

Australian Animal Welfare Standards and Guidelines

Exhibited Animals

Decision Regulation Impact Statement



Endorsed

Agriculture Ministers Forum (AGMIN)

April 2019

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**AUSTRALIAN ANIMAL WELFARE STANDARDS AND GUIDELINES – EXHIBITED ANIMALS
Decision Regulation Impact Statement**

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 vertebrate 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; but does not include pre-natal, pre-hatched, larval or other such developmental stages unless specified by a standard.

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 prevent or manage 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 2.3 of this RIS. The difficulties experienced by industry and jurisdictions from the lack of clear national standards are discussed in Part 2.4 of the 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 practicable alternatives below originally emerged from discussions with the Expert Consultative Forum (ECF) referred to in Part 1.3.1 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 sought the views and advice of interested parties in the further formulation of variations to the existing proposals.

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 (as amended following public consultation);
- **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 S3.31 to specify a maximum period in a holding enclosure of 30 days without government approval instead of 60 days.

Following public consultation, the proposed national standards (Option B) now incorporate, with respect to holding yards, a 60 day maximum period rather than the 90 day maximum period that was proposed in the Consultation RIS. Also, the proposed macropod standards now incorporate the option of a fox control program as an alternative to a fox proof enclosure or fence.

Interested Australians were asked via the Consultation RIS to consider the costs and benefits of each option and whether they were willing to accept the costs of meeting community values and expectations. Thirteen (13) public consultation questions were interspersed in the text of the Consultation 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	\$6.79m for general and \$0.89m 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	\$6.79m for general and \$0.93m 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	> \$6.79m for general and \$0.89m 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 S3.31 which specifies a maximum period in holding enclosure of 30 days without government approval instead of 60 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 2.3 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 (AGMIN).

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. Small business will not be disproportionately affected by the general or taxon standards proposed.

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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; but does not include pre-natal, pre-hatched, larval or other such developmental stages unless specified by a standard.

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

managing the project and has arranged 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 (AGMIN), 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 mandatory² and must use relevant existing Australian legislation, standards³ 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 comply⁴ 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 included three phases, as follows:

- **Phase 1** was the preparation of a preliminary draft RIS for public consultation, which complied with the requirements of relevant COAG guidelines (as assessed by OBPR).
- **Phase 2** was 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.

¹It is not intended that compliance with guidelines ('should' statements) will be mandatory.

²No costs are imposed if compliance with standards is voluntary.

³'Must' statements or practices required by government codes of practice.

⁴As independently assessed by the Commonwealth Office of Best Practice Regulation (OBPR).

- **Phase 3** is the preparation of this Decision RIS, taking into account submissions received and further developments during the public consultation period.

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

⁵Mumaw, 2006.

⁶ Not in their natural habitats.

⁷Mumaw, 2006.

⁸Formerly the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA).

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.

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 - 2012¹⁰

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 industry¹¹ 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
	<i>Total</i>	8510
Birds	Ratites	274
	Other	11113
	<i>Total</i>	11387
Fish	<i>Total</i>	29588
Reptiles	Crocodylians	1328
	Other	5309
	<i>Total</i>	6637

⁹ Aegis Consulting Australia and Applied Economics, 2009.

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.

Amphibians	<i>Total</i>	3605
Invertebrates	<i>Total</i>	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/>)

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
Crocodylians	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):

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.

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 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

¹⁸ <http://web.oie.int/eng/normes/mcode/en_chapitre_1.7.1.htm> Viewed 10 June 2012.

¹⁹Productivity Commission, 1998

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 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

²⁰ For example, section 1 of the Victorian **Prevention Of Cruelty To Animals Act 1986**.
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requirements such as health examinations, food supply, transport crates, noise minimisation etc.²¹

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 former 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

²¹ DoE web site <<http://www.environment.gov.au/biodiversity/wildlife-trade/sources/non-commercial/exhibition.html>> Viewed 20 July 2013.

²² Primary Industries Standing Committee, 2011.

²³ Primary Industries Standing Committee, 2011.

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.

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.

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.

Australasian zoos and aquariums maintain a unique and diverse collection of non-domestic species. The Association recognises the benefits of an industry specific 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 states²⁹ 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

1.3.1. Standards development process

The Consultation Guidelines (Appendix F of the COAG Guidelines) were 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) 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,

³² <<https://www.gov.uk/government/publications/secretary-of-state-s-standards-of-modern-zoo-practice>> Viewed 29 April 2013.

³³Biosecurity Queensland, 2008 p.12.

and members of the exhibited animal industry and animal welfare groups have been involved in the process.

The ECF consisted of a relatively wide range of representatives of the exhibited animal industry, plus government regulators and animal welfare NGOs from most states and territories. It met once during the drafting of the proposed standards and again shortly before the drafting of the Consultation Regulation Impact Statement commenced. At this second meeting, held at the Taronga Zoo in Sydney, there was a two-day workshop facilitated by the consultants who drafted this RIS. Key data points such as the numbers of facilities, animals, enclosures and keepers were discussed and verified. Where data was not available, reasonable assumptions were agreed, for example, about rates of existing compliance with standards, ratios of proficient keepers, training costs, average perimeter lengths, fence heights, fencing costs, record keeping workloads etc. Practicable alternatives to the proposed standards were also discussed, as outlined in Part 3.0 of this RIS.

Further preliminary consultation was 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) had 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 was:

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 confirmed its position that it mostly supported 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'.

1.3.2 Public consultation process

An open public consultation process initially ran for 60 days from 24 March until 22 May 2014. In response to requests from some stakeholders, the closing date was subsequently extended until 6 June 2014.

The commencement of this consultation was pre-announced via a display advertisement in the Weekend Australian newspaper on 22 March.

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

On 24 March approximately 120 emails announcing the consultation were forwarded to a wide range of stakeholders, including industry associations, professional associations, government departments, local government associations, animal welfare groups, the NSW Exhibited Animals Advisory Committee, the national Animal Welfare Committee (AWC) and the standards Writing Group. These stakeholders were also advised by email of the abovementioned subsequent extension of the closing date. All stakeholder organisations were asked to forward these emails on to their members.

The dedicated web page on the NSW DPI web site also included a submission that later proved very useful in analysing the submissions.

NSW DPI also issued a media release on 24 March 2014 that received some coverage in the rural and regional press and on radio. The NSW DPI Project Manager gave several radio interviews about the public consultation process. Several email and telephone enquiries were received, initially in response to the emails and later requesting extensions of time.

1.3.3. Summary of public submissions received

Two main categories of public submissions were received. Firstly, approximately 600 pro-forma emails were received, all supporting the inclusion of circuses and mobile exhibitors in the Australian Animal Welfare Standards and Guidelines for Exhibited Animals. However, this request was outside the scope of this standards development process.

Secondly, 42 individually written submissions were received, 31 of which used the submission form and the other submissions were in the form of a letter. Some submissions had covering letters as well as the form; and others had submissions attached proposing changes to the standards and guidelines, some of which were quite lengthy. All submissions except two were received by email. Some submissions requested confidentiality of the identity of the submitter. A numeral breakdown of these 42 submissions is as follows:

Category	Number received
Government agencies	5 (NSW, VIC, QLD, TAS and WA)
Industry and professional associations	6
Zoos, wildlife parks and aquariums	18 (from (NSW, VIC, QLD, TAS and WA)
Animal welfare groups (NGOs)	7
Other	6 (individuals plus 1 NSW Greens MP)
Total	42

Preference s for options

Conclusions drawn from the analysis of submissions regarding the preferences for options are follows:

1. There was almost no support for Option A – converting the proposed national standards into guidelines.

2. There was overwhelming support for the proposed national standards, either as Option B or the variations C1 and/or C2.
3. The relevant government departments from NSW, VIC, TAS all supported Option B with no variations; however, Biosecurity Queensland supported Variation C2 and the WA departments supported Variations C1 and C2.
4. The industry and professional associations supported Option B, except ZAA supported Option C1 and the Law Society of SA did not express a preference.
5. The individual zoos, wildlife parks and aquariums were split between Options B, Variations C1 and C2.
6. The animal welfare groups were split between Option B, Variation C2 and no preference (e.g. Animal Liberation and the Vegans did not support an exhibited animals industry).
7. The individuals expressed no preference for options, except one supported Option C2. The NSW Greens MP supported the extension of the proposed standards to circus animals.
8. Quite a lot of useful information was obtained in response to the other questions, which was taken into account in preparing this Decision RIS.

The Writing Group took all submissions into account in reviewing the standards, which are now presented as a revised version of Option B. The other options remain the same as in the Consultation RIS, except that since the proposed standard for the maximum length of time in holding enclosures has been amended to 60 days instead of 90 days, this change is now reflected in a revised version of Option C2.

1.3.4 Changes made to the proposed standards after public consultation

As a result of the public consultation process, the main changes to the proposed general standards are:

- the wording of standards has been tightened up to make them more enforceable;
- several standards were amended to reduce the requirement to use ‘proficient keepers’;
- new standard S2.12 was added to require swift reporting to the relevant government authority of any theft or escape of an animal not returned to its normal enclosure within two hours;
- new standards S3.12 and S3.13 were added dealing with walk –through enclosures;

- new standard S3.16 was added to require that the operator must provide visitors with information on appropriate behaviour in drive-through enclosures;
- Standards S3.29 and S3.30 were amended to require more specific standards for the size and shape of enclosures;
- Standards S3.31 and S3.32 were revised to replace the former standards S3.28, S3.29, S3.30 and S3.31 with respect to holding enclosures;
- In particular, Standard S3.31 was amended to specify a maximum period in a holding enclosure of 60 days without government approval instead of 90 days.
- new standard S5.3 was added requiring cleaning of enclosures to remove waste;
- Standard S5.4 was amended to require that health programs utilise veterinary services to ensure the welfare of animals;
- S5.13 was amended to require the assessment of stereotypic behaviour by a veterinarian or proficient keeper;
- new standard S5.14 was added requiring species-appropriate quarantine procedures to be implemented;
- former standard S9.5 dealing with exhibitions of trained behaviours has been omitted;
- new standard S10.9 was added to require records to be maintained of daily interactive handling times, and any issues that arise therefrom;
- new standard S12.4 was added to require records to be retained for three years after an animal dies or leaves the operator's possession;

1.3.5 Significant stakeholder concerns not addressed by the standards

Apart from the differences in preferences for options discussed in Part 1.3.3. the only significant theme that emerged from the consultation was the large numbers of similar emails supporting the inclusion of circuses and mobile exhibitors in the Australian Animal Welfare Standards and Guidelines for Exhibited Animals.

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.;
- difficulties experienced by jurisdictions ill-equipped to prevent or manage 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

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 animals 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.

Throughout the appendices to this document, references are made to a percentage of estimated current level of non-compliance with the proposed standards. The estimates show percentages that are frequently as low as 5% – 12.5%. However the consequences of such levels of non-compliance are potentially high for individual and group animal welfare, industry viability, the environment and agriculture. The overwhelming majority of respondents to the public consultation process were in favour of either regulation by the proposed mandatory standards or by one of the two proposed variations to the proposed mandatory standards. The conclusion to be drawn is that the majority of respondents regarded the estimated current levels of non-compliance as sufficient to warrant imposition of mandatory standards despite their associated costs.

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 met 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.

³⁵ Industry and Investment NSW, 2010.

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 (Although these specific questions were about animals in general, they were asked in the context of a public opinion survey about livestock farming).

In a paper reviewing public perceptions of animal welfare, Coleman (2007) concluded that ‘in both the general community and amongst professionals working with animals there is a majority view that animal welfare is a significant issue but that the use of animals is acceptable provided it does not lead to unnecessary suffering’.³⁹

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)⁴⁰ 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 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	<ul style="list-style-type: none"> ○ Bequest to future generations accomplished by maintenance of a state and cultural heritage asset (bequest benefit); ○ Value from continued existence of rare species and biodiversity through
<ul style="list-style-type: none"> ○ Leisure, entertainment and recreational opportunities; ○ Family activities; ○ Eating and meeting facilities; and ○ Opportunities to learn about animals 	
Public use benefits	

³⁶ TNS Social Research, 2006.

³⁷ Coleman and Hay, 2004.

³⁸ Coleman, Hay and Toukhsati, 2005.

³⁹ Coleman, 2007.

⁴⁰ Aegis Consulting Australia and Applied Economics, 2009.

<ul style="list-style-type: none"> ○ Wildlife research; ○ School and community education; ○ Tourism and its benefits to the wider-economy; ○ Veterinary services and training; ○ Wildlife rehabilitation; ○ Disease surveillance; and ○ Holding facilities for law enforcement. 	<p>conservation (e.g. captive breeding and wildlife care) and research related activities (existence benefit); and</p> <ul style="list-style-type: none"> ○ Option to utilise a species at a future circumstance (insurance/option benefit).⁴¹
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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.⁴²

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.⁴³

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).
- 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.

⁴¹ Bennett, 2003.

⁴² Tim Harding & Associates, 2003.

⁴³ Aegis Consulting Australia and Applied Economics, 2009.

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’.⁴⁴

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 were interspersed in the text of the Consultation 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.

2.3 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

Likelihood	High	Medium risk	High risk	High risk
	Mod	Low risk	Medium risk	High risk
	Low	Low risk	Low risk	Medium risk
		Low	Moderate	High
		Consequence		

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

⁴⁴ Wickins-Drazilova, 2005.

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”.⁴⁵ 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.⁴⁶

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. The animal welfare consequences of an exhibitor’s inability to provide such an environment include hunger, thirst, physical discomfort, thermal discomfort, injuries, disease, malnutrition, pain, social deprivation, psychological disorders and abnormal behaviours.

With some species, providing a suitable environment 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.⁴⁷

⁴⁵ <http://web.oie.int/eng/normes/mcode/en_chapitre_1.7.1.htm> Viewed 10 June 2012.

⁴⁶ Dawkins, M.S., 2012.

⁴⁷ Biosecurity Queensland, 2008.

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.⁴⁸

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. These gaps exacerbate the risks 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
• 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

⁴⁸Biosecurity Queensland, 2008.

There do not have to be dramatic changes to an animal's surroundings, nutrition, captive conditions, conditioning, or cellular function (e.g. due to disease incursion) for there to be a significant impact on a captive animal's welfare. In captivity, what may start as a simple stressor, may, if not corrected, have cumulative effects that accelerate rapidly. Without welfare standards or guidelines, there may be no agreed measure for people to refer to establish what is acceptable for the animals, leaving it up to individual perception. From a regulatory perspective it is extremely difficult to correct a situation causing, or having the potential to cause, negative welfare without a recorded reference point.

To illustrate these risks to the welfare of exhibited animals, some specific examples and case studies will now be given.

Spatial requirements for animals

Exhibited animals have spatial requirements based on the maximum number of individuals of a species held within a single area. Without the specification of each species' spatial requirements there is increased risk of a plethora of negative animal welfare impacts that arise from a variety of different pathways, as illustrated by the following case study of macropods (kangaroos, wallabies and related species).

Case Study: Macropod exhibition

In the absence of recognised standards or guidelines, macropod species may come under significant stress as a result of their own breeding capacity. Many macropod species are continuous breeders and many have the ability to suckle a young at foot and another in the pouch. At the same time they may be pregnant keeping the embryo in a state of diapause, meaning they can give birth almost immediately after the pouch young leaves the pouch. In favourable conditions, macropods can constantly be producing young. This can result in exponential increases in exhibit populations. Given the nature of macropod reproduction and in the absence of standards which prescribe maximum stocking densities, overcrowding would be inevitable.

Overcrowding results in excessive use of enclosure substrates. This can cause the loss of the grass cover that normally promotes a clean environment and minimises the build-up of disease causing agents. Instead, the area turns to dirt and dust. In overcrowded macropod enclosures, keepers are often unable to clean up faeces before the macropods cause much of the faecal matter to disperse into the dirt. The accumulation of faecal matter in loose dirt and dust increases the chances of disease harbouring dirt becoming airborne, promoting eye issues and respiratory problems. During wet weather, the faecal matter is trampled into the mud promoting a range of diseases. The potential for disease outbreak due to bacterium entry through another cellular pathway is also increased, particularly in younger animals.

Repercussions of overcrowded enclosures also result in unnecessary disturbances in the social hierarchy of macropod species. Subordinate animals are unable to keep their distance from dominant animals, creating heightened aggression within the mob. When fighting for dominance, macropods use a specific fighting technique which often results in deep lacerations to the body, particularly the abdominal area. Treating macropods for wounds creates many additional animal welfare issues which include but are not limited to the following;

- Removing an animal for a period of time to treat an injury. This frequently heightens

intraspecific aggression due to the disturbance in the hierarchy.

