koalas[189]. This would mean that a basic enclosure housing four adult koala would be about 45 square metres (based on spatial requirements under proposed standard S3.7 or S3.8); or a mixed space enclosure with an adult male would be at least 25 square metres for the male and 36 square metres for the remaining 3 adult females (a total of 61 square metres). It is understood that males typically fight and therefore would not be placed together. Subsequently, for the purpose of estimation, it is assumed that the average size of an enclosure is around 53 square metres.

This would mean an average perimeter of around 29 metres, which is calculated by taking the square root of the area and multiplying by 4. The cost of ensuring adequate height per enclosure is therefore estimated to be $13.20/metre x 120.19 metres = $384.39.

The estimated one-off cost of providing for height requirements under Clauses S3.8, and S3.9 would be $28,155, as shown in Table A4.35.

Table A4.35: Estimated one-off cost of providing for height requirements for koalas[190]

Jurisdiction	Cost to large facilities (t5)= (t)[191]*12.5%*$384.39	Cost to medium facilities (u5)= (t)*12.5%*$384.39	Total cost to all facilities (w5) = (t5)+(u5)+(v5)
NSW	$0	$0	$0
VIC	$365	$7,189	$7,554

[187] Estimate to be confirmed.
[188] Some parks could comply by repositioning forks rather than adding new fencing.
[189] Based on data from ZAA census survey 2011.
[190] Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.
[191] See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display and holding enclosures for koalas.

Jurisdiction	Cost to large facilities (t5)= (t)[191]*12.5%*$384.39	Cost to medium facilities (u5)= (t)*12.5%*$384.39	Total cost to all facilities (w5) = (t5)+(u5)+(v5)
QLD	$365	$7,715	$8,080
SA	$365	$877	$1,242
WA	$365	$6,838	$7,203
TAS	$365	$1,929	$2,294
NT	$365	$877	$1,242
ACT	$365	$175	$541
Total one-off cost (Australia)	$2,556	$25,599	$28,155

As shown in Table A4.36, the estimated one-off cost of providing for height requirements for koalas over 10 years would be ***$26,313*** in present value 2012-13 dollars with 90.92% of the cost incurred by medium size facilities - particularly in VIC, QLD and WA.

Table A4.36: Estimated one-off cost of providing for height requirements for koalas by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	$0	$0	$0
VIC	$341	$6,718	$7,060
QLD	$341	$7,210	$7,551
SA	$341	$819	$1,161
WA	$341	$6,391	$6,732
TAS	$341	$1,803	$2,144
NT	$341	$819	$1,161
ACT	$341	$164	$505
Total one-off cost (Australia) PV - 7% discount	**$2,389**	**$23,924**	**$26,313**
% share of one-off cost	9.08%	90.92%	100.00%
One-off cost PV - 3% discount sensitivity	*$2,482*	*$24,853*	*$27,335*
One-off cost PV - 10% discount sensitivity	*$2,324*	*$23,272*	*$25,596*

A4.21 – Incremental cost of spatial and shade requirements – S3.6, S3.7 and S5.2 (Koalas)

Under Clauses S3.6 and S3.7 the operator must ensure koala enclosures meet the minimum floor area requirements specified. Proposed standard S3.6 would be relevant for all jurisdictions except for Qld where existing codes already specify these requirements under the base case for mixed-sex enclosures. Proposed standard S3.7 would be relevant for all jurisdictions except for NSW.

The implication of proposed standard S3.6 is that 50% of non-compliant[192] non-walkthrough display enclosures in medium size facilities, except for QLD would be

[192] Non-compliance rate agreed to be 12.5% by the ECF.

involved in breeding activities and therefore would need to increase the perimeter of fencing by 25% (i.e. an additional 12sqm of area for a standard mixed-sex enclosure or 13.86 additional metres[193] for the perimeter). This would entail additional fencing costs @ $49.21 per metre and labour costs @ $100 (for 2hrs work) per non-walk through enclosure. This would make the total one-off cost of this requirement for relevant enclosures equal to $781.87.

The implication of proposed standard S3.7, is that for the 12.5% of non-compliant non-walkthrough display enclosures, excluding NSW, this would involve moving or removing fencing at a rate of $50 per hour for 2hrs of labour time (i.e. $100 per non walk through enclosures). That is to say, the operator would have the option of combining enclosures to ensure that the minimum floor area requirements are met (i.e. removing fences) or moving fences.

Furthermore, under proposed standard S5.2 the operator would be required to ensure that all koalas within an enclosure are able to simultaneously access shade at all times. For 5% non-compliant non-walkthrough display enclosures apart from NSW, this would involve putting in a shade tree at around $250 (average cost of an advanced 2.5m tree) plus 4hrs labour at $50.42 given a one-off cost of $300.42.

Therefore, the cost of Clauses S3.6, S3.7 and S5.2 per jurisdiction would be:

- $400.42 per non-compliant large and medium enclosure in QLD (i.e. affected by Clauses S3.7 and S5.2 only);
- $781.87 for 50% of non-compliant enclosures in medium size facilities in NSW (i.e. affected by proposed standard S3.6 only); and
- $400.42 per non-compliant large and medium enclosure in all jurisdictions (except NSW) and $781.87 for 50% of non-compliant enclosures in medium size facilities in all jurisdictions (except QLD).

The estimated one-off cost of providing for spatial and shade requirements under Clauses S3.6, S3.7 and S5.2 would be $11,352, as shown in Table A4.37.

[193] Taking the square root of the area and multiplying by 4.

Table A4.37: Estimated one-off cost of providing spatial and shade requirements for koalas[194]

Jurisdiction	Cost to large facilities (x5) = (t)[195]*12.5%*$400.42 or (t)*0%*$300.42 for NSW	Cost to medium facilities (y5) = (t)*12.5%*$400.42 + (t)*12.5%*50%*$781.87 or (t)*12.5%*$400.42 + (t)*0%*50%*$781.87 for QLD or (t)*0%*$400.42 for NSW +(t)*12.5%*50%*$781.87 for QLD	Total cost to all facilities (a6) = (x5)+(y5)
NSW	$0	$1,955	$1,955
VIC	$110	$2,846	$2,956
QLD	$110	$1,545	$1,656
SA	$110	$347	$457
WA	$110	$2,707	$2,817
TAS	$110	$764	$874
NT	$110	$347	$457
ACT	$110	$69	$180
Total one-off cost (Australia)	$771	$10,581	$11,352

As shown in Table A4.38, the estimated one-off cost of providing spatial and shade requirements for koalas over 10 years would be ***$10,609*** in present value 2012-13 dollars with 86.93% of the cost incurred by medium size facilities - particularly in VIC, QLD and WA.

Table A4.38: Estimated one-off cost of providing spatial and shade requirements for koalas by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	$0	$1,827	$1,827
VIC	$103	$2,660	$2,763
QLD	$103	$1,444	$1,547
SA	$103	$324	$427
WA	$103	$2,530	$2,633
TAS	$103	$714	$817
NT	$103	$324	$427
ACT	$103	$65	$168
Total one-off cost (Australia) PV - 7% discount	**$720**	**$9,889**	**$10,609**
% share of one-off cost	6.79%	93.21%	100.00%
One-off cost PV - 3% discount sensitivity	*$748*	*$10,273*	*$11,021*
One-off cost PV - 10% discount sensitivity	*$701*	*$9,619*	*$10,320*

[194] Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

[195] See column (t) in Table A2.15 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.

A4.22 – Incremental cost of weighing and recording requirements – S5.1, S10.7, S10.9, S12.1 and S12.2 (Koalas)

Under proposed standard S5.1, the operator would be required to ensure that each koala is weighed at least monthly as part of routine health monitoring.

Under proposed standard S10.7, the operator would be required to ensure that each koala used for handling is weighed a minimum of fortnightly to confirm:

i. maintenance of body weight in mature adults; or
ii. appropriate rates of growth in juvenile or sub-adult individuals.

Under proposed standard S10.9, the operator would be required to ensure that records of koala identification and handling times are kept daily in a consistent format and retained on file for the life of the animal plus two years.

Furthermore under proposed standard S12.1, the operator would be required to ensure that the weight of individual koalas is recorded monthly in accordance with proposed standard S5.1 of these standards.

Finally, under proposed standard S12.2, The operator would be required to ensure that the handling of each koala is recorded. These records must include:

i. date of handling; and
ii. handling time; and
iii. the keeper who handled the koala; and
iv. purpose of handling the koala; and
v. any adverse behaviours of the koala before, during and after handling.

Due to a lack of data on total koala numbers - notwithstanding 579 animals listed for 56 ZAA members and associates only (see Table A2.5 in Appendix 2) or 193 animals listed for NSW for all facilities (see Table A2.6 in Appendix 2) – the incremental cost of these Clauses is estimated on display enclosure numbers. It is assumed that it would take 4hrs per month per enclosure on average to weigh and record all koalas[196] on a monthly basis with half of them on a fortnightly basis (50% assumed to be handled as part of an interactive program), including record keeping requirements when handling and weighing. Assuming 4 animals per enclosure, this would be around 48 hours of work per enclosure per annum at a charge out rate of $50.42 (i.e. $2,420.16 per enclosure).

The purpose of record keeping for koala handling relates to ensuring that facilities cater for the natural biological requirements of the koala, such as times required for rest and feeding (e.g. 19-20hrs per day), and that all koala interactions accommodate those requirements.

[196] Apart from koalas in enclosures that enable them to reach heights inaccessible to humans and koalas that are not dependent on cut browse for survival.

The estimated annual cost of providing for weighing and recording requirements under Clauses S5.1, S10.7, S10.9, S12.1 and S12.2 would be $14,263, as shown in Table A4.39.

Table A4.39: Estimated cost of providing for weighing and recording requirements for koalas[197]

Jurisdiction	Cost to large facilities (b6)= (t)[198]*5%*$2,420.16	Cost to medium facilities (c6)= (t)*5%*$2,420.16	Total cost to all facilities (e6) = (x5)+(y5)+(z5)
NSW	$0	$0	$0
VIC	$266	$3,482	$3,748
QLD	$266	$3,737	$4,003
SA	$266	$425	$691
WA	$266	$3,312	$3,578
TAS	$266	$934	$1,200
NT	$266	$425	$691
ACT	$266	$85	$351
Total annual cost (Australia)	$1,864	$12,399	$14,263

As shown in Table A4.40, the estimated 10-year cost of providing for weighing and recording requirements for koalas would be ***$100,176*** in present value 2012-13 dollars with 86.93% of the cost incurred by medium size facilities - particularly in VIC, QLD and WA.

Table A4.40: Estimated 10-year cost of providing for weighing and recording requirements for koalas by state and territory and size of facility – 2012-13 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	$0	$0	$0
VIC	$1,870	$24,456	$26,326
QLD	$1,870	$26,245	$28,115
SA	$1,870	$2,982	$4,852
WA	$1,870	$23,263	$25,133
TAS	$1,870	$6,561	$8,431
NT	$1,870	$2,982	$4,852
ACT	$1,870	$596	$2,466
Total 10-year cost (Australia) PV - 7% discount	**$13,090**	**$87,087**	$100,176
% share of 10-year cost	13.07%	86.93%	100.00%
10-year cost PV - 3% discount sensitivity	*$15,898*	*$105,767*	$121,665
10-year cost PV - 10% discount sensitivity	*$11,452*	*$76,188*	$87,639

[197] Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

[198] See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.