- Placing the animal back into the mob once the animal has recovered. Once again this creates yet another disturbance in the group's social hierarchy which could lead to further injuries and stress due to intraspecific aggression. The hierarchy could be disturbed at more than one point depending on the animal's health on re-entry. For example the animal may try to enter into the hierarchy where it left off, but end up having to fight with a number of animals formerly higher or lower than it in the hierarchy.
- Individuals suffering capture myopathy when regularly caught during the injury treatment period. Macropods, particularly macropods that are not conditioned to capture, are prone to being extremely stressed which often results in capture myopathy⁴⁹. This commonly results in death of the animal or permanent disability.
- Capturing an injured or sick animal in an overcrowded enclosure causes stress to the whole mob. If the person responsible for capture is unable to quickly and effectively capture the targeted animal, the flight, fight or startle response of that animal is likely to place additional stress on the mob and lead to other animals injuring themselves when trying to take flight or fight.
- Malnutrition is often a result in overcrowded enclosures even if there is an adequate food supply. For subordinate animals, the lack of space does not allow for their normal retreat parameters during food consumption periods. As such they may be deterred from accessing food sources due to the constant presence of animals to which they are subordinate.

Overcrowding caused by a lack of adequate spatial requirements is only one issue that may cause such problems to occur. In the absence of such requirements, malnutrition, disease outbreak and injuries due to fighting will often be the result. The higher the rate of mismanagement, the more likely it is that animals will experience suffering. Without a recognised standard or guideline, it is usually extremely difficult for regulatory authorities to challenge an exhibitor's management.

Climbing and resting opportunities for arboreal animals.

The absence of even simple requirements, such as those relating to provision of fixtures for climbing within enclosures or limits on the amount of time that an animal can be handled during public interactive experiences, may result in negative impacts on an animal's general health and wellbeing. Standards or guidelines incorporating these requirements all aid in ensuring that animals of a species are kept within an optimal range of wellbeing, rather than a state of psychological or physical decline.

A lack of requirements relating to the use of exhibited animals in interactive programs increases the likelihood of adverse animal welfare outcomes. Without such requirements, these activities could be supervised by people who have insufficient understanding of the animals and the impact on the animals of the interactive activities. Animals unsuited for this use may otherwise be used. The animals may be stressed by the proximity of unfamiliar people or by other aspects of the activity leading to physical and mental illnesses if poorly managed and/or poorly prepared for the activity.

⁴⁹ Capture myopathy is a disease complex associated with the capture or handling of any wild animal. The body's reaction to abnormal states such as infection, injury, extreme temperature, or even fear is stress.

The act of removing an animal from its social group can cause disturbance to the social hierarchy of the group with which the animal normally interacts. This can lead to heightened levels of stress, aggression and disturbance to feeding behaviour with consequential detrimental effects on the animals' mental and physical health. A failure to adequately monitor the animals places them at risk. They can also injure and damage themselves trying to escape. If they successfully escape they may suffer from starvation, thirst or predation if they cannot be recovered quickly.

Finally, the behaviour of the visitors can cause injury to animals if the visitors are not briefed and controlled appropriately by the exhibitor. For example, particular tame animals can be touched on their back or flanks without objection but patting them on the head may make them frightened, as it is interpreted as a threat or attempt to dominate them. Recently, Tasmanian officials have faced this problem as a number of exhibitors have sought to introduce interactive programs for species that had not been kept in the State before. The officials were hampered by the lack of standards or guidelines, and had limited capacity to minimise the potential risks. They were forced to consider banning the activity, as safeguards could not be provided.

Case Study: Koala interactive exhibits

Requirements, such as requiring at least two tree forks for koala resting are at least 1.8 metres above the ground, support the animals general welfare needs. These types of provisions support animal movement, encourage muscle tone stability and growth through use which in turn supports skeletal and organ functions. Placing forks at the required heights ensures that the species is resting above ground level, which replicates the animal's natural behaviours and provides a sense of security. Some exhibitors would prefer to keep resting forks and vertical supports much closer to the ground, given it makes taking the animal off the support for the purposes of public interaction easier and faster. However a koala that is unable to climb above arms reach of its handler, due to the absence of higher forks/climbing opportunities, is restricted from being able to climb to a height where it can obtain respite from the proximity of people on the ground.

Without such a requirement, there is motivation for handlers to choose the way of keeping that provides handlers with the easiest access to the animals. (Allowing koalas to perch above arm's reach requires the handler to use a set of steps or a ladder to remove the koala from a tree fork and additional staff may need to be available to hold the ladder steady). Some exhibitors have argued against being required to provide tree forks above arm's height, to make koala removal easier and quicker for public interaction purposes. Such an arrangement facilitates additional use of the animals for this purpose, with consequent increased potential for revenue from the sale of photos of koalas with visitors. Justifications such as these do not have beneficial outcome for the animals' welfare. In the absence of such requirements, many koalas would only be provided with low resting forks and limited vertical climbing opportunities. There would be no capacity for regulatory authorities to require rectification of these restrictive keeping practices.

Without prescriptive timeframes for the use of koalas during public interaction there is potential for koalas to be misused and for long periods of their natural sleep patterns to be disturbed resulting in undue stress on the animals. The koala has adapted to digesting sclerophyllous leaves from a range of species of eucalypt trees. This diet has low nutritional value and provides the koalas with limited energy. Koalas deal with this by spending around 18 hours a day resting and sleeping to conserve energy. Without prescribed standards limiting the number of hours per day that koalas may be used for public interaction, the koala would potentially be forced to stay awake and deplete its energy resources at times when the

animal should be conserving energy. These types of disruptions to an animal's natural behavioural patterns often result in an accumulation of stressors leading to anything from stereotypic behaviour to compromised immune systems followed by disease and ultimately death.

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 non-native 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.⁵⁰ 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.⁵¹

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.⁵² 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 barrier of the zoo.⁵³

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

⁵⁰ <http://www.daff.qld.gov.au/4790_19939.htm> Viewed 29 April 2013.

⁵¹ Department of Environment and Conservation (WA), 2007

⁵² Ibid.

⁵³ <<http://www.australiangeographic.com.au/journal/great-zoo-escapes-confessions-of-a-zookeeper.htm>> Viewed 28 April 2013.

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.⁵⁴

In those jurisdictions without standards, there are limited or no regulatory requirements relating to maintaining animal security, keeping animal records and reporting animal escapes. As a result, such jurisdictions are restricted in their ability to protect the environment and agriculture from the risks associated with exhibited animals. The ability to respond quickly or even retrospectively is hampered by the lack of information. For example, in 2009 in the Northern Territory (a jurisdiction without such requirements), a pygmy hippopotamus was shot in the wild by a hunter at least 6 years after its presumed (and unreported) escape from a Northern Territory zoo.⁵⁵

It is not only the escape of exotic animals that create risks to agriculture and the environment. The establishment of native species in areas where they do not normally occur also has the potential to cause significant longer-term environmental and agricultural damage. The agile wallaby (*Macropus agilis*), native to northern tropical Australia, has established in an area of the central east coast of Tasmania following the unreported escape or release of a small number of individuals from a nearby wildlife park in the late 1990s. The population continues to successfully reproduce and is the only known population of this species outside its natural geographical range. Eradication of the population has been recommended⁵⁶. There is widespread awareness of the growing population amongst local landholders. Grazing competition from native animals is a topical issue already for Tasmanian graziers. The added grazing competition from the agile wallabies is exacerbating an existing contentious issue in the area. Observations that the introduced agile wallabies graze throughout the day and that the endemic wallabies graze through the night has caused grazer concerns that their sheep get no respite from the wallabies' competition. The agile wallabies have proven to be significantly more difficult to control than the endemic wallaby species largely because the agile wallabies are comparatively more wary of people.⁵⁷

Tasmanian regulators have also experienced difficulties in enforcing security requirements on exhibitors wishing to keep exotic animals, such as large predators. This is concerning from the perspective of risks to agriculture and the environment as the Tasmanian exhibit industry in the last few years has been showing an unprecedented interest in importing new exotic species to the state for exhibition. Lack of clear guidelines has resulted in construction of facilities for dangerous exotic species without prior government approval and extended disputes between regulators and exhibitors regarding the security of exhibited animal facilities.⁵⁸

⁵⁴ Emergencies and Animal Welfare Unit, 2011.

⁵⁵ <http://www.news.com.au/national/pygmy-hippopotamus-shot-during-northern-territory-hunting-trip/story-e6frfkvr-1225798038412> Viewed 1 August 2016

⁵⁶ Pauza, Richley, Robinson, and Fearn, 2014.

⁵⁷ Matthew Pauza, Department of Primary Industries, Parks, Water and Environment. Pers. Comm., 2 May 2017.

⁵⁸ Juile-ann Archer, Department of Primary Industries, Parks, Water and Environment, Pers. Comm. 5 May 2017.

The A.C.T does not have its own standards relating to security of exhibited animals and reporting of escaped exhibited animals. However a licence authorising the keeping of an animal for public display is subject to a condition that the licensee must comply with an approved risk management plan. Regulatory decision-makers also have the capacity to attach conditions to licences issued to exhibitors to keep certain species. They can attach conditions requiring any change in the population (which would include theft and escapes) to be reported within a specified period. However there are currently many species of native and exotic animals that can be kept by an exhibitor in the A.C.T without a licence⁵⁹. These include a range of species that would represent a significant risk to the environment and agriculture if they escaped from an exhibit and established wild populations. In relation to these exempt species, A.C.T regulators cannot impose conditions on exhibitors to address security, escape-recapture, and escape/theft reporting. As a consequence the A.C.T government has comparatively limited capacity to become aware of and respond to developing risks arising from escapes/thefts of exempt exhibited animals.

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.⁶⁰

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 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.⁶¹

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.

⁵⁹ <http://www.legislation.act.gov.au/di/2015-118/current/pdf/2015-118.pdf>

⁶⁰ Industry and Investment NSW, 2010.

⁶¹ Reiss and Woods, 2011.

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.

2.4 Difficulties for industry and regulators

In Part 2.1 of this RIS, it was noted that 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 prevent or manage such undesirable situations; and
- difficulties for the industry in dealing with separate jurisdictions having inconsistent standards.

The first dot point above has been discussed in Part 2.2 of this RIS. The other two dot points will now be discussed in this Part of the RIS.

Lack of clarity in standards

Some states and territories do not have relevant codes of practice; and other codes are neither clear nor verifiable, comprising an indistinct mixture of both standards ('must' requirements) and guidelines ('should' advisory statements). As such, these codes are not sufficiently clear or verifiable for implementation and enforcement purposes.

For example, Clause 3.2. of the Victorian code⁶² states:

Clean, cool water *should be* available at all times; exemptions from *this requirement* may include arid-zone species or the temporary withholding of standing water during periods of pre-mating stimulation. Water containers *should not be* located in direct sunlight and *should be* designed to suit the animals' needs which may include swimming, sloughing, wallowing, bathing and drinking.

Containers *should be* non spillable and of a design that can be easily drained and cleaned and does not cause injury to the animal.

Water, at a temperature within the species optimal preferred range, *should be* available at all times. Many lizards and some snakes only gain moisture by absorbing dew, rain, etc, through their skins or by drinking off vegetation. In these cases, the animals or cage foliage *can be* mist-sprayed daily but care *must be* taken to avoid excessive humidity (*emphasis added*).

Clause 3.4. of the Victorian code states:

Facilities for isolating potentially dangerous animals in one part of an enclosure complex will allow access to the remainder of the enclosure for maintenance. Large animals, however tame, are potentially dangerous and lock-away facilities *must be*

⁶² Bureau of Animal Welfare, 2001.

included in complexes for these animals. All enclosures for these animals *should be* entered via a safety cage or corridor.

Dens for potentially dangerous animals, such as large primates or large cats, *should be* connected to the main enclosure by vertically or horizontally sliding doors operable from the Keeper area. Any operating mechanism, such as cables and pulleys, *must be* well out of reach of the animals (*emphasis added*).

Clause 1.3(a) of the Queensland code⁶³ states:

a) Injured wildlife *may be* displayed for educational and interpretation purposes. However, they *must not be* displayed if unacceptably disfigured or in obvious discomfort. Where injured wildlife is displayed, signage *must be* provided. Signage *should* outline the nature and cause of their injury and *should be* educational to enable the public to understand the reason the wildlife is on display (*emphasis added*).

Clause 3.1(d) of the Queensland code states:

d) All animals being transported by road *must be* appropriately contained to prevent uncontrolled movement or escape during transfer. Crates or cages *should be* loaded in a manner, which ensures their stability during the journey (*emphasis added*).

Part 6 of the South Australian policy on exotic animals⁶⁴ states:

Keepers *should have*: Demonstrated expertise with the species in question or similar species. Evidence of expertise in the form of written references from recognised reputable referees *may be required*. A program for maintaining the skill level of staff through training or other measures *must be* demonstrated to the appropriate jurisdiction (*emphasis added*).

There are no government standards or guidelines 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.

Such lack of clear and verifiable standards makes their integration into industry programs such as training and quality assurance (QA) much more difficult creating another restriction on adequately managing animal welfare risks.

Excess regulatory burden

Excess regulatory burden can potentially arise from both unnecessary existing standards and from additional compliance costs resulting from lack of national consistency in standards. No unnecessary existing standards have been identified, including during the public consultation process.

A lack of consistency in animal welfare standards can also result in excess regulatory burden for exhibited animal businesses operating or transporting animals across state

⁶³ <http://www.ehp.qld.gov.au/licences-permits/plants-animals/commercial-use-animals/exhibiting_wildlife.html> Viewed 29 April 2013.

⁶⁴ <<http://www.feral.org.au/policy-on-the-import-movement-and-keeping-of-exotic-vertebrate-animals-in-south-australia/>> Viewed 29 April 2013.

or territory borders, where different standards may apply. For instance, clause 3.1 of the Queensland code requires as follows:

3.1 General requirements

- a) Animals to be transported for the purposes of stocking an authorised display must be brought to the establishment under a movement advice or other relevant permit issued by the EPA.
- b) Animals must have access to food and water as required for the length of the journey.
- c) Crates or cages used for transferring animals must be large enough to prevent cramping of the animals but not large enough to predispose to injury through excessive movement. (See individual animal recommendations.)
- d) All animals being transported by road must be appropriately contained to prevent uncontrolled movement or escape during transfer. Crates or cages should be loaded in a manner, which ensures their stability during the journey.
- ...
- i) Animals must not be exposed to extremes of temperature or humidity during transport. If loaded on the exterior of a vehicle, animals must be sufficiently protected from wind and rain.
- j) Noise and the time from caging to destination must be kept to the absolute minimum.
- k) If animals are transported in an enclosed vehicle then the prevention of exhaust gases and circulation of fresh air must be ensured.

On the other hand, there are no animal welfare standards for the transport of exhibited animals in New South Wales, other than by air, where the current International Air Transport Association (IATA) regulations must be complied with. There are no animal welfare standards for the transport of exhibited animals in South Australia or the Northern Territory. This means that exhibited animals being transported by road or rail into Queensland may be required comply with the Queensland standards after they cross the border into Queensland, but not before. No statistics are currently available on the extent of transport of exhibited animals across state borders. In contrast, the Australian Department of Environment specifies animal welfare standards for the export of wildlife from Australia to other countries, as outlined in Part 1.2.3.1 of this RIS.

In the experience of NSW DPI, there is resistance from some exhibitors and regulators to allow animals to be sent to states where animals may lawfully be kept at lower standards than sending states. In addition, jurisdictions wishing to impose or enforce a particular requirement can be undermined when exhibitors claim that such requirements should not exceed those in some other jurisdiction(s) that has (have) either no standards or lower standards than the ones they wish to apply.

Excess regulatory burden may also be imposed on exhibitor businesses operating temporary exhibits or establishing permanent exhibitor facilities in other jurisdictions. Additional costs may 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 need to liaise with eight different jurisdictions in their efforts to ensure appropriate animal welfare 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.

The deficiencies and inconsistencies in standards also create difficulties for the industry in developing and implementing national species management plans. These are directed at maximizing the conservation value of their species collections and in minimizing 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 optimize 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.

Difficulties experienced by jurisdictions

In relation to the difficulties experienced by jurisdictions arising from the lack of animal welfare standards for exhibited animals, the Queensland Department of Agriculture and Fisheries has advised as follows:

'Without enforceable standards jurisdictions are unable to ensure that animals of a species are adequately housed and maintained on a daily basis in a way which minimises relevant risks and relevant adverse effects. These are defined words in the Queensland Exhibited Animals Act 2015 and are associated with all relevant risks associated with the keeping of an animal.

Standards reflect the minimum requirement of an otherwise significant impact on an animal. In the absence of standards an operator must comply with, which cover all relevant aspects of how an animal of a species is kept, it is left to the individual's interpretation of how an animal is to be managed which may not be the most effective or appropriate way. Without standards jurisdictions fall short in their ability to enforce compliance strategies, identify and rectify situations and/or living conditions which may pose a high threat to an animal's welfare. This includes stocking densities within enclosures, best practice husbandry, handling, transportation, species appropriate enclosures and fixtures and public interaction. Standards also ensure operators must follow best practice methods which assist in the minimisation of biosecurity risks such as disease spread and control through required vermin control and ensuring enclosures are kept free of faecal and other potentially disease harbouring bacterium associated with unhygienic practices (old substrates and uncleaned enclosure fixtures).