A4.23 – Unquantifiable minor cost of quarantine requirements – S5.3 (Koalas)

Under proposed standard S5.3, the operator would be required to ensure that newly acquired koalas undergo a minimum 30-day period of quarantine, unless advised otherwise by a veterinarian. This would result in potentially more quarantine facilities required. Operators could meet some of this requirement by modifying their acquisitions to accommodate the 30-day minimum period and therefore the incremental cost is expected to be minimal. However given that the population and frequency of new koala acquisitions is unknown – these clauses remain unquantifiable.

A4.24 – Incremental cost of procedure requirements – S10.1 (Koalas)

Under proposed standard S10.1, an operator would need to ensure that written procedures are developed, maintained and implemented for interactive programs utilising koalas. Furthermore, it is assumed that such procedures would already be provided by 95% of operators and therefore would affect 5% of operators and would involve a time cost of 1.5 days i.e. one day for the development and half a day for the implementation of procedures (1 procedure in all).

It is assumed that large facilities already have such procedures in place and, therefore, the estimation of incremental costs is undertaken for medium facilities only[199]. Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 11.25hrs per affected facility[200] in NSW, VIC, QLD, WA, SA, NT, TAS, and ACT. As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be ***$101.52*** including salary on-costs and overhead costs. This rate is used to determine the hourly time cost of procedures.

The estimated one-off cost of developing maintaining and implementing a procedure for koala interactive programs under proposed standard S10.1 would be $881, as shown in Table A4.41 and would only affect medium size facilities.

Table A4.41: Estimated one-off cost of developing maintaining and implementing procedures for koala interactive programs

Jurisdiction	Cost to medium facilities (d6)= (c1)[201]*5%*11.25hrs*$101.52	Total cost
NSW	$228	$228
VIC	$170	$170
QLD	$218	$218
SA	$24	$24
WA	$174	$174
TAS	$59	$59

[199] Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.
[200] See Table A2.15 column (c1) in Appendix 2 for source of these estimates.
[201] See column (c1) in Table A2.15 of Appendix 2 for source of estimates for facilities operating across koalas.

Jurisdiction	Cost to medium facilities (d6)= (c1)[201]*5%*11.25hrs*$101.52	Total cost
NT	$0	$0
ACT	$8	$8
Total one-off cost (Australia)	$881	$881

As shown in Table A4.42, the estimated one-off cost of developing maintaining and implementing procedures for koala interactive programs over 10 years would be ***$823*** in present value 2012-13 dollars with all the cost incurred by medium size facilities - particularly in NSW, VIC, QLD and WA.

Table A4.42: Estimated one-off cost of developing maintaining and implementing procedures for koala interactive programs by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Medium Facilities	Total Facilities
NSW	$213	$213
VIC	$159	$159
QLD	$204	$204
SA	$22	$22
WA	$162	$162
TAS	$55	$55
NT	$0	$0
ACT	$7	$7
Total one-off cost (Australia) PV - 7% discount	**$823**	**$823**
% share of one-off cost	100.00%	100.00%
One-off cost PV - 3% discount sensitivity	*$855*	*$855*
One-off cost PV - 10% discount sensitivity	*$800*	*$800*

A4.25 – Unquantifiable minor cost of transport requirements – S11.1 and S11.2 (Koalas)

Under proposed standard S11.1, the operator transporting a koala must ensure independent koalas are transported individually. Independent koalas with dependent offspring are exempt. Under proposed standard S11.2, the operator sending a koala would have to ensure that transportation containers are of a sufficient size to allow the koala to maintain a normal resting posture without being in contact with the container's sides or roof. These clauses would result in 5% of non-compliant facilities having to obtain both additional containers and ones that would meet spatial requirements. This is unlikely to be a significant cost. However, given that the population and frequency of koala transport is unknown – these clauses remain unquantifiable.

A4.26 – Incremental cost of substrate drainage, furniture, spatial and health requirements – S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10 and S5.2 (Wombats)

Under proposed standard S3.3, the operator would be required to ensure that each

adult wombat has access to substrate to a minimum depth of 500 mm over an area not less than four square metres (except for QLD). Under proposed standard S3.4, the operator would be required to ensure that for each additional adult wombat the area of substrate with a minimum depth of 500 mm is increased by two square metres. Under proposed standard S3.5, the operator would be required to ensure that substrate deeper than 500 mm must be of a type that does not pose a risk of collapse and burial of the wombat. The incremental cost of these requirements would be approximately $500[202] per enclosure, which would include the cost of appropriate substrate material and labour.

Under proposed standard S3.6, the operator would be required to ensure wombats are provided with shaded retreats at all times and digging opportunities within the enclosure (except for QLD). Moreover, under proposed standard S3.7, the operator would be required to ensure enclosure furniture is positioned in a manner that will not allow a digging wombat to cause the enclosure furniture to shift in any way that may cause injury to any animal.

Under proposed standard S3.8, the operator would be required to ensure that a wombat enclosure for up to two adult specimens has a minimum floor area of 45 square metres (except for QLD) and that under S3.9, the operator would be require to ensure that for each additional adult wombat the floor area is increased by a minimum of ten square metres. Finally, under proposed standard S3.10, the operator would be required to ensure enclosures that provide housing for wombats at night time meet all enclosure standards (except for QLD). The implication of this is that for the 5% of non-compliant non-walkthrough display enclosures or holding enclosures, this would involve moving or removing fencing at a rate of $50 per hour for 2hrs of labour time (i.e. $100 per enclosure). That is to say, the operator would have the option of combining enclosures to ensure that the minimum floor area requirements are met (i.e. removing fences) or moving fences.

Under S5.2, the operator (apart from those in QLD), unless otherwise advised by a veterinarian, would be required to ensure that wombats are provided with the opportunity to:

i. behaviourally thermoregulate; and
ii. withdraw from other wombats; and
iii. withdraw from viewing by the public.

A human made burrow allowing for comfortable temperature could easily be constructed from 2 x 44 gallon drums, insulation batts, plastic tubing (approximately 1 metre in length and 250mm in diameter), form ply for waterproofing, grass seed for stopping erosion, with rocks and logs for the entrance, blocks to prevent the plastic tubing from dislodging from the burrow, straw to maintain temperature and a deep layer of dirt.[203] This cost would be estimated to be around $200 of materials and $200 labour (4 hours) per burrow. For a typical enclosure with around 4 wombats the estimated incremental cost would be around $1,600 per enclosure.

[202] Cost of mulch at around $3 a bag (about a 100 bags) + $200 (i.e. 4 hrs of labour).
[203] Fauna first aid, A Guide to the Care of Bare-nosed wombats (See <www.fourthcrossingwildlife.com>). Viewed 1 May 2013.

The total incremental cost to 5% of non-compliant enclosures would therefore be approximately **$2,200** per enclosure to satisfy the aforementioned requirements under clauses S3.3, S3.4, S3.5, S3.6, S3.7 and S5.2.

The estimated one-off cost of substrate drainage, furniture, spatial and health requirements under Clauses S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10 and S5.2 would be $43,794, as shown in Table A4.43.

Table A4.43: Estimated cost of substrate drainage, furniture, spatial and health requirements for wombats

Jurisdiction	Cost to large facilities (e6)= (u)[204]*5%*$2200	Cost to medium facilities (f6)=(u) *5%*$2200	Cost to small facilities (g6)=(u) *5%*$2200	Total cost to all facilities (h6) = (e6)+(f6)+(g6)
NSW	$242	$7,920	$7,187	$15,349
VIC	$242	$5,697	$5,169	$11,108
QLD	$0	$0	$0	$0
SA	$242	$695	$630	$1,567
WA	$242	$5,419	$4,917	$10,578
TAS	$242	$1,528	$1,387	$3,157
NT	$242	$695	$630	$1,567
ACT	$126	$110	$232	$468
Total one-off cost (Australia)	$1,578	$22,064	$20,153	$43,794

As shown in Table A4.44, the estimated one-off cost of substrate drainage, furniture, spatial and health requirements for wombats over 10 years would be ***$40,929*** in present value 2012-13 dollars with 50.38% of the cost incurred by medium size facilities - particularly in NSW, VIC and WA and 46.02% of the cost incurred by small size facilities – particularly in NSW, VIC and WA.

Table A4.44: Estimated one-off cost of substrate drainage, furniture, spatial and health requirements for wombats by state and territory and size of facility over 10 years – 2012-13 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	$226	$7,402	$6,717	$14,345
VIC	$226	$5,324	$4,831	$10,381
QLD	$0	$0	$0	$0
SA	$226	$649	$589	$1,465
WA	$226	$5,064	$4,596	$9,886
TAS	$226	$1,428	$1,296	$2,951
NT	$226	$649	$589	$1,465
ACT	$118	$103	$216	$437
Total one-off cost (Australia) PV - 7% discount	**$1,475**	**$20,620**	**$18,834**	**$40,929**

[204] See column (u) in Table A2.13 of Appendix 2 for source of estimates for non-walkthrough display and holding enclosures for wombats.

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
% share of one-off cost	3.60%	50.38%	46.02%	100.00%
One-off cost PV - 3% discount sensitivity	*$1,532*	*$21,421*	*$19,566*	*$42,519*
One-off cost PV - 10% discount sensitivity	*$1,435*	*$20,058*	*$18,320*	*$39,813*

A4.27 – Unquantifiable minor cost of transport requirements – S11.1 and S11.2 (Wombats)

Under proposed standard S11.1, the operator transporting a wombat would be required to ensure that the wombat is transported in a solid, secure container measuring at least 10% longer than the length of the animal and with sufficient width to enable the wombat to lie comfortably on its side. Also, under proposed standard S11.2, the operator transporting a wombat would be required to ensure that each adult wombat is transported individually. Wombats carrying pre-emerged pouch young would be exempt. These clauses would result in 5% of non-compliant facilities having to obtain both additional containers and ones that would meet spatial requirements. This is unlikely to be a significant cost. However, given that the population and frequency of wombat transport is unknown – these clauses remain unquantifiable.

A4.28 – Summary of quantifiable incremental costs under the taxon standards Option B and C1

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option B is presented in Table A4.45 and equal to **$0.78m**.