The absence of standards also results in jurisdictions having to create individual policies which are not nationally consistent and raises the question from authority holders as to why they have to follow proposed policies when other state authority holders do not.

It is difficult to ensure that authority holders are keeping animals in an acceptable manner which minimises potential animal welfare impacts and other adverse effects associated with escape without recognised standards. Unless an animal is visually showing significant signs of distress through behaviour or physical signs as a result of an unidentified animal welfare issue, it is near impossible for a regulator to give a direction to an authority holder to amend their practices such as stocking densities, enclosure structure/size/fixtures or interaction without a written enforceable standard to refer to. If an enclosure is not maintained in a way that does not affect an animals health or is not maintained to ensure escape does not occur it is

very difficult to address the issue with the an authority holder, particularly if the issue is not apparent or has not occurred yet. Standards ensure that regulating bodies have a defined requirement to refer to in instances where an issue may not be straight forward or clear and the operator feels the circumstance or situation will suffice yet the regulatory body identifies the situation as a potential problem.

Having nationally consistent standards ensures the public have a reference point for how an animal should be kept and assists in the public's understanding of what is permitted and what is not, rather than the individuals interpretation of the situation.'

The Western Australian Department of Parks and Wildlife has advised:

'Without standards and guidelines the process of licensing people exhibiting certain types of fauna is very challenging. Department of Parks and Wildlife (Parks and Wildlife) have historically had difficulty in dealing with issues relating to the above points (poor animal treatment, animal escapes, responding to community concerns etc.) in particular with regard to the five taxon specific standards developed. There is no solid foundation upon which to base licence conditions relating to particular circumstances or species, and as a result enforcement becomes problematic.

There are few operational Parks and Wildlife officers with expertise in animal welfare standards. It is current practice that an applicant must provide justification for keeping specific species, and evidence that they are knowledgeable in, and will meet suitable keeping and husbandry requirements as part of the application process. Applications are then assessed as to whether the information provided is adequate, and licence conditions are formulated based around the approved proposal. The process of licensing fauna for display purposes is therefore undertaken on a case by case basis.

WA is very supportive of the development of such National Standards; we have already used the NSW Standards and Guidelines for crocodiles, koalas and wombats, and would like to be able to refer all licensees to such standards when they apply to keep and display fauna.'

The Parks and Wildlife Commission of the Northern Territory has advised:

'The NT is currently undertaking a review of the permit system and this will hopefully be addressed in that review. Having a set of adopted national standards would support permits that wildlife exhibitors such as zoos, wildlife parks and zoos would be classified in and help to distinguish them from private breeders. In some cases it would force zoos; sanctuaries and wildlife parks to meet a certain standard in order to be issued the correct permit rather than trying to punish them for not meeting the standard.

There is a distinct difference between:

- a. What the public expects from an exhibitor or permit holder;
- b. What conditions the permit issuer places on the permit in regards to animal welfare (they are generally pretty broad as it is not the Commission's core business to regulate animal welfare;
- c. And what the Animal Welfare Agency considers as bad practice and a breach against their legislation.

As the agency that issues the permit we have tried to fill this gap by developing 'guidelines' of our own that permit holders have to abide by however they are not adopted under legislation and work more as an educational tool more than anything. Adopted National Standards would help fill this gap. As permit issuers we would be able to condition that permit holders have to abide by the National Standards and it would be a clear breach of

permit if it was not followed. Guidelines and other educational material that we have developed is also up for constant scrutiny and a National Standard could be considered a more rigorous document and less likely to be disregarded.'

2.5 Policy objective

In relation to the case for action identified in Parts 2.1, 2.2, 2.3 and 2.4, 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.

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 NSWFMFA 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 1.3.1 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.

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’ (now ‘perimeter barrier’) 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 (as amended following public consultation);
- **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 S3.31 to specify a maximum period in a holding enclosure of 30 days without government approval instead of 60 days.

Following public consultation, the proposed national standards (Option B) now incorporate, with respect to holding yards, a 60 day maximum period rather than the 90 day maximum period that was proposed in the Consultation RIS. Also, the proposed macropod standards now incorporate the option of a fox control program as an alternative to a fox proof enclosure or fence.

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 were asked via the Consultation RIS to consider the costs and benefits of each option and whether they were 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 2.4 of this RIS is likely to be achieved.

Where data exists, discounted⁶⁵ 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

⁶⁵ A discount factor of 7% is used for present value calculations in this RIS, as recommended by OBPR.

III. Net compliance costs⁶⁶ 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.

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

⁶⁶ Criterion III includes benefits arising from reduction in regulatory burden and uncertainty and the reduction in costs are reflected here.

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%⁶⁷ 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);
- 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 S2.9) (*except QLD*);
- plan for dealing with incidents including emergency evacuations (proposed standard S3.20) with details of the plan in (proposed standard S3.21);
- 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 that include an assessment of the risks to the animals and risk mitigations (S10.3); and
- plan for animal transport (proposed standard S11.6) (*except QLD and SA exotics*).

Moreover proposed standard S2.14 would entail that 5%⁶⁸ 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;

- procedures regarding the health, safety and behavioural needs (including withdrawal parameters) of the animal during training (S9.1);

⁶⁷ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

⁶⁸ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). The ECF is a peak body representation of industry interests. There was general industry agreement to the validity of this assumption proposed and remains unchallenged post the public consultation process

- 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.

Standard S3.12 would ensure that an animal is not housed in a walk-through enclosure unless it has been assessed by a proficient keeper as having a suitable temperament and this would be critical in managing animal welfare with respect to potential stresses from public interaction with animals in such enclosures. Standard S3.16, which introduces the requirement for visitor information on appropriate behaviour, and whilst primarily aimed at providing visitor education benefits, would also have some implications for animal welfare in terms of reduced stress from any negative interaction for 5%⁶⁹ of relevant enclosures for small and medium facilities.

Under proposed standard S3.24 operators would be required to invest in one-off capital investment in furniture that would provide animals with a choice of species appropriate environmental conditions, including, but not limited to, rest, retreat and locomotion opportunities. This would affect animals in 5%⁷⁰ of mammal 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.

Standard S3.29 would require that an operator ensure that the size and shape of an enclosure provides appropriate environmental conditions for the animals in the enclosure and meets all relevant enclosure spatial requirements either under the relevant taxon standards⁷¹ or the relevant government authority. Under Standard S3.29, environmental conditions would need to take into account:

⁶⁹ Recommended by the ECF.

⁷⁰ Recommended by the ECF.

⁷¹ Or exemptions approved by the relevant government authority.

- a. the size and developmental stage of each animal in the enclosure;
- b. the number of animals housed in the enclosure;
- c. the animal's social groupings and social behaviours;
- d. the animal's activity levels and need for exercise to keep physically fit;
- e. the capacity of natural and artificial processes to remove waste or pollutants from the enclosure;
- f. the capacity of the animal to utilise the space provided; and
- g. the tendency of the animal to compartmentalise its use of its living area for different activities.

Notwithstanding that this requirement is already operational under NSW standards⁷² and the WA Code⁷³, given that the frequency and magnitude of factors occurring with respect to environmental conditions is unknown the extent of animal welfare benefits remains for the remaining jurisdictions remains unknown.

There may be minor animal welfare benefits where animals are housed in a mixed-species enclosure as under standard S3.30 an operator would have to ensure that the floor area provided for the animals is the sum of the areas required for each different species and would support need to have standards for different species. However the extent of this benefit is unknown.

Under standard S3.31 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 S3.31

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

Under proposed standard S3.31, 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 meet the permitted dimensions provided by the government authority including any exemptions to taxon standards. Government spatial requirements 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 S3.31

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

Under proposed standard S3.31 a veterinarian may determine that the treatment requires a holding enclosure small than the taxon standards or the relevant government authority, however the extent of this would be unknown. Moreover under proposed standard S3.31 operators would be required to avoid holding an animal in a holding enclosure for a period longer than 60 calendar days in a calendar

⁷² General Standards of Exhibiting Animals in NSW (September 2015).

⁷³ Code of Practice for Exhibited Animals in Western Australia (March 2003)

year and for no longer than 12 hours in a calendar day unless with the approval of the government authority to a maximum of 16 hours in a calendar day or a greater period deemed necessary by a veterinarian.

Each of these requirements would provide minor unquantifiable benefits to animal welfare from clarifying existing obligations to operators (excluding those in NSW, WA and QLD in part).

Under proposed standard S3.32 the operator would need to obtain 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 a holding enclosure in the case that it did not meet spatial requirements of the taxon standards or the relevant government authority (where there are not taxon standards or where the government authority has provided an exemption to the taxon standards). Standard S3.32 would affect the welfare of animals belonging to an unknown proportion of facilities of small, medium and large sizes across Australia.

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 operators⁷⁴). 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 treatment and address problems both in the short and longer term. These record-keeping requirements would include the operator ensuring that:

- Where required by a taxon standard or a government authority concerned about the welfare of the animal, the time an animal is used in an interactive program is recorded (S10.9);
- an animal register and animal health records are kept and maintained for all animals in the facility (S12.3) for the life of the animal plus three years or three years after the animal left the operator's possession (S12.4) 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).

This would affect 157, 283 and 689 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

⁷⁴ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF).

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 or barrier if there is no effective fox control program in place, 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. Under standard S3.4 the operator would need to ensure that the visitor exclusion area must be a minimum of 25% of the minimum required enclosure floor area contained in Appendix 1 of the standards and guidelines for the number of macropods kept in the enclosure. These standards would affect non-compliant⁷⁵ 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 S3.6 (macropods), operators would be required to incorporate either a non-climbable enclosure barrier; a 500mm inhang; or a secure 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. This would affect the welfare of animals in 5, 9 and 57 enclosures in large, small and medium facilities, respectively and mainly in WA and TAS.

Under standard S3.8 (macropods), operators would need to ensure that tree-kangaroos are provided a minimum of one elevated nest box/hollow per animal in order to prevent overcrowding thereby improving animal welfare. Standard 4.2 would require that operators provide at least one food station per tree-kangaroo that is at least 1.2 metres above ground level again to prevent overcrowding. Both these standards would have an impact on a small number of animals throughout Australia given that, for example, 27 out of 45 facilities in QLD (including several large facilities) reported a total of only 9 animals in the ZAA 2011 Census. Moreover, there would be only a percentage of enclosures that were non-compliant.

Under proposed standard S3.9 (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 furniture is already required under the base case. This would affect 2 enclosures in medium size facilities and 11 enclosures in small facilities, respectively. The majority of enclosures in small facilities would be in WA.

⁷⁵ 5% of enclosures.

Under proposed standard S3.10 (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 standard S8.1 (macropods) there would be a requirement for operators to develop, maintain and implement written procedures for capture and restraint and guidelines that deal with capture myopathy and the macropods overheating. This would affect operators of 1 medium and 6 small facilities⁷⁶ and mainly in NSW, SA, WA and ACT.

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.

Crocodilians

Under proposed standard S1.2 (crocodilians) there would be a requirement for operators to develop maintain and implement written procedures for keepers undertaking hand feeding procedures. This would affect 3 small size facilities and 1 medium size facility and mainly in NSW, VIC and QLD.

Under the crocodilian taxon standards S3.3, S3.4, S3.5 and S3.6 (crocodiles) the operator would also be required to ensure:

- crocodilians are provided with ponds and basking areas unless otherwise prescribed by a veterinarian (**S3.3**);
- crocodilian enclosure provides a base minimum land area equivalent to a square with side lengths equal to the total length of the longest crocodilian in the enclosure. For each additional crocodilian the operator must ensure the land area is increased by 50% of the base minimum land area. (**S3.4**) (*except for QLD*);
- each crocodilian enclosure provides a pond that has a base minimum water surface area equivalent to a rectangle with:
 - i. a length of 2 x total length of the longest crocodilian in the enclosure;
 - and

⁷⁶ Such procedures are already developed maintained and implemented by large facilities.

- ii. a width of 0.5 x total length of the longest crocodilian in the enclosure.
This width must cover the length dimension stipulated in S3.5.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 a depth where the crocodilian is covered by a depth of water that is at least the greater of :
 - i. 200 mm; or
 - ii. 0.4 x the total length of the crocodilian. (**S3.6**) (*except for QLD*)

Proposed standards S3.4, S3.5 and S3.6 (crocodilians) 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 S3.7, S3.8 and S3.9 (crocodilians) an operator would also be required to ensure that:

- a *holding enclosure* for an individual crocodilian provides a minimum land area equivalent to a rectangle with:
 - i. a length of 1.0 x total length of the longest crocodilian in the enclosure; and
 - ii. a width of 0.5 x total length of the longest crocodilian in the enclosure. This width must cover the length dimension stipulated in S3.7.i. (**S3.7**) (*except Qld*)
- a *holding enclosure* for an individual *crocodilian* provides a pond that has a minimum water surface area equivalent to a rectangle with:
 - i. a length of 1.25 x *total length* of the longest *crocodilian* in the *enclosure*; and
 - ii. a width of 0.75 x *total length* of the longest *crocodilian* in the *enclosure*. This width must cover the length dimension stipulated in S3.8.i. (**S3.8**) (*except Qld*)
- *holding enclosures* that do not allow effective thermoregulatory behaviours protect crocodilians from extremes of temperature (**S3.9**).

Standards S3.7 and S3.8 (crocodilians) would affect holding enclosures for individual crocodilians for facilities in all jurisdictions except for QLD. 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, and WA. With respect to protecting crocodilians from extreme temperatures (S3.9 (crocodiles)), 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 S4.2 (crocodilians) an operator would need to ensure that a crocodilian housed in saline conditions has access to fresh drinking water and this

would reduce a welfare issue around dehydration. Furthermore, this standard would have an impact on 2, 9 and 7 enclosures in large, medium and small facilities, respectively and mainly in medium size facilities in NSW, VIC and WA.

Under proposed standard S5.4 (crocodilians) 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 proposed standard S6.2 (crocodilians) 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 S3.3 (ratites), the operator would be required to ensure ratite display enclosures included a species appropriate wallow⁷⁷. Proposed standard S3.4 (ratites) would require operators to ensure that cassowaries are provided with access to shade. Proposed standard S3.5 (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.

Koalas

Under proposed standard S3.3 (koalas), the operator would 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:

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

⁷⁷All ratites, particularly cassowaries and emus, like to swim or wallow in water.

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 NSW where existing codes already specify these requirements under the base case and proposed standard S3.7 would be relevant for all jurisdictions except for QLD. 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 which has requirements under the base case. Standards S3.6, S3.7 and S5.2 (koalas) combined 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 Standard S4.5 (koalas), an operator would need to ensure koalas are not denied access to suitable food for periods greater than four one hour unless under the direction of a veterinarian. However the frequency and extent of any animal welfare benefits from greater access to food than in the base case remains unknown.

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 S10.6 (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 three years (in all jurisdictions except QLD there will be additional animal welfare benefits from greater enforcement under S10.9 (koalas). 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.

With regards to proposed standard S8.1 (koalas) an operator must not grasp a koala around the mid-section. However the extent of this occurring and therefore the extent of animal welfare benefit remain 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. Finally, Standard S11.5 (koalas) would require that an operator sending a koala must ensure that for journeys over two hours 30 minutes the transportation container is fitted with a minimum of one vertical support or resting fork and would affect the welfare of animals in all jurisdictions except for NSW.

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 to allow expression of digging behaviours. This would affect the welfare of animals in all jurisdictions 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. This would affect the welfare of animals in all jurisdictions 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 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. Finally,

under proposed standard S5.2 (wombats), the operator, 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 the welfare of animals in all jurisdictions except for QLD and specifically 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. Finally under standard S11.3 (wombats) an operator sending a young-at-foot wombat (i.e. a wombat that has left the pouch but is still dependent on its mother), would have to ensure the wombat is not transported in the same box as its mother, thereby reducing the chance of being injured by mother. 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 some 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 S3.5 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*);
- procedures 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 of 12.5%⁷⁸ of enclosures, except in NSW, QLD and VIC, would be required to ensure, unless otherwise approved by the relevant government authority, a fence of at least the following height:

- 1800 mm for large macropods (red kangaroos, grey kangaroos and wallaroos); and
- 1400 mm for medium macropods (e.g. swamp wallabies, agile wallabies, whiptail wallabies and red-necked wallabies); and
- 1000 mm small macropods (e.g. mala, bettongs, potoroos, pademelons, musky rat-kangaroos); and
- 1500 mm non-climbable or 1500 mm wire-mesh with a 500 mm inhang for tree-kangaroos; and
- 2000 mm with 500 mm inhang for rock-wallabies.