Table A4.45: Summary of incremental quantifiable costs of taxon standards (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	10-year PV cost Large Facilities	10-year PV Cost Medium Facilities	10-year PV Cost Small Facilities	10-year PV Cost 7%	10-year PV Cost 3%	10-year PV cost 10%
Fox proofing enclosures (macropods)	S3.2	$0.005	$0.009	$0.061	$0.075	$0.078	$0.073
Exclusion areas for walk through enclosures (macropods)	S3.3	$0.000	$0.001	$0.003	$0.004	$0.004	$0.004
Providing visitor information (macropods)	S3.4	$0.000	$0.000	$0.001	$0.002	$0.002	$0.002
Fencing requirements (macropods)	S3.6	$0.008	$0.014	$0.084	$0.106	$0.110	$0.103
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0.000	$0.000	$0.001	$0.001	$0.002	$0.001
Minimum spatial requirements (macropods)	S3.8	$0.000	$0.000	$0.002	$0.002	$0.002	$0.002
Providing for elevated positions (macropods)	S5.1	$0.001	$0.000	$0.002	$0.003	$0.003	$0.003
Animal collection management plans and procedures (macropods)	S6.1, S8.1	$0.000	$0.005	$0.032	$0.037	$0.039	$0.036
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	$0.000	$0.002	$0.010	$0.012	$0.012	$0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	$0.028	$0.144	$0.104	$0.276	$0.287	$0.268
Holding enclosure requirements (crocodiles)	S3.7, S3.8	$0.001	$0.002	$0.001	$0.004	$0.004	$0.004
Providing for appropriate enclosure height (ratites)	S3.3	$0.006	$0.038	$0.041	$0.084	$0.087	$0.082
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	$0.002	$0.006	$0.009	$0.017	$0.017	$0.016
Procedures for the collection of eggs (ratites)	S6.1	$0.000	$0.001	$0.005	$0.006	$0.006	$0.006
Enclosure furniture requirements (koalas)	S3.3	$0.001	$0.004	$0.000	$0.005	$0.005	$0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	$0.002	$0.024	$0.000	$0.026	$0.027	$0.026
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	$0.001	$0.010	$0.000	$0.011	$0.011	$0.010
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	$0.013	$0.087	$0.000	$0.100	$0.122	$0.088
Procedure requirements (koalas)	S10.1	$0.000	$0.001	$0.000	$0.001	$0.001	$0.001
Substrate drainage, furniture, spatial and health	S3.3, S3.4,	$0.001	$0.021	$0.019	$0.041	$0.043	$0.040

Category of incremental cost	Std/s	10-year PV cost Large Facilities	10-year PV Cost Medium Facilities	10-year PV Cost Small Facilities	10-year PV Cost 7%	10-year PV Cost 3%	10-year PV cost 10%
requirements (wombats)	S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2						
Total quantifiable incremental cost of taxon standards		$0.069	$0.368	$0.375	$0.812	$0.861	$0.780
Percentage of quantifiable incremental cost		8.51%	45.33%	46.17%	100.00%		

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option B is presented in Table A4.46 by state and territory with the majority of the cost being incurred by NSW, VIC, QLD, WA and TAS and mainly with respect to: fox proofing enclosures for macropods[205]; fencing requirements for macropods[206]; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; weighing and recording requirements for koalas[207].

Table A4.46: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Fox proofing enclosures (macropods)	S3.2	$0.000	$0.000	$0.048	$0.006	$0.000	$0.013	$0.006	$0.002	$0.075
Exclusion areas for walk through enclosures (macropods)	S3.3	$0.000	$0.001	$0.000	$0.000	$0.001	$0.000	$0.000	$0.000	$0.004
Providing visitor information (macropods)	S3.4	$0.001	$0.001	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.002
Fencing requirements (macropods)	S3.6	$0.000	$0.008	$0.000	$0.009	$0.059	$0.018	$0.009	$0.003	$0.106
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0.000	$0.000	$0.000	$0.000	$0.001	$0.000	$0.000	$0.000	$0.001

[205] Except for NSW.
[206] Except for NSW.
[207] Except for NSW.

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Minimum spatial requirements (macropods)	S3.8	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.002
Providing for elevated positions (macropods)	S5.1	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.003
Animal collection management plans and procedures (macropods)	S6.1, S8.1	0.019	0.013	0.001	0.000	0.002	0.001	0.000	0.000	0.037
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	0.004	0.001	0.005	0.000	0.001	0.000	0.000	0.000	0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	0.090	0.066	0.008	0.012	0.063	0.021	0.012	0.005	0.276
Holding enclosure requirements (crocodiles)	S3.7, S3.8	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.004
Providing for appropriate enclosure height (ratites)	S3.3	0.029	0.021	0.000	0.003	0.020	0.006	0.003	0.001	0.084
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	0.006	0.004	0.000	0.001	0.004	0.001	0.001	0.000	0.017
Procedures for the collection of eggs (ratites)	S6.1	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.006
Enclosure furniture requirements (koalas)	S3.3	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	0.000	0.007	0.008	0.001	0.007	0.002	0.001	0.001	0.026
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	0.002	0.003	0.002	0.000	0.003	0.001	0.000	0.000	0.011
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1,	0.000	0.026	0.028	0.005	0.025	0.008	0.005	0.002	0.100

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
	S12.2									
Procedure requirements (koalas)	S10.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	0.014	0.010	0.000	0.001	0.010	0.003	0.001	0.000	0.041
Total quantifiable incremental cost of taxon standards		0.167	0.166	0.101	0.041	0.201	0.077	0.041	0.018	0.812
Percentage of quantifiable incremental cost		20.58 %	20.43 %	12.49 %	5.07 %	24.72 %	9.48 %	5.06 %	2.17 %	100.00 %

Table A4.47: Summary of incremental quantifiable costs of variation of taxon standards (Option C1) – 2012-13 dollars

Category of incremental cost	Std/s	10-year PV cost Large Facilities	10-year PV Cost Medium Facilities	10-year PV Cost Small Facilities	10-year PV Cost 7%	10-year PV Cost 3%	10-year PV cost 10%
Fox proofing enclosures or alternatives (macropods)	Amended S3.2	$0.007	$0.013	$0.088	$0.182	$0.220	$0.159
Exclusion areas for walk through enclosures (macropods)	S3.3	$0.000	$0.001	$0.003	$0.004	$0.004	$0.004
Providing visitor information (macropods)	S3.4	$0.000	$0.000	$0.001	$0.002	$0.002	$0.002
Fencing requirements (macropods)	S3.6	$0.008	$0.014	$0.084	$0.106	$0.110	$0.103
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0.000	$0.000	$0.001	$0.001	$0.002	$0.001
Minimum spatial requirements (macropods)	S3.8	$0.000	$0.000	$0.002	$0.002	$0.002	$0.002

Category of incremental cost	Std/s	10-year PV cost Large Facilities	10-year PV Cost Medium Facilities	10-year PV Cost Small Facilities	10-year PV Cost 7%	10-year PV Cost 3%	10-year PV cost 10%
Providing for elevated positions (macropods)	S5.1	$0.001	$0.000	$0.002	$0.003	$0.003	$0.003
Animal collection management plans and procedures (macropods)	S6.1, S8.1	$0.000	$0.005	$0.032	$0.037	$0.039	$0.036
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	$0.000	$0.002	$0.010	$0.012	$0.012	$0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	$0.028	$0.144	$0.104	$0.276	$0.287	$0.268
Holding enclosure requirements (crocodiles)	S3.7, S3.8	$0.001	$0.002	$0.001	$0.004	$0.004	$0.004
Providing for appropriate enclosure height (ratites)	S3.3	$0.006	$0.038	$0.041	$0.084	$0.087	$0.082
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	$0.002	$0.006	$0.009	$0.017	$0.017	$0.016
Procedures for the collection of eggs (ratites)	S6.1	$0.000	$0.001	$0.005	$0.006	$0.006	$0.006
Enclosure furniture requirements (koalas)	S3.3	$0.001	$0.004	$0.000	$0.005	$0.005	$0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	$0.002	$0.024	$0.000	$0.026	$0.027	$0.026
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	$0.001	$0.010	$0.000	$0.011	$0.011	$0.010
Weighing and recording requirements	S5.1, S10.7 S10.9, S12.1, S12.2	$0.013	$0.087	$0.000	$0.100	$0.122	$0.088

Category of incremental cost	Std/s	10-year PV cost Large Facilities	10-year PV Cost Medium Facilities	10-year PV Cost Small Facilities	10-year PV Cost 7%	10-year PV Cost 3%	10-year PV cost 10%
(koalas)							
Procedure requirements (koalas)	S10.1	$0.000	$0.001	$0.000	$0.001	$0.001	$0.001
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	$0.001	$0.021	$0.019	$0.041	$0.043	$0.040
Total quantifiable incremental cost of taxon standards		$0.071	$0.372	$0.402	$0.919	$1.003	$0.867
Percentage of quantifiable incremental cost		7.81%	40.16%	43.96%	100.00%		

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option C1 is presented in Table A4.48 by state and territory with the majority of the cost being incurred by NSW, VIC, QLD, WA and TAS and mainly with respect to: enclosure, furniture and spatial requirements for crocodiles; alternatives to fox-proofing enclosures for macropods[208]; fencing requirements for macropods[209]; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; and weighing and recording requirements for koalas[210].

Table A4.48: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option C1) – 2012-13 dollars ($m)

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
Fox proofing enclosures or alternatives (macropods)	Amended S3.2	0.000	0.000	0.115	0.015	0.000	0.031	0.015	0.005	0.182
Exclusion areas for walk through enclosures (macropods)	S3.3	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.004
Providing visitor information (macropods)	S3.4	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Fencing	S3.6	0.000	0.008	0.000	0.009	0.059	0.018	0.009	0.003	0.106

[208] Except for NSW.
[209] Except for NSW.
[210] Except for NSW.

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
requirements (macropods)										
Enrichment to rock wallaby enclosures (macropods)	S3.7	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001
Minimum spatial requirements (macropods)	S3.8	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.002
Providing for elevated positions (macropods)	S5.1	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.003
Animal collection management plans and procedures (macropods)	S6.1, S8.1	0.019	0.013	0.001	0.000	0.002	0.001	0.000	0.000	0.037
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	0.004	0.001	0.005	0.000	0.001	0.000	0.000	0.000	0.012
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	0.090	0.066	0.008	0.012	0.063	0.021	0.012	0.005	0.276
Holding enclosure requirements (crocodiles)	S3.7, S3.8	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.004
Providing for appropriate enclosure height (ratites)	S3.3	0.029	0.021	0.000	0.003	0.020	0.006	0.003	0.001	0.084
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	0.006	0.004	0.000	0.001	0.004	0.001	0.001	0.000	0.017
Procedures for the collection of eggs (ratites)	S6.1	0.002	0.001	0.001	0.000	0.001	0.000	0.000	$0.000	0.006
Enclosure furniture requirements (koalas)	S3.3	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.000	0.005
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	0.000	0.007	0.008	0.001	0.007	0.002	0.001	0.001	0.026
Spatial and shade requirements	S3.6, S3.7, S5.2	0.002	0.003	0.002	0.000	0.003	0.001	0.000	0.000	0.011

Category of incremental cost	Std/s	NSW $AUD	VIC $AUD	QLD $AUD	SA $AUD	WA $AUD	TAS $AUD	NT $AUD	ACT $AUD	AUS $AUD
(koalas)										
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	0.000	0.026	0.028	0.005	0.025	0.008	0.005	0.002	0.100
Procedure requirements (koalas)	S10.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	0.014	0.010	0.000	0.001	0.010	0.003	0.001	0.000	0.041
Total quantifiable incremental cost of taxon standards		0.167	0.166	0.169	0.050	0.201	0.095	0.050	0.021	0.919
Percentage of quantifiable incremental cost		18.19 %	18.06 %	18.41 %	5.46 %	21.84 %	10.34 %	5.45 %	2.25 %	100.00 %

A4.29 – Summary of distribution of incremental costs under the taxon standards for Option B

A summary of the distribution of 10-year quantifiable costs by state and territory of the proposed taxon standards under Option B is presented in Tables A4.49 to A4.51 incurred by small facilities, medium facilities and large facilities, respectively. As shown in Table A4.49 the average annualised cost for a small facility is estimated to be $215 in present value dollars. For medium facilities the average annualised cost is estimated to be $1,289 (see Table A4.50) and for large facilities it is $874 (see Table A4.51).