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 S3.2 (ratites), non-compliant operators would be required to ensure that enclosure barriers for adult ratites provide containment to at least the following height:

- ostriches and cassowaries – 1800 mm;
- emus – 1500 mm;
- 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 \$6.79m (i.e. an average of \$0.679m 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) – 2015-16 dollars (\$m)

Category of incremental cost	Standard/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	\$0.097	\$0.076	\$0.677	\$0.850	\$0.965	\$0.781
Recording assessment of keeper proficiency	S1.6	\$0.000	\$0.003	\$0.008	\$0.010	\$0.013	\$0.009

⁷⁸ Based on ECF advice.

Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, S2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	\$0.000	\$0.021	\$0.130	\$0.151	\$0.157	\$0.147
Secure perimeter barrier	S2.1	\$0.000	\$0.244	\$0.000	\$0.244	\$0.253	\$0.237
Training for emergency procedures	S2.14	\$0.000	\$0.019	\$0.053	\$0.073	\$0.088	\$0.064
Backup power for electric barriers	S3.5	\$0.000	\$0.002	\$0.011	\$0.013	\$0.013	\$0.012
Providing information to public about animals	S3.8	\$0.000	\$0.001	\$0.002	\$0.003	\$0.003	\$0.003
Providing information to public about appropriate behaviour	S3.13, S3.16	\$0.000	\$0.001	\$0.003	\$0.004	\$0.004	\$0.004
Providing furniture	S3.24	\$0.002	\$0.004	\$0.005	\$0.011	\$0.011	\$0.011
Risk assessments for interactive programs	S10.4	\$0.000	\$0.008	\$0.048	\$0.056	\$0.068	\$0.049
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	\$0.746	\$1.349	\$3.280	\$5.375	\$6.528	\$4.703
Total quantifiable incremental cost of general standards		\$0.845	\$1.727	\$4.218	\$6.790	\$8.104	\$6.019
% of quantifiable incremental cost		12.35%	25.61%	62.03%	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). The last column in Table 8 'AUS' simply refers to the total of all costs across the states and territories rather than the cost to the Commonwealth Government.

Table 8: Summary of 10-year incremental quantifiable costs of general standards by state and territory (Option B) – 2015-16 dollars (\$m)

Category of incremental cost	Standard/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	0.227	0.243	0.032	0.217	0.071	0.040	0.019	0.850
Recording assessment of keeper proficiency	S1.6	0.003	0.002	0.002	0.000	0.002	0.001	0.000	0.000	0.010
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, S2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	0.047	0.034	0.026	0.003	0.028	0.009	0.004	0.001	0.151

Secure perimeter barrier	S2.1	0.000	0.000	0.061	0.061	0.000	0.061	0.061	0.000	0.244
Training for emergency procedures	S2.14	0.021	0.015	0.016	0.001	0.014	0.004	0.002	0.000	0.073
Backup power for electric barriers	S3.5	0.004	0.003	0.003	0.000	0.002	0.001	0.000	0.000	0.013
Providing information to public about animals	S3.8	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.003
Providing information to public about appropriate behaviour	S3.13, S3.16	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.004
Providing furniture	S3.24	0.000	0.004	0.004	0.001	0.000	0.001	0.001	0.000	0.011
Risk assessments for interactive programs	S10.4	0.016	0.011	0.012	0.001	0.011	0.003	0.001	0.000	0.056
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	1.393	1.028	1.097	0.207	0.983	0.344	0.207	0.116	5.375
Total quantifiable incremental cost of general standards		1.484	1.325	1.465	0.308	1.258	0.495	0.317	0.137	6.790
% of quantifiable incremental cost		21.91 %	19.46 %	21.56 %	4.57 %	18.46 %	7.32 %	4.70 %	2.01 %	100.0 0%

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.⁷⁹
- proposed standard S3.31 – unquantifiable cost of not being permitted to continuously keep an animal in a holding enclosure for a period longer than 60 calendar days per calendar year or 12hrs in a calendar day or up to a maximum of 16hrs with government authority.⁸⁰ Proposed standard S3.31 would also result in an unquantifiable cost of ensuring that a holding enclosure complies with the holding enclosure spatial requirements under the taxon standards, or government authority (or exemption) or direction from veterinarian for up to 124 holding enclosures.
- proposed standard S3.32 – unquantifiable cost of 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 a holding enclosure that does not meet the relevant holding enclosure spatial requirements.⁸¹

⁷⁹ See Part A3.8 of Appendix 3 for a detailed discussion.

⁸⁰ See Part A3.14.2 of Appendix 3 for a detailed discussion.

⁸¹ See Part A3.14.3 of Appendix 3 for a detailed discussion.

Industry-wide standards would also result in an unquantifiable reduction in regulatory burden⁸² 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
- 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 and equal to **\$0.89m**.

⁸² 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.

Table 9: Summary of incremental quantifiable costs of taxon standards (Option B) – 2015-16 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	\$0.006	\$0.010	\$0.065	\$0.080	\$0.083	\$0.078
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0.000	\$0.001	\$0.003	\$0.004	\$0.004	\$0.004
Fencing requirements (macropods)	S3.6	\$0.009	\$0.015	\$0.090	\$0.114	\$0.118	\$0.111
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0.000	\$0.000	\$0.001	\$0.002	\$0.002	\$0.002
Minimum spatial requirements (macropods)	S3.10	\$0.000	\$0.000	\$0.002	\$0.002	\$0.003	\$0.002
Providing for elevated positions (macropods)	S5.1	\$0.001	\$0.000	\$0.002	\$0.003	\$0.003	\$0.003
Animal capture and restraint plans and procedures (macropods)	S8.1	\$0.000	\$0.007	\$0.007	\$0.015	\$0.015	\$0.014
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$0.000	\$0.002	\$0.011	\$0.013	\$0.014	\$0.013
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$0.025	\$0.128	\$0.092	\$0.245	\$0.254	\$0.238
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	\$0.001	\$0.003	\$0.001	\$0.005	\$0.006	\$0.005
Providing access to fresh water (crocodiles)	S4.2	\$0.006	\$0.029	\$0.021	\$0.055	\$0.067	\$0.048
Providing for appropriate enclosure height (ratites)	S3.2	\$0.006	\$0.040	\$0.044	\$0.090	\$0.094	\$0.088
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$0.002	\$0.006	\$0.011	\$0.019	\$0.020	\$0.019
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	\$0.003	\$0.026	\$0.000	\$0.028	\$0.029	\$0.027
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0.001	\$0.048	\$0.000	\$0.048	\$0.050	\$0.047
Weighing and recording requirements (koalas)	S5.1, S10.6 S10.9, S12.1, S12.2	\$0.014	\$0.096	\$0.000	\$0.111	\$0.134	\$0.097
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	\$0.002	\$0.023	\$0.021	\$0.045	\$0.046	\$0.044
Total quantifiable incremental cost of taxon standards		\$0.075	\$0.438	\$0.371	\$0.885	\$0.948	\$0.844
Percentage of quantifiable incremental cost		8.46%	49.55%	42.00%	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 macropods⁸³; fencing requirements for macropods⁸⁴; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; weighing and recording requirements for koalas⁸⁵.

Table 10: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) – 2015-16 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	\$0.00 0	\$0.00 0	\$0.05 1	\$0.00 7	\$0.00 0	\$0.01 4	\$0.00 7	\$0.00 2	\$0.08 0
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0.00 0	\$0.00 2	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 4
Fencing requirements (macropods)	S3.6	\$0.00 0	\$0.00 8	\$0.00 0	\$0.01 0	\$0.06 4	\$0.01 9	\$0.01 0	\$0.00 3	\$0.11 4
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 2
Minimum spatial requirements (macropods)	S3.10	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 2
Providing for elevated positions (macropods)	S5.1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 1	\$0.00 1	\$0.00 0	\$0.00 3
Animal capture and restraint plans and procedures (macropods)	S8.1	\$0.00 2	\$0.00 0	\$0.00 2	\$0.00 3	\$0.00 1	\$0.00 0	\$0.00 2	\$0.00 3	\$0.01 5
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$0.00 4	\$0.00 2	\$0.00 5	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.01 3
Enclosure furniture and spatial	S3.3, S3.4, S3.5,	\$0.08 0	\$0.05 8	\$0.00 8	\$0.01 0	\$0.05 6	\$0.01 8	\$0.01 0	\$0.00 5	\$0.24 5

⁸³ Except for NSW.

⁸⁴ Except for NSW.

⁸⁵ 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 (crocodiles)	S3.6									
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	\$0.00 2	\$0.00 1	\$0.00 1	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 5
Providing access to fresh water (crocodiles)	S4.2	\$0.01 8	\$0.01 3	\$0.00 0	\$0.00 2	\$0.01 3	\$0.00 4	\$0.00 2	\$0.00 1	\$0.05 5
Providing for appropriate enclosure height (ratites)	S3.2	\$0.03 1	\$0.02 3	\$0.00 0	\$0.00 4	\$0.02 1	\$0.00 7	\$0.00 4	\$0.00 1	\$0.09 0
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$0.00 6	\$0.00 5	\$0.00 0	\$0.00 1	\$0.00 4	\$0.00 2	\$0.00 1	\$0.00 0	\$0.01 9
Enclosure furniture requirements (koalas)	S3.3	\$0.00 0	\$0.00 2	\$0.00 0	\$0.00 0	\$0.00 2	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 5
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	\$0.00 0	\$0.00 8	\$0.00 8	\$0.00 1	\$0.00 7	\$0.00 2	\$0.00 1	\$0.00 1	\$0.02 8
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0.01 6	\$0.01 2	\$0.00 1	\$0.00 2	\$0.01 2	\$0.00 3	\$0.00 2	\$0.00 0	\$0.04 8
Weighing and recording requirements (koalas)	S5.1, S10.6, S10.9, S12.1, S12.2	\$0.00 0	\$0.02 9	\$0.03 1	\$0.00 5	\$0.02 8	\$0.00 9	\$0.00 5	\$0.00 3	\$0.11 1
Procedure requirements (koalas)	S10.1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1
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	\$0.01 6	\$0.01 1	\$0.00 0	\$0.00 2	\$0.01 1	\$0.00 3	\$0.00 2	\$0.00 0	\$0.04 5
Total quantifiable incremental cost of taxon standards		\$0.17 5	\$0.17 4	\$0.10 8	\$0.04 9	\$0.22 4	\$0.08 5	\$0.04 7	\$0.02 3	\$0.88 5
Percentage of quantifiable incremental cost		19.77 %	19.71 %	12.20 %	5.49%	25.35 %	9.65%	5.29%	2.55%	100.0 0%

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

- proposed standard S11.1 (macropods) – unquantifiable cost of ensuring macropod transportation containers do not have slatted floors.⁸⁶
- proposed standard S5.3 (koalas) – unquantifiable cost of ensuring that newly acquired koalas undergo a minimum 30 day period of quarantine, unless advised otherwise by a veterinarian.⁸⁷
- proposed standard S11.1 (koalas) – unquantifiable cost of ensuring independent koalas are transported individually.⁸⁸
- proposed standard S11.2 (koalas) – 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.⁸⁹
- proposed standard S11.1 (wombats) – 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.⁹⁰
- proposed standard S11.2 (wombats) – unquantifiable cost of ensuring that each adult wombat is transported individually.⁹¹
- Proposed standard S11.3 (wombats) – unquantifiable cost of ensuring young-at-foot wombat is not transported in the same box as its mother.⁹²

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.

The deficiencies and inconsistencies in standards also create difficulties for the industry in developing and implementing national species management plans. These

⁸⁶ See Part A4.9 of Appendix 4 for a detailed discussion.

⁸⁷ See Part A4.22 of Appendix 4 for a detailed discussion.

⁸⁸ See Part A4.24 of Appendix 4 for a detailed discussion.

⁸⁹ See Part A4.24 of Appendix 4 for a detailed discussion.

⁹⁰ See Part A4.26 of Appendix 4 for a detailed discussion.

⁹¹ See Part A4.26 of Appendix 4 for a detailed discussion.

⁹² See Part A4.26 of Appendix 4 for a detailed discussion.

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. This was a question that those making submissions during the public consultation period were asked to comment upon.

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 AGMIN, 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. adherence⁹³ 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 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

⁹³ Compliance is not relevant as guidelines are not binding or enforceable.

animals.⁹⁴ 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.

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 AGMIN, 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).

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.⁹⁵ For a more

⁹⁴See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

⁹⁵ Biosecurity Queensland, 2008.

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.⁹⁶ 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 **\$6.79m** over 10 years in 2015-16 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 12.35%, 25.61%, and 62.03% 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 21.91%, 21.56%, 19.46% and 18.46%, 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:

With respect to taxon standards – Option B would lead to higher incremental costs than the 'base case', of approximately **\$0.89m** over 10 years in 2015-16 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 8.44%, 49.40% and 42.15% 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 25.35%, 19.81%, 19.66% and 12.21%, respectively. Costs would mainly be incurred with respect to enclosure furniture and spatial requirements for crocodiles; fox proofing enclosures for macropods⁹⁷; fencing requirements for macropods⁹⁸; providing for appropriate enclosure height for ratites; and weighing and recording requirements for koalas⁹⁹.

⁹⁶See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

⁹⁷ Except for NSW.

⁹⁸ Except for NSW.

⁹⁹ Except for NSW.

The total quantifiable incremental cost of general and taxon standards under Option B would therefore be approximately **\$7.68m** over 10 years in 2015-16 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.

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 AGMIN, 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).

Option C2 would be a variation of the proposed national standards that would amend general Standard S3.31 to specify *a maximum period in a holding enclosure of 30 days without government approval instead of 60 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.¹⁰⁰ 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.

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

¹⁰⁰ Biosecurity Queensland, 2008.

potential arising from intentional theft; natural disasters; poor transport procedures; or escapes of exotic animals¹⁰¹.

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 **\$6.79m** over 10 years in 2015-16 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 60 calendar days under an amended proposed standard S3.31. 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:

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 **\$0.89m** over 10 years in 2015-16 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 \$27,888 and a one-off cost of \$4,917 or **\$0.18m**¹⁰² over 10 years, instead of **\$0.08m**¹⁰³ 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 **\$1.00m**¹⁰⁴ over 10 years in 2015-16 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.

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.

¹⁰¹ See Part 2.1 of this RIS for a more detailed discussion of the risks of exhibiting animals.

¹⁰² See Part A4.2 of Appendix 4 for source of estimate.

¹⁰³ See Part A4.1 of Appendix 4 for source of estimate.

¹⁰⁴ $0.89 + 0.18 - 0.08 = \$1.00\text{m}$ (with rounding error)

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 costs¹⁰⁵ 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	\$6.79m for general and \$0.89m for taxon Standards > Option A
C1 (fox proofing or alternative)	> Option A and = to Option B	> Option A and = to Option B and C2	\$6.79m for general and \$1.00m 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	> \$6.79m for general and \$0.89m 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 \$947,983 under Option B to \$1,107,284 under Option C1 (an increase of \$159,301) (see Tables A4.41 and A4.43 in Appendix 4 for source of estimates).

¹⁰⁵ Over 10 years.

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 \$844,245 under Option B to \$942,017 under Option C1 (an increase of \$97,772) (see Tables A4.41 and A4.43 in Appendix 4 for source of estimates).

On the other hand, Option C2 (variation of the proposed general Standard S3.31 which specifies *a maximum period in a holding enclosure of 30 days without government approval instead of 60 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 \$6.79m over 10 years in present value dollars. There are an estimated 255,807 animals exhibited by ZAA and non-ZAA members (i.e. 3.79¹⁰⁶ 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 \$530.87 over 10 years. This would be equal to *\$53.09 per annum per animal at risk* or the equivalent of 2.12 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 1.92 adult entry tickets a year.

With regard to the taxon standards under Option C2 the quantifiable costs are estimated to be \$0.89m 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 \$1045 over 10 years. Per annum per animal, this would be \$104.45 or the equivalent of 4.18 adult tickets. The welfare of an exhibited taxon animal is considered likely to be valued by the community at more than 4.18 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.

¹⁰⁶ 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).

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 AGMIN.

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 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.

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 ¹⁰⁷	
Large	\$5,854,546 ¹⁰⁸	\$10,557	0.180%
Large	\$35,451,990 ¹⁰⁹	\$10,557	0.030%
Large	\$31,398,975 ¹¹⁰	\$10,557	0.034%
Medium	\$108,488,154 ¹¹¹	\$6,063	0.006%
Medium	\$521,056 ¹¹²	\$6,063	1.164%
Small	\$314,120 ¹¹³	\$2,417	0.769%

¹⁰⁷ See Tables A3.28, A3.29 and A3.30 for costs of general standards for small, medium and large facilities, respectively

¹⁰⁸ https://taronga.org.au/sites/tarongazoo/files/downloads/TCSA_Annual_Report_2014-15.pdf

¹⁰⁹ https://taronga.org.au/sites/tarongazoo/files/downloads/TCSA_Annual_Report_2014-15.pdf

¹¹⁰ <http://www.australiazoo.com/get-involved/https://australiazoo.centaman-apac01.net/BuyTickets/tabid/56/Default.aspx>

¹¹¹ <http://www.dreamworld.com.au/Visitor-Information/Great-Value-Tickets.aspx>

¹¹² Estimate only based on conservative daily admissions of 52 persons with source of data points not provided due to commercial in confidence requirements.