Table A4.49: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for small facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
No. small facilities		49	35	38	4	34	9	4	1	175
Fox proofing enclosures (macropods)	S3.2	$0	$0	$40,535	$4,606	$0	$10,134	$4,606	$921	$60,802
Exclusion areas for walk through enclosures (macropods)	S3.3	$0	$1,098	$0	$134	$1,044	$295	$134	$27	$2,732

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Providing visitor information (macropods)	S3.4	$522	$376	$0	$46	$357	$101	$46	$9	$1,456
Fencing requirements (macropods)	S3.6	$0	$6,533	$0	$6,373	$49,711	$14,021	$6,373	$1,275	$84,285
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0	$0	$0	$100	$783	$221	$100	$20	$1,225
Minimum spatial requirements (macropods)	S3.8	$0	$0	$0	$80	$627	$177	$80	$964	$1,928
Providing for elevated positions (macropods)	S5.1	$0	$0	$0	$402	$0	$884	$402	$80	$1,768
Animal collection management plans and procedures (macropods)	S6.1, S8.1	$16,642	$11,529	$962	$184	$1,789	$505	$172	$69	$31,851
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	$3,209	$1,274	$4,275	$275	$596	$252	$344	$69	$10,296
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	$36,063	$25,940	$3,093	$3,163	$24,675	$6,960	$3,163	$633	$103,690
Holding enclosure requirements (crocodiles)	S3.7, S3.8	$153	$220	$236	$27	$209	$59	$27	$5	$935
Providing for appropriate enclosure height (ratites)	S3.3	$14,669	$10,551	$0	$1,287	$10,037	$2,831	$1,287	$257	$40,919
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	$3,283	$2,361	$0	$288	$2,246	$633	$288	$58	$9,157
Procedures for the collection of eggs (ratites)	S6.1	$1,545	$910	$1,247	$184	$994	$0	$115	$23	$5,018
Enclosure furniture requirements (koalas)	S3.3	$0	$0	$0	$0	$0	$0	$0	$0	$0
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	$0	$0	$0	$0	$0	$0	$0	$0	$0
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	$0	$0	$0	$0	$0	$0	$0	$0	$0

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	$0	$0	$0	$0	$0	$0	$0	$0	$0
Procedure requirements (koalas)	S10.1	$0	$0	$0	$0	$0	$0	$0	$0	$0
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	$6,717	$4,831	$0	$589	$4,596	$1,296	$589	$216	$18,834
Total cost taxon standards		$82,802	$65,623	$50,347	$17,738	$97,664	$38,367	$17,726	$4,626	$374,895
Average 10-year cost per facility		$1,690	$1,862	$1,331	$4,127	$2,913	$4,057	$4,124	$5,382	$2,148
Average annualised cost per facility		$169	$186	$133	$413	$291	$406	$412	$538	$215

Table A4.50: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for medium facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
No. medium facilities		8	6	6	1	5	2	1	0	28
Fox proofing enclosures (macropods)	S3.2	$0	$0	$5,956	$677	$0	$1,489	$677	$135	$8,934
Exclusion areas for walk through enclosures (macropods)	S3.3	$0	$269	$0	$33	$256	$72	$33	$7	$669
Providing visitor information (macropods)	S3.4	$128	$92	$0	$11	$87	$25	$11	$2	$357
Fencing requirements (macropods)	S3.6	$0	$1,067	$0	$1,041	$8,116	$2,289	$1,041	$208	$13,761
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0	$0	$0	$18	$144	$41	$18	$4	$225
Minimum spatial requirements (macropods)	S3.8	$0	$0	$0	$15	$115	$32	$15	$3	$180
Providing for elevated positions (macropods)	S5.1	$0	$0	$0	$74	$0	$162	$74	$15	$325
Animal collection management plans and procedures (macropods)	S6.1, S8.1	$2,717	$1,882	$393	$45	$292	$82	$28	$11	$5,451
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	$524	$139	$698	$45	$97	$41	$56	$9	$1,610

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	$50,047	$35,999	$4,293	$4,390	$34,242	$9,658	$4,390	$878	$143,897
Holding enclosure requirements (crocodiles)	S3.7, S3.8	$355	$511	$548	$62	$486	$137	$62	$12	$2,174
Providing for appropriate enclosure height (ratites)	S3.3	$13,472	$9,690	$0	$1,182	$9,217	$2,600	$1,182	$236	$37,579
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	$2,010	$1,446	$0	$176	$1,375	$388	$176	$35	$5,606
Procedures for the collection of eggs (ratites)	S6.1	$252	$149	$204	$30	$162	$0	$19	$0	$815
Enclosure furniture requirements (koalas)	S3.3	$0	$1,667	$0	$203	$1,586	$447	$203	$41	$4,148
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	$0	$6,718	$7,210	$819	$6,391	$1,803	$819	$164	$23,924
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	$1,827	$2,660	$1,444	$324	$2,530	$714	$324	$65	$9,889
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	$0	$24,456	$26,245	$2,982	$23,263	$6,561	$2,982	$596	$87,087
Procedure requirements (koalas)	S10.1	$0	$0	$0	$0	$0	$0	$0	$0	$0
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	$7,402	$5,324	$0	$649	$5,064	$1,428	$649	$103	$20,620
Total cost taxon standards		$78,733	$92,068	$46,991	$12,777	$93,425	$27,970	$12,760	$2,525	$367,249
Average 10-year cost per facility		$9,842	$16,000	$7,609	$18,208	$17,068	$18,117	$18,184	$17,991	$12,890
Average annualised cost per facility		$984	$1,600	$761	$1,821	$1,707	$1,812	$1,818	$1,799	$1,289