¹¹³ Source of data points not provided due to commercial in confidence requirements

Size of facility	Estimated admissions revenue	Annualised average cost per facility	Annualised average cost per facility as a % of estimated admission revenue
Small	\$3,755,359 ¹¹⁴	\$2,417	0.064%
		Taxon standards	
Large	\$5,854,546	\$935	0.016%
Large	\$35,451,990	\$935	0.003%
Large	\$31,398,975	\$935	0.003%
Medium	\$108,488,154	\$1,538	0.001%
Medium	\$521,056	\$1,538	0.295%
Small	\$314,120	\$213	0.068%
Small	\$3,755,359	\$213	0.006%

As shown in Table 12, annualised average cost of general standards per facility as a proportion of admissions revenue represents 0.006% for a medium facility to a maximum of 1.16%. In relation to small facilities, which are the majority representation, costs are likely to represent a proportion of revenue in the vicinity of 0.064% to 0.769%. Therefore, the general standards are unlikely to create a barrier to entry. As shown in Table A3.27 in Appendix 3 – the main cost to small facilities is record keeping (an ongoing cost) and represents 78.06% of all costs. Therefore, the bulk of the average 10-year cost \$24,171 to small facilities (see Table A3.27) is likely to be incurred over time (i.e. \$2,417 per annum), as opposed to upfront.

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 0.295%. In relation to small facilities, which are the majority representation, costs are likely to represent a proportion of revenue in the vicinity of 0.006% to 0.068%. For these reasons the taxon standards are unlikely to create a barrier to entry.

5.3. Impact on small business

The COAG guidelines require that particular attention should be given to the likely impacts on small business, especially where regulatory compliance costs could have a disproportionate impact on small business.

As discussed in Part 4.3.4 of this RIS, Option B would lead to approximately \$6.79m of additional cost over 10 years in present value dollars, under the proposed general standards as compared to the base case, (see Table 7 in this RIS). Also, as shown in Table 7, the distribution of incremental costs would be 12.35%, 25.61%, and **62.03%** for large, medium and small size facilities¹¹⁵, respectively. As shown in Table A2.2 the proportion of large, medium and small size facilities (businesses) make up 3.79%, 13.27% and **82.94%** of total facilities, respectively. Therefore, the general standards are unlikely to disproportionality affect small businesses in a negative way.

Moreover, as discussed in Part 5.2 above, the main cost to small facilities is record keeping (an ongoing cost) and represents 78.06% of all incremental costs for general standards. However, the average annualised cost per small facility of \$2,417 would

¹¹⁴ Source of data points not provided due to commercial in confidence requirements

¹¹⁵ Less than 20 employees.

reflect only 0.064% to 0.769% of total admissions revenue (see Table 12 in this RIS). The increase in entry fees that a small business would need to introduce to cover this cost increase would be a low magnitude and unlikely to be noticeable by visitors.

With respect to taxon standards, Option B would lead to higher incremental costs than the 'base case', of approximately \$0.89m over 10 years in 2015-16 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 8.44%, 49.40% and **42.15%** for large, medium and small size facilities, respectively. Again given that the proportion of large, medium and small size facilities (businesses) make up 3.79%, 13.27% and **82.94%** of total facilities (see Table A2.2), respectively, the taxon standards are unlikely to disproportionality affect small businesses in a negative way and with an annualised average cost per small facility of \$213. This is likely to reflect as little as 0.006% to 0.068% of annual admissions revenue (see Table 12 of this RIS). Once again, entry fee increases needed to cover the increase in costs would be low magnitude and unlikely to be noticeable by visitors.

In terms of the geographic distribution of impacts on jurisdictions with no existing standards, namely the Australian Capital Territory, the Northern Territory and Tasmania, the following Table 13 analyses these impacts.

Table 13: Summary of distribution quantifiable costs of general and taxon standards by state and territory (Option C2) for small businesses – 2015-16 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT ¹¹⁶	Total (Aus)
Proportion of small businesses	49 of 58	35 of 42	38 of 45	4 of 6	34 of 40	9 of 12	4 of 6	1 of 2	174 of 211
% of total Australian businesses	23.2	16.6	18.0	1.9	16.1	4.3	1.9	0.5	82.5
Average annualised cost per small business of general standards ¹¹⁷	\$2,033	\$2,584	\$2,560	\$2,445	\$2,566	\$2,584	\$2,584	\$2,584	\$2,417
Average annualised cost per small business of taxon standards ¹¹⁸	\$147	\$164	\$136	\$486	\$308	\$433	\$438	\$751	\$213
Average annualised cost per small business of all standards	\$2180	\$2748	\$2596	\$2931	\$2874	\$3017	\$3022	\$3335	\$2630

¹¹⁶ The ACT small business has closed down since the Consultation RIS. However, these figures are retained here for indicative purposes in case this small business is replaced in the ACT.

¹¹⁷ See Table A3.27.

¹¹⁸ See Table A4.47.

The majority of exhibited animal businesses in Australia (including TAS, NT and ACT) are small businesses. As shown in Table 13, the average annualised cost per small business of all standards is slightly higher in TAS, NT and ACT than in other jurisdictions. This is to be expected in jurisdictions with no existing standards. Thus the impacts on small businesses in these jurisdictions are likely to be slightly disproportionate compared to other jurisdictions; although this disproportionality is justified by the benefits of the proposed new standards as set out in Part 4.3.5 of this RIS. Nevertheless, the annualised cost per small business in TAS, NT and ACT (\$3017-\$3335) is still so low as to be recoverable from small increases to entry fees paid by visitors, or by increasing the number of visitors.

5.4 Future viability of zoos, wildlife parks and other affected businesses

As illustrated in 5.2 above the annualised costs of the proposed standards are minor (averaging significantly less than 1% of revenues). The impacts of these costs are also relatively even across the industry. The likely impact of these costs on the future financial viability of industry appears very minor. Operators could easily recover any additional costs through minimal increases (significantly less than 1% per year on average) to admission prices. Moreover, better management of animals as a result of compliance with the proposed standards may offset and actually reduce some operator costs (e.g. veterinary costs to treat ill animals, increased animal longevity reducing frequency of acquisition of replacement animals) and encourage increased attendances/revenues. However, such offsets and reductions in costs cannot be quantified.

Compliance with the proposed mandatory community-endorsed national standards is likely to reduce risks to the future viability of the industry from complaints and campaigns about poor animal welfare, loss of social licence and further regulatory restrictions on industry access to exotic animals arising from exotic animal escapes or the introduction of exotic animal disease due to poor management standards. These non-financial risks to future viability of the industry are likely to be significantly greater than the minor financial costs proposed. It is apparent that the majority of the industry sees compliance with such standards as being beneficial to the industry's future viability.

Given the small costs involved and the significantly greater potential benefits to society and industry it is likely that the proposed standards provide less risk to the future viability of the animal exhibitor industry than the current situation.

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 S3.31 to specify a maximum period in a holding enclosure of 30 days without government approval instead of 60 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 costs¹¹⁹ 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	\$6.79m for general and \$0.89m for taxon Standards > Option A
C1 (fox proofing or alternative)	> Option A and = to Option B	> Option A and = to Option B and C2	\$6.79m for general and \$1.00m for taxon standards > Option A and > Option B (for taxon standards only)
C2 (maximum 30 days in holding enclosure without approval from	> Option A, B and C1	> Option A and = to Option B and C1	> \$6.79m for general and \$0.89m for taxon Standards > Option A and > Option B (for

¹¹⁹ Over 10 years.

Criterion	I	II	III
Government)			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 S3.31 which specifies a maximum period in a holding enclosure of 30 days without government approval instead of 60 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 AGMIN.

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

Glossary of terms and acronyms

ABS:	Australian Bureau of Statistics
AGMIN	Agriculture Ministers Forum
animal:	all vertebrate members of the animal kingdom (other than humans), but does not include pre-natal, pre-hatched, larval or other such developmental stages unless specified by a standard
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 <i>animal</i> that is surrounded by a barrier capable of containing the animal..
EU:	European Union
euthanasia:	the humane killing of an <i>animal</i> .
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 within an approved management program, public education and public entertainment or other prescribed purposes.
facility	any premises used for <i>animal exhibition purposes</i>
facility perimeter barrier:	structures and/or natural features surrounding a facility that discourage and make difficult unauthorised human entry to the facility.
furniture:	any structure or thing within an <i>enclosure</i> that the <i>animal</i> has access to. This includes perches, shelter, troughs, ropes, pools, <i>enrichment</i> toys, trees, vegetation and logs.
guidelines:	advice and recommendations to achieve desirable animal welfare and security outcomes. The guidelines complement the standards. Guidelines use the word ‘should’. Non-compliance with one or more guidelines will not in itself constitute an offence under law. Compare with <i>Standards</i> .
holding enclosure	an enclosure which is smaller than the enclosure size required by either: the relevant taxon standard for the animal it holds; or the relevant government authority (where there are no relevant taxon standards enclosure spatial requirements 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 <i>Macropodiformes</i> , 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 <i>licence holder</i> or a natural person nominated by the <i>licence holder</i> to be the person in charge of a <i>facility</i> , or, where no licence is held, the person in charge of <i>animals</i> held for <i>exhibition purposes</i> .
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 <i>operator</i> or the <i>operator's</i> appointed agent who has a responsibility towards an <i>animal</i> or group of <i>animals</i> and who has, with respect to an <i>animal</i> , 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 the Standards and Guidelines documents. 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 6 – Proposed Australian Animal Welfare Standards and Guidelines for the Welfare of Animals – Exhibited Animals

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.¹²⁰

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

¹²⁰ 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 .	<i>Animal Welfare Regulation 2001</i>	Nil
NSW	Exhibited Animals Protection Act 1986 Non-Indigenous Animals Act 1987 Prevention of Cruelty to Animals Act 1979 Zoological Parks Board Act 1973	<i>Exhibited Animals Protection Regulation 2010</i> <i>Non-Indigenous Animals Regulation 2012</i> <i>Prevention of Cruelty to Animals Regulation, 2006</i> <i>Zoological Parks Regulation 2009</i>	General Standards for Exhibiting Animals in New South Wales (September 2015). 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 (<i>Tursiops truncatus</i>) 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)
NT	Animal Welfare Act	<i>Animal Welfare Regulations¹²¹</i>	Nil
QLD	Animal Care and Protection Act 2001	<i>Animal Care and Protection Regulation 2002</i>	

¹²¹ Regulations are not needed in NT to adopt standards. Standards can be adopted by the Minister by notice in the gazette.

Table A1.2 Proposed exhibited animals welfare standards 2017 – 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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> vet only						
S1.2								
S1.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> zoos only		<input checked="" type="checkbox"/> exotics only				
S1.4	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> exotics only				
S1.5				<input checked="" type="checkbox"/> exotics only				
S1.6	<input checked="" type="checkbox"/> ¹²²			<input checked="" type="checkbox"/> exotics only				
S1.7								
S1.8								
2. SECURITY								
General								
S2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> in part	<input checked="" type="checkbox"/> in part		<input checked="" type="checkbox"/>			
S2.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> zoos only	<input checked="" type="checkbox"/> zoos only	<input checked="" type="checkbox"/> exotics only	<input checked="" type="checkbox"/>			
S2.3			<input checked="" type="checkbox"/> part only					
S2.4								
S2.5								
S2.6								
S2.7				<input checked="" type="checkbox"/> exotics only				
S2.8		<input checked="" type="checkbox"/> zoos only						
S2.9	<input checked="" type="checkbox"/>							
S2.10								
S2.11	<input checked="" type="checkbox"/>							
Emergency Procedures								
S2.12		<input checked="" type="checkbox"/> zoos only						
S2.14								
S2.14								
3 ENCLOSURES								
General								

¹²² Consequential to S1.4.

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

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
		only						
S4.2	<input checked="" type="checkbox"/>							
S4.3								
S4.4		<input checked="" type="checkbox"/> part only			<input checked="" type="checkbox"/>			
Water								
S4.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> part only	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
S4.6								
5 HEALTH AND WELLBEING								
General								
S5.1								
S5.2								
S5.3								
S5.4		<input checked="" type="checkbox"/> in part	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
S5.5					<input checked="" type="checkbox"/>			
S5.6								
S5.7		<input checked="" type="checkbox"/>						
S5.8								
S5.9					<input checked="" type="checkbox"/>			
Enrichment								
S5.10								
S5.11								
S5.12					<input checked="" type="checkbox"/>			
S5.13								
Quarantine								
S5.14			<input checked="" type="checkbox"/>					
6 REPRODUCTIVE MANAGEMENT								
S6.1		<input checked="" type="checkbox"/> zoos only		<input checked="" type="checkbox"/> exotics only				
S6.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> zoos only						
S6.3		<input checked="" type="checkbox"/> zoos only						
S6.4		<input checked="" type="checkbox"/> zoos only						
S6.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> zoos only						
S6.6		<input checked="" type="checkbox"/> zoos only						
7 EUTHANASIA								
S7.1								
S7.2								
S7.3								
S7.4								
8 CAPTURE AND RESTRAINT								
S8.1				<input checked="" type="checkbox"/> exotics only				

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

Proposed national standard No.	NSW	QLD	VIC	SA	WA	TAS	NT	ACT
S12.7								
S12.8								
S12.9								
S12.10								

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-touristattractions/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 employed¹²³:

- 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)

The distribution of facilities is undertaken by extent of employment (not number of locations) as per ABS. Holding the number of large facilities (entities) 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. The decision to consider an exceptional methodology for consideration of the distribution of large organisations as 1 per jurisdiction (which was not based on medium and small distribution as per 1997 data) was suggested and recommend by ZAA, and the ECF group.¹²⁴

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

State/Territory	No. of licensed facilities (a) ¹²⁵	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.

¹²³ ABS (1998) Zoos, Parks and Gardens Industry, 1996-97, Catalogue 8699.0.

¹²⁴ See Part 1.3.1 of this RIS.

¹²⁵ 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)/(f)
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) ¹²⁶ *(c) ¹²⁷	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)+(k)
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)

¹²⁶ See Table A2.3 column (h) for source of estimates.

¹²⁷ 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)	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
Crocodylians	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 <i>walk-through</i> display enclosures for this group	3	3	0	0
Number of <i>non-walk-through</i> 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	Crocodylians	Ratites	Koalas	Wombats
Number of <i>walk-through</i> display enclosures for this taxon	2	0	0	0	0
Number of <i>non-walk-through</i> 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 <i>walk-through</i> display enclosures for this group	2	2	0	0
Number of <i>non-walk-through</i> 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	Crocodylians	Ratites	Koalas	Wombats
Number of <i>walk-through</i> display	2	0	0	1	0

Nature of enclosure	Macropods	Crocodylians	Ratites	Koalas	Wombats
enclosures for this taxon					
Number of <i>non-walk-through</i> 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 <i>walk-through</i> display enclosures for this group	1	1	0	0
Number of <i>non-walk-through</i> 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	Crocodylians	Ratites	Koalas	Wombats
Number of <i>walk-through</i> display enclosures for this taxon	1	0	0	0	0
Number of <i>non-walk-through</i> 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

	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Jurisdiction and nature of enclosure					
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

	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Jurisdiction and nature of enclosure					
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)					

	Macropods (q)	Crocodilians (r)	Ratites (s)	Koalas (t)	Wombats (u)
Jurisdiction and nature of enclosure					
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 115¹²⁸ or roughly 54.5% of 211 facilities¹²⁹.

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%

¹²⁸ Based on ZAA database and manual desktop investigation of facilities which are not ZAA members or associates.

¹²⁹ See Table A2.1 for number of total facilities.

Jurisdiction	No. of facilities	Macropods (v)	Wombats (w)	Koalas (x)	Ratites (y)	Crocodilians (z)
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 115¹³⁰ or roughly 54.5% of 211 facilities¹³¹.

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

¹³⁰ Based on ZAA database and manual desktop investigation of facilities which are not ZAA members or associates.

¹³¹ 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. understanding 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 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; and
- xii. implementing pest prevention and control measures; and
- xiii. managing reproduction of the *animal*

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.¹³² 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.¹³³ The course requirements of Certificate III provide information on the following typical example of core and elective units:

Core units	Elective units
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

¹³² See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.

¹³³ See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.

<ul style="list-style-type: none"> • Monitor Animal Reproduction • Maintain And Monitor Animal Health And Wellbeing • Provide Enrichment For Animals • Plan For And Provide Nutritional Requirements For Animals • Contribute To OHS Processes • Participate In Environmentally Sustainable Work Practices 	<ul style="list-style-type: none"> • 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 • Provide Basic Care Of Mammals • Provide Basic Care Of Non-Venomous Reptiles • Maintain Wildlife Habitat Refuges • Respond To Wildlife Emergencies
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Source:< http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx>

The fee for service cost (i.e. economic resource cost) of **\$8,031** for training proficient keepers at the Certificate III level is given as an average of the following two costs provided by Taronga Zoo¹³⁴ (i.e. \$7,170) and Box Hill TAFE¹³⁵ (i.e. \$8,891)¹³⁶ 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 \$900¹³⁷. This is then annualised and converted to June 2016 values using a 2.93% growth in average wages between 2011 and 2015¹³⁸ giving **\$53,238.42**.

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:

$$\text{Hourly charge out rate} = \frac{\text{annual earnings}}{(\text{working weeks} \times \text{hours per week}) \times \text{on-cost multiplier} \times \text{overhead cost multiplier}}$$

The on-cost multiplier (**1.165**)¹³⁹ 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 2002-03¹⁴⁰. 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

¹³⁴See <<http://www.taronga.org.au/education/taronga-training-institute/accredited-training-courses/certificate-iii-captive-animals/certificate-iii-captive-animals>> Viewed 29 April 2013.

¹³⁵See <http://www.bhtafe.edu.au/courses/local/Pages/CAZ32_OC.aspx> Viewed 29 April 2013.

¹³⁶ Estimate based on the growth in fees observed for Taronga Zoo fees (from \$5,980 to \$7,170) applied to 2013 Box Hill fees of \$7,416.

¹³⁷ ABS (2011)a – Employee Earnings, Benefits and Trade Union Membership, Cat. 6310.0

¹³⁸ ABS (2011)b – Average Weekly Earnings, Australia, Cat. 6302.0

¹³⁹ Victorian Competition and Efficiency Commission, 2006.

¹⁴⁰ABS(2003) – Labour Costs, Australia 2002-03, Table 1a. Major Labour Costs, State/Territory, Cat. 6348.0.55.001

holidays plus four weeks of annual leave.¹⁴¹ The **38hour working week** is based on the guarantee of maximum ordinary hours in the Australian Government Workplace Relations Act.

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.¹⁴²

Therefore, the hourly charge out rate for keepers (i.e. skilled animal workers) is given as **\$55.69**:

$$\$53,284.42 / (44 \times 38) \times 1.165 \times 1.5 = \$55.69$$

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 \$1,812¹⁴³. This is then annualised and converted to June 2016 values using a 2.93% growth in average wages between 2011 and 2015¹⁴⁴ giving **\$107,279.30**.

Therefore, the hourly charge out rate for operators (i.e. program administrators) is given as **\$112.12**:

$$\$107,279.30 / (44 \times 38) \times 1.165 \times 1.5 = \$112.12$$

¹⁴¹ Victorian Competition and Efficiency Commission, 2006.

¹⁴² Victorian Competition and Efficiency Commission, 2006.

¹⁴³ ABS (2011)a – Employee Earnings, Benefits and Trade Union Membership, Cat. 6310.0

¹⁴⁴ 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 2016/17. 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%¹⁴⁵ as it is assumed that all large and medium facilities would have one or more proficient keepers;
- 1%¹⁴⁶ of small facilities would have to hire a proficient keeper;
- A proficient keeper need not be employed full-time in situations where the care of a small exhibit collection can be conducted to standard by a part-time 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 \$8,031 per person (see Part A2.8 in Appendix 2);
- The course is part-time *on the job* and self-paced¹⁴⁷; and
- The annual cost of a keeper is estimated to be \$53,284.42

As shown in Table A3.1, the one-off estimated cost of proficiency training under proposed standard S1.4 would be **\$0.41m**.

¹⁴⁵ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). See Part 1.3.1 of this RIS.

¹⁴⁶ Based on advice from ECF. See Part 1.3.1 of this RIS.

¹⁴⁷ 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 – 2015-16 dollars¹⁴⁸

Jurisdiction	Keepers in large facilities needing training (w1)= (i)*5% or (i)*0% for NSW or 30 ¹⁴⁹ *5% for SA	Keepers in medium facilities needing training (x1) = (j)*5% or (j)*0% for NSW or 6 ¹⁵⁰ *5% for SA	Keepers in small facilities needing training (y1) = (k)*5% or (k)*0% for NSW or 15 ¹⁵¹ *5% for SA	Cost for keepers in large facilities (z1)=(w1)*\$8031	Cost for keepers in medium facilities (a2) =(x1)*\$8031	Cost for keepers in small facilities (b2) =(y1)*\$8031	Total cost for keepers in all facilities (c2)=(z1)+(a2)+(b2)
NSW	0	0	0	\$0	\$0	\$0	\$0
VIC	2	3	8	\$15,266	\$23,001	\$63,687	\$101,954
QLD	2	3	9	\$15,266	\$24,684	\$68,347	\$108,297
SA	2	0	1	\$12,213	\$2,244	\$6,213	\$20,670
WA	2	3	8	\$15,266	\$21,879	\$60,580	\$97,726
TAS	2	1	2	\$15,266	\$6,171	\$17,087	\$38,524
NT	2	0	1	\$15,266	\$2,805	\$7,767	\$25,838
ACT	2	0	0	\$15,266	\$561	\$1,553	\$17,380
Total one-off cost (Australia)	13	10	28	\$103,809	\$81,346	\$225,234	\$410,389

Furthermore, as shown in Table A3.2, the cost of employing a proficient keeper for 1% of small facilities would be **\$0.07m** per annum.

¹⁴⁸ All values for number of keepers requiring training have been rounded to the nearest whole number for presentation purposes and contain rounding error.

¹⁴⁹ Maximum number of keepers working across non-exotic animals in large facilities in SA (see Table A2.18 column (f1) in Appendix 2).

¹⁵⁰ Maximum number of keepers working across non-exotic animals in medium facilities in SA (see Table A2.18 column (f1) in Appendix 2)

¹⁵¹ 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– 2015-16 dollars

Jurisdiction	Annual cost of hiring a proficient keeper for small facilities (c [^]) = (e)*1%*\$53,284.42 or (e)*0%*\$53,284.42 for NSW or 3 ¹⁵² *1%*\$53,284.42 for SA
NSW	\$0
VIC	\$18,780
QLD	\$20,155
SA	\$1,832
WA	\$17,864
TAS	\$5,039
NT	\$2,290
ACT	\$458
Total annual cost (Australia)	\$66,419

Please see Table A2.4 for estimates of keeper numbers. However, costing under A3.2 involves only those that would be affected and for NSW and small facilities that would be '0'. As shown in Table A3.3, the estimated 10-year cost of training and hiring proficient keepers under proposed standard S1.4 would equal **\$0.85m** in present value 2015-16 dollars. The total annual cost of hiring a proficient keeper for small facilities covers little over one additional proficient keeper for all Australia. This amount has been arithmetically derived and distributed based on population numbers, their distribution and percentage of small business (1%) required to hire a proficient keeper.

Approximately, 79.6% 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	All facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$14,267	\$21,497	\$191,426	\$227,190
QLD	\$14,267	\$23,070	\$205,433	\$242,770
SA	\$11,414	\$2,097	\$18,676	\$32,187
WA	\$14,267	\$20,448	\$182,088	\$216,804
TAS	\$14,267	\$5,767	\$51,358	\$71,393
NT	\$14,267	\$2,622	\$23,345	\$40,233
ACT	\$14,267	\$524	\$4,669	\$19,461
Total 10-year cost (Australia) PV - 7% discount	\$97,017	\$76,025	\$676,996	\$850,038

¹⁵² Maximum number of small facilities working across non-exotic animals in SA (see Table A2.17 column (a1) in Appendix 2)

% share of 10-year cost	11.41%	8.94%	79.64%	100.00%
<i>10-year cost PV - 3% discount sensitivity</i>	\$100,785	\$78,977	\$785,238	\$965,000
<i>10-year cost PV - 10% discount sensitivity</i>	\$94,371	\$73,951	\$612,872	\$781,195

A3.2 – Requirement for proficient keepers under Clauses – S1.4, S1.5, 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 (S1.4, S1.5);
- 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)¹⁵³ 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

¹⁵³ See Part 1.3.1 of this RIS.

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 **\$1,488** 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% \$55.69	Annual cost to small facilities (e2) =(k)*0.5hrs*5% \$55.69	Total cost to all facilities (f2)=(d2)+(e2)
NSW	\$111	\$307	\$418
VIC	\$80	\$221	\$301
QLD	\$86	\$237	\$323
SA	\$10	\$27	\$37
WA	\$76	\$210	\$286
TAS	\$21	\$59	\$81
NT	\$10	\$27	\$37
ACT	\$2	\$5	\$7
Total annual cost (Australia)	\$395	\$1093	\$1,488

As shown in Table A3.5, the estimated 10-year cost of record keeping would be **\$10,422** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$779	\$2,156	\$2,935
VIC	\$560	\$1,551	\$2,111
QLD	\$601	\$1,664	\$2,266
SA	\$68	\$189	\$257
WA	\$533	\$1,475	\$2,008
TAS	\$150	\$416	\$566
NT	\$68	\$189	\$257
ACT	\$14	\$38	\$51
Total 10-year cost (Australia) PV - 7% discount	\$2,773	\$7,679	\$10,452
% share of 10-year cost	\$3,368	\$9,326	\$12,695

10 year cost PV - 3% discount sensitivity	\$2,426	\$6,718	\$9,144
10-year cost PV - 10% discount sensitivity	\$779	\$2,156	\$2,935

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, S10.3, 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 (including withdrawal parameters) of the animal during training (S9.1);
- procedures for interactive programs that include an assessment of the risks to the animals and risk mitigations (S10.3); 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 ACT¹⁵⁴. As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be **\$112.12** 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.

¹⁵⁴ See Part 2.9 of Appendix 2 for source of estimate.

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, S10.3 and S11.6 would be **\$0.16m**.

Table A3.6: Estimated one-off cost of developing and implementing plans procedures and programs – 2015-16 dollars

Jurisdiction	One-off cost to medium facilities (g2) = (d) ¹⁵⁵ *5%*157.5hrs*\$112.12 or (d)*5%*112.5hrs*\$112.12 (QLD or SA) or (d)*5%*135hrs*\$112.12 (WA)	One-off cost to small facilities (h2) = (e) ¹⁵⁶ *5%*157.5hrs*\$112.12 or (e)*5%*112.5hrs*\$112.12 (QLD or SA) or (e)*5%*135hrs*\$112.12 (WA)	Total one-off cost to all facilities (i2) =(g2)+(h2)
NSW	\$7,064	\$43,266	\$50,329
VIC	\$5,081	\$31,121	\$36,202
QLD	\$3,895	\$23,856	\$27,751
SA	\$443	\$2,711	\$3,153
WA	\$4,143	\$25,374	\$29,517
TAS	\$1,363	\$8,350	\$9,713
NT	\$620	\$3,795	\$4,415
ACT	\$124	\$759	\$883
Total one-off cost (Australia)	\$22,732	\$139,231	\$161,962

As shown in Table A3.7, the estimated one-off cost of developing and implementing plans procedures and programs over 10 years would be **\$0.15m** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Medium facilities	Small facilities	All facilities
NSW	\$6,602	\$40,435	\$47,037
VIC	\$4,749	\$29,085	\$33,834
QLD	\$3,640	\$22,295	\$25,935
SA	\$414	\$2,534	\$2,947
WA	\$3,872	\$23,714	\$27,586
TAS	\$1,274	\$7,803	\$9,077
NT	\$579	\$3,547	\$4,126
ACT	\$116	\$709	\$825
Total one-off cost (Australia) PV - 7% discount	\$21,244	\$130,122	\$151,367
% share of one-off cost	14.04%	85.96%	100.00%

¹⁵⁵ See Table A2.2 of Appendix 2 for source of estimate.

¹⁵⁶ See Table A2.2 of Appendix 2 for source of estimate.

One-off cost PV - 3% discount sensitivity	\$22,069	\$135,176	\$157,245
One-off cost PV - 10% discount sensitivity	\$20,665	\$126,574	\$147,239

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

Under proposed standard S2.1, the operator must ensure that facilities have a secure perimeter barrier 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.¹⁵⁷

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 metres¹⁵⁸. It is assumed that the fence would be cyclone fencing and would be around \$15.71 per linear foot or \$51.54 per metre¹⁵⁹. This would result in an average cost of around \$65,187 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 barrier.

As shown in Table A3.8, the estimated one-off cost of perimeter barrier requirements under proposed standard S2.1 would be **\$0.26m**.

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

Jurisdiction	Total cost to medium facilities
NSW	\$0
VIC	\$0
QLD	\$65,187
SA	\$65,187
WA	\$0
TAS	\$65,187
NT	\$65,187
ACT	\$0
Total one-off cost (Australia)	\$260,750

¹⁵⁷ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). See Part 1.3.1 of this RIS.

¹⁵⁸ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). See Part 1.3.1 of this RIS.

¹⁵⁹ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). See Part 1.3.1 of this RIS.

As shown in Table A3.9, the estimated one-off cost of perimeter barrier requirements under proposed standard S2.1 over 10 years would be **\$0.24m** in present value 2015-16 dollars. All of the cost would be incurred by medium size facilities.

Table A3.9: Estimated one-off cost of perimeter barrier requirements under proposed standard S2.1 by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Medium facilities
NSW	\$0
VIC	\$0
QLD	\$60,923
SA	\$60,923
WA	\$0
TAS	\$60,923
NT	\$60,923
ACT	\$0
Total one-off cost (Australia) PV - 7% discount	\$243,691
% share of one-off cost	100.00%
One-off cost PV - 3% discount sensitivity	\$253,155
One-off cost PV - 10% discount sensitivity	\$237,045

A3.6 – Incremental cost of training for emergency procedures – S2.14

Proposed standard S2.14 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%¹⁶⁰ 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 \$55.69.

The estimated annual cost of emergency training under proposed standard S2.14 would be **\$10,365**, as shown in Table A3.10.

¹⁶⁰ Based on advice from the Australian Animal Welfare Standards - Exhibited Animals Expert Consultation Forum (ECF). See Part 1.3.1 of this RIS.

Table A3.10: Estimated annual cost of training for emergency procedures under proposed standard S2.14 – 2015-16 dollars

Jurisdiction	Cost to medium facilities (j2) = (j)*3.5hrs*5% \$55.69	Cost to small facilities (k2) = (k)*3.5hrs*5% \$55.69	Total cost to all facilities (l2)=(j2)+(k2)
NSW	\$776	\$2,149	\$2,925
VIC	\$558	\$1,546	\$2,104
QLD	\$599	\$1,659	\$2,258
SA	\$58	\$146	\$205
WA	\$531	\$1,470	\$2,001
TAS	\$150	\$415	\$564
NT	\$68	\$189	\$257
ACT	\$14	\$38	\$51
Total annual cost (Australia)	\$2,754	\$7,611	\$10,365

As shown in Table A3.11, the estimated 10-year cost of training for emergency procedures under proposed standard S2.14 would be **\$0.07m** in present value 2015-16 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 S2.14 by state and territory and size of facility– 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$5,451	\$15,093	\$20,545
VIC	\$3,921	\$10,857	\$14,778
QLD	\$4,208	\$11,651	\$15,859
SA	\$411	\$1,027	\$1,437
WA	\$3,730	\$10,327	\$14,057
TAS	\$1,052	\$2,913	\$3,965
NT	\$478	\$1,324	\$1,802
ACT	\$96	\$265	\$360
Total 10-year cost (Australia) PV - 7% discount	\$19,346	\$53,456	\$72,803
% share of 10-year cost	26.57%	73.43%	100.00%
<i>10-year cost PV - 3% discount sensitivity</i>	<i>\$23,496</i>	<i>\$64,923</i>	<i>\$88,420</i>
<i>10-year cost PV - 10% discount sensitivity</i>	<i>\$16,925</i>	<i>\$46,766</i>	<i>\$63,691</i>

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 \$1,319.41¹⁶¹; 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 \$13,392 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) ¹⁶² *5%*\$1319.41	Cost to small facilities (n2) = (e) ¹⁶³ *5%*\$1319.41	Total cost to all facilities (o2) = (m2)+(n2)
NSW	\$528	\$3,233	\$3,760
VIC	\$380	\$2,325	\$2,705
QLD	\$407	\$2,495	\$2,903
SA	\$46	\$284	\$330
WA	\$361	\$2,212	\$2,573
TAS	\$102	\$624	\$726
NT	\$46	\$284	\$330
ACT	\$9	\$57	\$66
Total one-off cost (Australia)	\$1,880	\$11,512	\$13,392

As shown in Table A3.13, the estimated one-off cost of backup power under proposed standard S3.5 over 10 years would be **\$12,516** in present value 2015-16 dollars with 85.96% of the cost incurred by medium size facilities.

¹⁶¹ 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.

¹⁶² See Table A2.2 of Appendix 2 for source of estimate.