Table A4.51: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for large facilities – 2012-13 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
No. large facilities		1	1	1	1	1	1	1	1	8
Fox proofing enclosures (macropods)	S3.2	$0	$0	$1,029	$1,029	$0	$1,029	$1,029	$1,029	$5,144
Exclusion areas for walk through enclosures (macropods)	S3.3	$0	$47	$0	$47	$47	$47	$47	$47	$280

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Providing visitor information (macropods)	S3.4	$47	$47	$0	$47	$47	$47	$47	$47	$327
Fencing requirements (macropods)	S3.6	$0	$195	$0	$1,557	$1,557	$1,557	$1,557	$1,557	$7,979
Enrichment to rock wallaby enclosures (macropods)	S3.7	$0	$1	$2	$3	$4	$5	$6	$7	$28
Minimum spatial requirements (macropods)	S3.8	$0	$0	$0	$25	$25	$25	$25	$25	$126
Providing for elevated positions (macropods)	S5.1	$0	$0	$0	$126	$0	$126	$126	$126	$505
Animal collection management plans and procedures (macropods)	S6.1, S8.1	$0	$0	$0	$0	$0	$0	$0	$0	$0
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	$0	$0	$0	$0	$0	$0	$0	$0	$0
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	$3,974	$3,974	$442	$3,974	$3,974	$3,974	$3,974	$3,974	$28,262
Holding enclosure requirements (crocodiles)	S3.7, S3.8	$40	$80	$80	$80	$80	$80	$80	$80	$603
Providing for appropriate enclosure height (ratites)	S3.3	$808	$808	$0	$808	$808	$808	$808	$808	$5,658
Providing additional furniture and spatial requirements (ratites)	S3.4, S3.5, S3.6	$281	$281	$0	$281	$281	$281	$281	$281	$1,970
Procedures for the collection of eggs (ratites)	S6.1	$0	$1	$2	$3	$4	$5	$6	$7	$28
Enclosure furniture requirements (koalas)	S3.3	$0	$92	$0	$92	$92	$92	$92	$92	$550
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	$0	$341	$341	$341	$341	$341	$341	$341	$2,389

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	$0	$103	$103	$103	$103	$103	$103	$103	$720
Weighing and recording requirements (koalas)	S5.1, S10.7 S10.9, S12.1, S12.2	$0	$1,870	$1,870	$1,870	$1,870	$1,870	$1,870	$1,870	$13,090
Procedure requirements (koalas)	S10.1	$213	$159	$204	$22	$162	$55	$0	$7	$823
Substrate drainage, furniture, spatial and health requirements (wombats)	S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9, S3.10, S5.2	$226	$226	$0	$226	$226	$226	$226	$118	$1,475
Total cost taxon standards		$5,591	$8,225	$4,072	$10,635	$9,622	$10,672	$10,619	$10,520	$69,956
Average 10-year cost per facility		$5,591	$8,225	$4,072	$10,635	$9,622	$10,672	$10,619	$10,520	$8,744
Average annualised cost per facility		$559	$822	$407	$1,064	$962	$1,067	$1,062	$1,052	$874

Appendix 5 – Complete list of public consultation questions

Public consultation question 1: Do you believe that Australian community values and expectations towards the welfare of exhibited animals justify the introduction of national standards and/or guidelines?

Public consultation question 2: Do you have any evidence of poor risk management practices related to the welfare of exhibited animals? If so, what is the extent of this problem?

Public consultation question 3: a. In your experience, to what extent do the existing codes of practice and related regulations create uncertainty for industry? b. Does such uncertainty vary between different states and territories?

Public consultation question 4: Do you think that the potential risks to the welfare of exhibited animals are high enough to justify the introduction of better standards and/or guidelines?

Public consultation question 5: Do you think that there needs to be national consistency in the standards and/or guidelines that relate to the risks to the welfare of exhibited animals?

Public consultation question 6: a. Do you have any evidence of poor risk management practices related to the environment or agriculture in connection with exhibited animals? b. If yes, what is the extent of this problem?

Public consultation question 7: Do you think that the potential risks to the environment and agriculture are high enough to justify the introduction of better standards and/or guidelines?

Public consultation question 8: Do you think that there needs to be national consistency in the standards and/or guidelines that relate to the potential impact of exhibited animals on the environment and agriculture?

Public consultation question 9: a. Do you have evidence that a percentage of exhibited animal businesses operate in more than one state or territory? b. If yes, please provide percentage estimates for various combinations of states and territories.

Public consultation question 10: a. Do you believe that the net benefits likely to be achieved under **Option A**, including the benefits to animal welfare, agriculture and the environment, are justified? b. Do you believe that the combination of costs and benefits under **Option A** are superior to other options?

Public consultation question 11: Do you think that the proposed national standards under **Option B** reflect community values and expectations regarding the acceptable treatment of exhibited animals?

Public consultation question 12: a. Do you believe that the net benefits likely to be achieved under **Option B** including the benefits to animal welfare, agriculture and the environment are justified? b. Do you believe the combination of costs and benefits under **Option B** are superior to other options?

Public consultation question 13: a. Do you believe that the benefits likely to be achieved under **Variations C1** and/or **C2** of **Option B**, are justified? b. Do you believe the combination of costs and benefits under **Variations C1** and/or **C2** of **Option B** are superior to other options?

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Appendix 6 - the proposed Australian Animal Welfare Standards and Guidelines for the Welfare of Animals – Exhibited Animals

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – General

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Crocodilian

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Koala

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Macropod

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Ratite

Australian Animal Welfare Standards and Guidelines. Exhibited Animals – Wombat