¹⁶³ 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 – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$493	\$3,021	\$3,514
VIC	\$355	\$2,173	\$2,528
QLD	\$381	\$2,332	\$2,713
SA	\$43	\$265	\$308
WA	\$337	\$2,067	\$2,405
TAS	\$95	\$583	\$678
NT	\$43	\$265	\$308
ACT	\$9	\$53	\$62
Total one-off cost (Australia) PV - 7% discount	\$1,757	\$10,759	\$12,516
% share of one-off cost	14.04%	85.96%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	<i>\$1,825</i>	<i>\$11,177</i>	<i>\$13,002</i>
<i>One-off cost PV - 10% discount sensitivity</i>	<i>\$1,709</i>	<i>\$10,466</i>	<i>\$12,175</i>

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 non-compliance of 5% of the number of enclosures.¹⁶⁴ 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
Total no. non-walk-through display enclosures for group ¹⁶⁵	1996	908	5223	275	8402
5% of total no. non-walk-through display enclosures for group	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 \$10.47 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’.

¹⁶⁴ The estimated current level of non-compliance

¹⁶⁵ See Table A2.12 of Appendix 2 for source of estimates

Also it assumes that large facilities would already comply with this clause under the base case. The estimated one-off cost of providing public information about enclosure animals under proposed standard S3.8 would be **\$3,180** (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)] ¹⁶⁶ *5%*\$10.47	Cost to small facilities (q2)=[(m)+(n)+(o)+(p)] *5%*\$10.47	Total cost to all facilities (r2) = (p2)+(q2)
NSW	\$0	\$0	\$0
VIC	\$247	\$646	\$893
QLD	\$265	\$693	\$958
SA	\$30	\$79	\$109
WA	\$235	\$614	\$849
TAS	\$66	\$173	\$240
NT	\$30	\$79	\$109
ACT	\$6	\$16	\$22
Total one-off cost (Australia)	\$880	\$2,300	\$3,180

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 **\$2,972** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$0	\$0	\$0
VIC	\$231	\$604	\$835
QLD	\$248	\$648	\$896
SA	\$28	\$74	\$102
WA	\$220	\$574	\$794
TAS	\$62	\$162	\$224
NT	\$28	\$74	\$102
ACT	\$6	\$15	\$20
Total one-off cost (Australia) PV - 7% discount	\$822	\$2,150	\$2,972
% share of one-off cost	27.67%	72.33%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$854	\$2,233	\$3,087
<i>One-off cost PV - 10% discount sensitivity</i>	\$800	\$2,091	\$2,891

¹⁶⁶ 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 – Providing visitors with information – S3.13 and S3.16

Standards S3.13 and S3.16 require that an operator provide visitors with information on appropriate visitor behaviour in walk-through animal enclosures and drive-through enclosures, respectively. The incremental cost of both these standards comprises of the cost of providing information where none exists. As with S3.8 it is assumed that large facilities would already comply with these requirements under the base case and that 5% of relevant enclosures for small and medium facilities would be affected at a cost of \$10.47 per plaque. It is also assumed that facilities in NSW would be affected, as there is currently no requirement to provide such information under the base case.

The estimated one-off cost of providing public information about appropriate behaviour under proposed standards S3.13 and S3.16 would be **\$4,421** (see Table A3.17).

Table A3.17: Estimated one-off cost of providing information to the public under proposed standard S3.8

Jurisdiction	Cost to medium facilities (s2)=[(m)+(n)+(o)+(p)] ¹⁶⁷ *5%*\$10.47	Cost to small facilities (t2)=[(m)+(n)+(o)+(p)] *5%*\$10.47	Total cost to all facilities (u2) = (s2)+(t2)
NSW	\$343	\$898	\$1,241
VIC	\$247	\$646	\$893
QLD	\$265	\$693	\$958
SA	\$30	\$79	\$109
WA	\$235	\$614	\$849
TAS	\$66	\$173	\$240
NT	\$30	\$79	\$109
ACT	\$6	\$16	\$22
Total one-off cost (Australia)	\$1,223	\$3,198	\$4,421

As shown in Table A3.18, the estimated one-off cost of providing public information on appropriate visitor behaviour under proposed standards S3.13 and S3.16 over 10 years would be **\$4,132** in present value 2015-16 dollars with 72.33% of the cost incurred by medium size facilities.

Table A3.18: Estimated one-off cost of providing public information under proposed standards S3.13 and S3.16 by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$321	\$839	\$1,160
VIC	\$231	\$604	\$835

¹⁶⁷ 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

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
QLD	\$248	\$648	\$896
SA	\$28	\$74	\$102
WA	\$220	\$574	\$794
TAS	\$62	\$162	\$224
NT	\$28	\$74	\$102
ACT	\$6	\$15	\$20
Total one-off cost (Australia) PV - 7% discount	\$1,143	\$2,989	\$4,132
% share of one-off cost	27.67%	72.33%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$1,188	\$3,105	\$4,293
<i>One-off cost PV - 10% discount sensitivity</i>	\$1,112	\$2,907	\$4,019

A3.11 – Substrate and drainage requirements – S3.22

Under proposed standard S3.22 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, POCTA¹⁶⁸, the NSW standards¹⁶⁹, the WA Code¹⁷⁰, the QLD Code (in part)¹⁷¹, would already necessitate these relevant conditions under the base case, which are deemed appropriate and necessary for the welfare of animals.

A3.12 – Incremental cost of providing furniture – S3.24

Under proposed standard S3.24 an operator must ensure that enclosures contain furniture that provides the animals within the enclosure with a choice of species appropriate environmental conditions, including, but not limited to, rest, retreat and locomotion opportunities.

This would entail 5%¹⁷² of mammal non-walk through enclosures for large medium and small facilities requiring a one-off capital investment of around \$209.44¹⁷³ on average. Also the incremental cost would not include facilities in NSW and WA, as enrichment is already required under NSW standards and the WA Code under the base case.

¹⁶⁸ Prevention of Cruelty to Animals Acts in each jurisdiction.

¹⁶⁹ General Standards of Exhibiting Animals in NSW.

¹⁷⁰ Code Of Practice For Exhibited Animals In Western Australia.

¹⁷¹ Code of Practice for Minimum Standards for Exhibiting Wildlife in Qld.

¹⁷² Recommended by the ECF. See Part 1.3.1 of this RIS.

¹⁷³ Estimate confirmed by NSW DPI

The estimated one-off cost of providing furniture under proposed standard S3.24 would be **\$0.01m**, as shown in Table A3.19.

Table A3.19: Estimated one-off cost of providing furniture under proposed standard S3.24

Jurisdiction	Cost to large facilities (v2)=(m) ¹⁷⁴ * 5%*\$209.44	Cost to medium facilities (w2)=(m)*5 %*\$209.44	Cost to small facilities (x2)=(m)*5%* \$209.44	Total cost to all facilities (y2) = (v2)+(w2)+(x2)
NSW	\$0	\$0	\$0	\$0
VIC	\$310	\$1,506	\$2,215	\$4,031
QLD	\$310	\$1,617	\$2,377	\$4,303
SA	\$310	\$184	\$270	\$764
WA	\$0	\$0	\$0	\$0
TAS	\$310	\$404	\$594	\$1,308
NT	\$310	\$184	\$270	\$764
ACT	\$310	\$37	\$54	\$401
Total one-off cost (Australia)	\$1,860	\$3,932	\$5,779	\$11,571

As shown in Table A3.20, the estimated one-off cost of providing furniture under proposed standard S3.24 over 10 years would be **\$0.01m** in present value 2015-16 dollars with 49.95% of the cost incurred by small size facilities.

Table A3.20: Estimated one-off cost of providing furniture under proposed standard S3.24 by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	All Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$290	\$1,408	\$2,070	\$3,767
QLD	\$290	\$1,511	\$2,221	\$4,022
SA	\$290	\$172	\$252	\$714
WA	\$0	\$0	\$0	\$0
TAS	\$290	\$378	\$555	\$1,223
NT	\$290	\$172	\$252	\$714
ACT	\$290	\$34	\$50	\$375
Total one-off cost (Australia) PV - 7% discount	\$1,738	\$3,674	\$5,401	\$10,814
% share of one-off cost	16.07%	33.98%	49.95%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$1,806	\$3,817	\$5,611	\$11,234
<i>One-off cost PV - 10% discount sensitivity</i>	\$1,691	\$3,574	\$5,254	\$10,519

¹⁷⁴ See Table A2.12 of Appendix 2 for source of estimates for non-walk through enclosures and for mammals only.

A3.13 – Incremental unquantifiable cost of ensuring size and shape of an enclosure – S3.29

Standard S3.29 requires that an operator must ensure that the size and shape of an enclosure provides appropriate environmental conditions for the animals in the enclosure and meets all relevant enclosure spatial requirements either under the relevant taxon standards¹⁷⁵ or the relevant government authority. Under Standard S3.29, environmental conditions would need to take into account:

- h. the size and developmental stage of each animal in the enclosure;
- i. the number of animals housed in the enclosure;
- j. the animal's social groupings and social behaviours;
- k. the animal's activity levels and need for exercise to keep physically fit;
- l. the capacity of natural and artificial processes to remove waste or pollutants from the enclosure;
- m. the capacity of the animal to utilise the space provided; and
- n. the tendency of the animal to compartmentalise its use of its living area for different activities.

Furthermore, this would already be a requirement under NSW standards¹⁷⁶ and the WA Code¹⁷⁷ under the base case. However, given that the frequency and magnitude of factors occurring with respect to environmental conditions is unknown – this proposed standard remains unquantifiable.

A3.14 – Incremental unquantifiable costs of holding enclosure requirements¹⁷⁸ – S3.31 and S3.32

A3.14.1 – Incremental unquantifiable minor cost of S3.31

Under proposed standard S3.31, the operator must ensure that an animal is not held in a holding enclosure unless:

(i) the size and shape of the holding enclosure meets the relevant holding enclosure spatial requirements of:

- a. the relevant taxon standards; or
- b. the relevant government authority, if there are no relevant taxon standards holding enclosure spatial requirements or the relevant government authority has granted the operator an exemption to the relevant holding enclosure spatial requirements of the relevant taxon standards; or
- c. a veterinarian who has determined his/her treatment of an animal's condition requires it to be held in a holding enclosure that is smaller than the relevant holding enclosure spatial requirements of the relevant taxon standards or of the relevant government authority referred to in S3.31 i) b);

Under standard S3.31 with regards to spatial requirements recommended by relevant taxon standards there would be up to 124 holding enclosures affected, as shown in Table A3.20A:

¹⁷⁵ Or exemptions approved by the relevant government authority.

¹⁷⁶ General Standards for Exhibiting Animals in NSW (September 2015).

¹⁷⁷ Code Of Practice For Exhibited Animals In Western Australia (2003).

¹⁷⁸ S3.31 relates to taxon standards and is discussed in particular taxon contexts in Appendix 4.

Table A3.20A: Estimated number of non-display (holding) enclosures by taxon affected by proposed standard S3.31

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

Government spatial requirements would affect non-compliant holding enclosures for species groups (i.e. 5% of enclosures), as shown in Table A3.20B.

Table A3.20B: Estimated number of non-display (holding) enclosures by species group affected by proposed standard S3.31

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

Also under proposed standard S3.31 operators would be required to ensure that:

(ii) an animal is kept in a holding enclosure for:

- a. no more than 12 hours during a calendar day; or
- b. a period longer than 12 hours (but no longer than 16 hours) approved for the animal by the relevant government authority; or
- c. a period deemed necessary by the treating veterinarian for providing the animal with ongoing veterinary treatment; or
- d. where the animal is held in a holding enclosure for periods other than those described in S3.31 ii) a), b) and c), 60 calendar days (or greater number of calendar days approved by the relevant government authority for the animal) in a calendar year.

Under Standard S3.31, an operator would not be permitted to keep an animal in a holding enclosure for a period longer than 60 calendar days in a calendar year unless the operator has been granted approval by the relevant government authority or through a determination made by a veterinarian for ongoing treatment,

Furthermore, this would already be a requirement under NSW standards¹⁷⁹, the WA Code¹⁸⁰; and the QLD Code¹⁸¹ (in part) under the base case. It may be difficult for an operator in other jurisdictions to meet this requirement by reducing the number of calendar days that an animal is kept in a holding enclosure for. However, given that the frequency and magnitude of this occurring is unknown – this proposed standard remains unquantifiable.

A3.14.2 – Incremental unquantifiable minor cost of amended S3.31 – Option C2

Under Option C2, general Standard S3.31 would be amended to state a maximum period in a holding enclosure of 30 calendar days in a calendar year without government approval instead of 60 calendar days. This option is introduced to

¹⁷⁹ General Standards for Exhibiting Animals in NSW (2015).

¹⁸⁰ Code of Practice for Exhibited Animals in Western Australia (2003).

¹⁸¹ Code of Practice for Minimum Standards for Exhibiting Wildlife in Qld (2010).

address the concern that the current time of 60 calendar days in a calendar year could promote an animal welfare issues. Option C2 would result in government approval or veterinary determinations being sought more often with the use of holding enclosures. This is likely to add a minor incremental cost, however as with part A3.14.1 and given that the frequency and magnitude of this occurring is unknown – this proposed standard remains unquantifiable.

A3.14.3 – Incremental unquantifiable cost of S3.32

Proposed standard S3.32 requires that the operator must have 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 a holding enclosure that does not meet the relevant holding enclosure spatial requirements of:

- i. the relevant taxon standards; or
- ii. the relevant government authority, if there are no relevant taxon standards outlining holding enclosure spatial requirements; or the relevant government authority has granted the operator an exemption to the relevant holding enclosure spatial requirements of the relevant taxon standards.

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

A3.15 – 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 \$112.12 (including on-costs and overhead costs).

The estimated annual cost of undertaking risk assessment of interactive programs under proposed standard S10.4 would be **\$7,966**, as shown in Table A3.21.

Table A3.21: Estimated annual cost of undertaking risk assessments for interactive programs under proposed standard S10.4

Jurisdiction	Cost to medium facilities (a3) = (d) ¹⁸² *5%*\$112.12*2	Cost to small facilities (b3) = (e) *5%*\$112.12*2	Total cost to all facilities (c3)=(a3)+(b3)
NSW	\$314	\$1,923	\$2,237
VIC	\$226	\$1,383	\$1,609
QLD	\$242	\$1,484	\$1,727
SA	\$28	\$169	\$196
WA	\$215	\$1,316	\$1,530
TAS	\$61	\$371	\$432
NT	\$28	\$169	\$196
ACT	\$6	\$34	\$39
Total annual cost (Australia)	\$1,118	\$6,848	\$7,966

As shown in Table A3.22, the estimated 10-year cost of undertaking a risk assessment of interactive programs under proposed standard S10.4 would be **\$0.06m** in present value 2015-16 dollars with 85.96% of the cost incurred by small size facilities.

Table A3.22: Estimated 10-year cost of undertaking risk assessment of interactive programs under proposed standard S10.4 by state and territory and size of facility – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$2,205	\$13,506	\$15,711
VIC	\$1,586	\$9,715	\$11,301
QLD	\$1,702	\$10,426	\$12,128
SA	\$193	\$1,185	\$1,378
WA	\$1,509	\$9,241	\$10,749
TAS	\$426	\$2,606	\$3,032
NT	\$193	\$1,185	\$1,378
ACT	\$39	\$237	\$276
Total 10-year cost (Australia) PV - 7% discount	\$7,853	\$48,100	\$55,953
% share of 10-year cost	14.04%	85.96%	100.00%
<i>10-year cost PV - 3% discount sensitivity</i>	\$9,538	\$58,417	\$67,955
<i>10-year cost PV - 10% discount sensitivity</i>	\$6,870	\$42,080	\$48,950

A3.16 – Incremental cost of keeping records – S10.9, S12.3, S12.4, 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

¹⁸² 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:

- Where required by a taxon standard or a government authority concerned about the welfare of the animal, the time an animal is used in an interactive program is recorded (S10.9);
- an animal register and animal health records are kept and maintained for all animals in the facility (S12.3) for the life of the animal plus three years or three years after the animal left the operator's possession (S12.4) 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 total incremental cost of all aforementioned record keeping requirements, it is assumed that associated activities could be represented by 2 minutes¹⁸³ of work by keepers per enclosure every day (365 days a year) at an hourly charge out rate of \$55.69 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 animal exhibitors currently do not comply with record-keeping requirements with respect to 5% of enclosures¹⁸⁴ (see number of enclosures (m) (n) (o) and (p) in Table A2.14)

The estimated annual cost of undertaking record keeping under proposed standards S10.9, S12.13, S12.4, S12.5, S12.6, S12.7, S12.9 and S12.10 would be \$0.76m, as shown in Table A3.23.

Table A3.23: Estimated annual cost of record keeping requirements

Jurisdiction	Cost to large facilities (d3)= [(m)+(n)+(o)+(p)] ¹⁸⁵ *5%*2min*365 days*\$55.69	Cost to medium facilities (e3)= [(m)+(n)+(o)+(p)] *5%*2min*365 days*\$55.69	Cost to small facilities (f3)= [(m)+(n)+(o)+(p)]*5 %*2min*365 days*\$55.69	Total cost to all facilities (g3) = (d3)+(e3)+(f3)
NSW	\$13,274	\$53,934	\$131,143	\$198,351
VIC	\$13,274	\$38,795	\$94,331	\$146,400
QLD	\$13,274	\$41,634	\$101,233	\$156,141
SA	\$13,274	\$4,731	\$11,504	\$29,508
WA	\$13,274	\$36,902	\$89,730	\$139,906
TAS	\$13,274	\$10,408	\$25,308	\$48,990
NT	\$13,274	\$4,731	\$11,504	\$29,508
ACT	\$13,274	\$946	\$2,301	\$16,521
Total annual cost (Australia)	\$106,188	\$192,082	\$467,054	\$765,325

¹⁸³ Based on industry estimates of an average 20 minutes to inspect 10 enclosures

¹⁸⁴ The estimated current level of non-compliance

¹⁸⁵ See Table A2.14 of Appendix 2 for source of estimates for holding enclosures.

As shown in Table A3.24, the estimated 10-year cost of record keeping requirements would be **\$5.38m** in present value 2015-16 dollars with approximately 61% of the cost incurred by small size facilities and particularly in NSW, VIC, QLD and WA.

Table A3.24: Estimated 10-year cost of record keeping requirements by state and territory and size of facility – 2015-16 dollars

Jurisdiction	Large Facilities	Medium Facilities	Small Facilities	Total Facilities
NSW	\$93,228	\$378,813	\$921,095	\$1,393,136
VIC	\$93,228	\$272,479	\$662,542	\$1,028,249
QLD	\$93,228	\$292,417	\$711,021	\$1,096,666
SA	\$93,228	\$33,229	\$80,798	\$207,255
WA	\$93,228	\$259,188	\$630,223	\$982,639
TAS	\$93,228	\$73,104	\$177,755	\$344,087
NT	\$93,228	\$33,229	\$80,798	\$207,255
ACT	\$93,228	\$6,646	\$16,160	\$116,033
Total 10-year cost (Australia) PV - 7% discount	\$745,823	\$1,349,105	\$3,280,392	\$5,375,320
% share of 10-year cost	13.87%	25.10%	61.03%	100.00%
<i>10-year cost PV - 3% discount sensitivity</i>	\$905,809	\$1,638,500	\$3,984,065	\$6,528,374
<i>10-year cost PV - 10% discount sensitivity</i>	\$652,482	\$1,180,262	\$2,869,845	\$4,702,588

A3.17 – 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 A3.25 and is estimated to be \$6.79m (discounted at 7%) with 62.03% of the cost being incurred by small facilities and mainly with respect to training and record keeping.

Table A3.25: Summary of 10-year incremental quantifiable costs of general standards (Option B) – 2015-16 dollars (\$m)

Category of incremental cost	Standard/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	\$0.097	\$0.076	\$0.677	\$0.850	\$0.965	\$0.781
Recording assessment of keeper proficiency	S1.6	\$0.000	\$0.003	\$0.008	\$0.010	\$0.013	\$0.009

Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	\$0.000	\$0.021	\$0.130	\$0.151	\$0.157	\$0.147
Secure perimeter barrier	S2.1	\$0.000	\$0.244	\$0.000	\$0.244	\$0.253	\$0.237
Training for emergency procedures	S2.14	\$0.000	\$0.019	\$0.053	\$0.073	\$0.088	\$0.064
Backup power for electric barriers	S3.5	\$0.000	\$0.002	\$0.011	\$0.013	\$0.013	\$0.012
Providing information to public about animals	S3.8	\$0.000	\$0.001	\$0.002	\$0.003	\$0.003	\$0.003
Providing information to public about appropriate behaviour	S3.13, S3.16	\$0.000	\$0.001	\$0.003	\$0.004	\$0.004	\$0.004
Providing furniture	S3.24	\$0.002	\$0.004	\$0.005	\$0.011	\$0.011	\$0.011
Risk assessments for interactive programs	S10.4	\$0.000	\$0.008	\$0.048	\$0.056	\$0.068	\$0.049
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	\$0.746	\$1.349	\$3.280	\$5.375	\$6.528	\$4.703
Total quantifiable incremental cost of general standards		\$0.845	\$1.727	\$4.218	\$6.790	\$8.104	\$6.019
% of quantifiable incremental cost		12.44%	25.44%	62.12%	100.00%		

A summary of the 10-year quantifiable costs of the proposed general standards under Option B is presented in Table A3.26 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 A3.26: Summary of 10-year incremental quantifiable costs of general standards by state and territory (Option B) – 2015-16 dollars (\$m)

Category of incremental cost	Standard/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	0.227	0.243	0.032	0.217	0.071	0.040	0.019	0.850
Recording assessment of keeper proficiency	S1.6	0.003	0.002	0.002	0.000	0.002	0.001	0.000	0.000	0.010
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	0.047	0.034	0.026	0.003	0.028	0.009	0.004	0.001	0.151

Secure perimeter barrier	S2.1	0.000	0.000	0.061	0.061	0.000	0.061	0.061	0.000	0.244
Training for emergency procedures	S2.14	0.021	0.015	0.016	0.001	0.014	0.004	0.002	0.000	0.073
Backup power for electric barriers	S3.5	0.004	0.003	0.003	0.000	0.002	0.001	0.000	0.000	0.013
Providing information to public about animals	S3.8	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.003
Providing information to public about appropriate behaviour	S3.13, S3.16	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.004
Providing furniture	S3.24	0.000	0.004	0.004	0.001	0.000	0.001	0.001	0.000	0.011
Risk assessments for interactive programs	S10.4	0.016	0.011	0.012	0.001	0.011	0.003	0.001	0.000	0.056
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	1.393	1.028	1.097	0.207	0.983	0.344	0.207	0.116	5.375
Total quantifiable incremental cost of general standards		1.484	1.325	1.465	0.308	1.258	0.495	0.317	0.137	6.790
% of quantifiable incremental cost		21.86 %	19.52 %	21.58 %	4.53%	18.52 %	7.30%	4.67%	2.02%	100.0 0%

A3.18 – 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 A3.27 to A3.29 incurred by small facilities, medium facilities and large facilities, respectively. As shown in Table A3.27 the average annualised cost for a small facility is estimated to be \$2,417 in present value dollars. For medium facilities the average annualised cost is estimated to be \$6,603 (see Table A3.28) and for large facilities it is \$10,557 (see Table A3.29).

Table A3.27: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for small facilities – 2015-16 dollars

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		49	35	38	4	34	9	4	1	175
Category of incremental cost	Standard/s	NSW \$AUD	VIC \$AUD	QLD \$AUD	SA \$AUD	WA \$AUD	TAS \$AUD	NT \$AUD	ACT \$AUD	Total (Australia) \$AUD

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Training proficient keepers	S1.4	0	191,426	205,433	18,676	182,088	51,358	23,345	4,669	676,996
Recording assessment of keeper proficiency	S1.6	2,156	1,551	1,664	189	1,475	416	189	38	7,679
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	40,435	29,085	22,295	2,534	23,714	7,803	3,547	709	130,122
Secure perimeter barrier	S2.1	0	0	0	0	0	0	0	0	0
Training for emergency procedures	S2.14	15,093	10,857	11,651	1,027	10,327	2,913	1,324	265	53,456
Backup power for electric barriers	S3.5	3,021	2,173	2,332	265	2,067	583	265	53	10,759
Providing information to public about animals	S3.8	0	604	648	74	574	162	74	15	2,150
Providing information to public about appropriate behaviour	S3.13, S3.16	839	604	648	74	574	162	74	15	2,989
Providing furniture	S3.24	0	2,070	2,221	252	0	555	252	50	5,401
Risk assessments for interactive programs	S10.4	13,506	9,715	10,426	1,185	9,241	2,606	1,185	237	48,100
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	921,095	662,542	711,021	80,798	630,223	177,755	80,798	16,160	3,280,392
Total cost general standards		996,146	910,626	968,339	105,072	860,284	244,314	111,052	22,210	4,218,044
Average 10-year cost per facility		20,330	25,837	25,601	24,445	25,660	25,837	25,837	25,837	24,171
Average annualised cost per facility		2,033	2,584	2,560	2,445	2,566	2,584	2,584	2,584	2,417

Table A3.28: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for medium facilities – 2015-16 dollars

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		8	6	6	1	5	2	1	0	28
Category of incremental cost	Standard/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	21,497	23,070	2,097	20,448	5,767	2,622	524	76,025

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Recording assessment of keeper proficiency	S1.6	779	560	601	68	533	150	68	14	2,773
Developing and implementing plans, procedures and program	S1.8, S2.7, S2.8, 2.12, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1, S10.3, S11.6	6,602	4,749	3,640	414	3,872	1,274	579	116	21,244
Secure perimeter barrier	S2.1	0	0	60,923	60,923	0	60,923	60,923	0	243,691
Training for emergency procedures	S2.14	5,451	3,921	4,208	411	3,730	1,052	478	96	19,346
Backup power for electric barriers	S3.5	493	355	381	43	337	95	43	9	1,757
Providing information to public about animals	S3.8	0	231	248	28	220	62	28	6	822
Providing information to public about appropriate behaviour	S3.13, S3.16	321	231	248	28	220	62	28	6	1,143
Providing furniture	S3.24	0	1,408	1,511	172	0	378	172	34	3,674
Risk assessments for interactive programs	S10.4	2,205	1,586	1,702	193	1,509	426	193	39	7,853
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	378,813	272,479	292,417	33,229	259,188	73,104	33,229	6,646	1,349,105
Total cost general standards		394,663	307,016	388,948	97,607	290,055	143,293	98,364	7,488	1,727,434
Average 10-year cost per facility		49,333	53,353	62,983	139,089	52,991	92,815	140,169	53,353	60,630
Average annualised cost per facility		4,933	5,335	6,298	13,909	5,299	9,281	14,017	5,335	6,063

Table A3.29: Summary of distribution 10-year incremental quantifiable costs of general standards by state and territory (Option B) for large facilities – 2015-16 dollars

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
Number of small facilities		1	1	1	1	1	1	1	1	8
Category of incremental cost	Standard/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	14,267	14,267	11,414	14,267	14,267	14,267	14,267	97,017
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, S3.20, S3.21, S5.1, S5.9, S6.1, S7.1, S8.1, S9.1,	0	0	0	0	0	0	0	0	0

		NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total (Australia)
	S10.3, S11.6									
Secure perimeter barrier	S2.1	0	0	0	0	0	0	0	0	0
Training for emergency procedures	S2.14	0	0	0	0	0	0	0	0	0
Backup power for electric barriers	S3.5	0	0	0	0	0	0	0	0	0
Providing information to public about animals	S3.8	0	0	0	0	0	0	0	0	0
Providing information to public about appropriate behaviour	S3.13, S3.16	0	0	0	0	0	0	0	0	0
Providing furniture	S3.24	0	290	290	290	0	290	290	290	1,738
Risk assessments for interactive programs	S10.4	0	0	0	0	0	0	0	0	0
Record keeping	S10.9, S12.3, S12.4, S12.5, S12.6, S12.7, S12.9, S12.10	93,228	93,228	93,228	93,228	93,228	93,228	93,228	93,228	745,823
Total cost general standards		93,228	107,785	107,785	104,931	107,495	107,785	107,785	107,785	844,579
Average 10-year cost per facility		93,228	107,785	107,785	104,931	107,495	107,785	107,785	107,785	105,572
Average annualised cost per facility		9,323	10,778	10,778	10,493	10,750	10,778	10,778	10,778	10,557

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 2016/17. 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 (\$2400)
- Freight (\$386)
- Clips and stainless steel pegs (\$214)
- Labour (\$686)

This would provide a total cost of around \$3686 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 \$0.09m, 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) ¹⁸⁶ *5%*\$3686.38	Cost to medium facilities (i3)= (q) *5%*\$3686.38	Cost to small facilities (j3)= (q)*5%*\$3686.38	Total cost to all facilities (k3) = (h3)+(i3)+(j3)
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$1,180	\$6,830	\$46,479	\$54,488
SA	\$1,180	\$776	\$5,282	\$7,237
WA	\$0	\$0	\$0	\$0
TAS	\$1,180	\$1,707	\$11,620	\$14,507
NT	\$1,180	\$776	\$5,282	\$7,237
ACT	\$1,180	\$155	\$1,056	\$2,391
Total one-off cost (Australia)	\$5,898	\$10,244	\$69,718	\$85,860

As shown in Table A4.2, the estimated one-off cost of fox proofing requirements for macropod enclosures over 10 years would be **\$0.080m** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$1,102	\$6,383	\$43,438	\$50,923
SA	\$1,102	\$725	\$4,936	\$6,764
WA	\$0	\$0	\$0	\$0
TAS	\$1,102	\$1,596	\$10,859	\$13,558
NT	\$1,102	\$725	\$4,936	\$6,764
ACT	\$1,102	\$145	\$987	\$2,235
Total one-off cost (Australia) PV - 7% discount	\$5,512	\$9,574	\$65,157	\$80,243
% share of one-off cost	6.87%	11.93%	81.20%	100.00%
<i>One-off cost PV – 3% discount sensitivity</i>	<i>\$5,726</i>	<i>\$9,946</i>	<i>\$67,687</i>	<i>\$83,360</i>
<i>One-off cost PV – 10% discount sensitivity</i>	<i>\$5,362</i>	<i>\$9,313</i>	<i>\$63,380</i>	<i>\$78,055</i>

¹⁸⁶ 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 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 1m² area of raked earth or sand established on top of the buried bait) to detect footprints.¹⁸⁷ 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 \$183.25 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 \$55.69 per hour.

This would mean a set up cost of \$211.09 per enclosure and on-going monitoring costs of \$1197.35 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 \$27,888, 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) ¹⁸⁸ *5%*\$1197.35	Cost to medium facilities (m3)= (q) *5%*\$1197.35	Cost to small facilities (n3)= (q)*5%*\$1197.35	Total cost to all facilities (o3) = (l3)+(m3)+(n3)
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$383	\$2,218	\$15,096	\$17,698
SA	\$383	\$252	\$1,715	\$2,351
WA	\$0	\$0	\$0	\$0
TAS	\$383	\$555	\$3,774	\$4,712
NT	\$383	\$252	\$1,715	\$2,351
ACT	\$383	\$50	\$343	\$777
Total annual cost (Australia)	\$1,916	\$3,327	\$22,645	\$27,888

¹⁸⁷ NSW Department of Primary Industries (2004), FOX001 Ground Baiting of Foxes with 1080.

¹⁸⁸ 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 **\$0.20m** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$2,691	\$15,580	\$106,031	\$124,302
SA	\$2,691	\$1,770	\$12,049	\$16,510
WA	\$0	\$0	\$0	\$0
TAS	\$2,691	\$3,895	\$26,508	\$33,094
NT	\$2,691	\$1,770	\$12,049	\$16,510
ACT	\$2,691	\$354	\$2,410	\$5,455
Total 10-year cost (Australia) PV - 7% discount	\$13,455	\$23,370	\$159,046	\$195,871
% share of 10-year cost	6.87%	11.93%	81.20%	100.00%
<i>10-year cost PV - 3% discount sensitivity</i>	\$16,342	\$28,383	\$193,163	\$237,887
<i>10-year cost PV - 10% discount sensitivity</i>	\$11,771	\$20,445	\$139,141	\$171,358

The estimated one-off cost of providing fox bait for macropod enclosures under Option C1 would be \$4,917, 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) ¹⁸⁹ *5%*\$211.09	Cost to medium facilities (q3)= (q) *5%*\$211.09	Cost to small facilities (r3)= (q)*5%*\$211.09	Total cost to all facilities (s3) = (p3)+(q3)+(r3)
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$68	\$391	\$2,661	\$3,120
SA	\$68	\$44	\$302	\$414
WA	\$0	\$0	\$0	\$0
TAS	\$68	\$98	\$665	\$831
NT	\$68	\$44	\$302	\$414
ACT	\$68	\$9	\$60	\$137
Total one-off cost Australia	\$338	\$587	\$3,992	\$4,917

As shown in Table A4.6, the estimated one-off cost of providing fox bait for macropod enclosures over 10 years would be **\$4,773** in present value 2015-16 dollars with 81.2% of the cost incurred by small size facilities and particularly in QLD.

¹⁸⁹ 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$63	\$365	\$2,487	\$2,916
SA	\$63	\$42	\$283	\$387
WA	\$0	\$0	\$0	\$0
TAS	\$63	\$91	\$622	\$776
NT	\$63	\$42	\$283	\$387
ACT	\$63	\$8	\$57	\$128
Total one-off cost (Australia) PV - 7% discount	\$316	\$548	\$3,731	\$4,595
% share of one-off cost	6.87%	11.93%	81.20%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$328	\$570	\$3,876	\$4,773
<i>One-off cost PV - 10% discount sensitivity</i>	\$307	\$533	\$3,629	\$4,470

A4.3 – Incremental cost of providing for an exclusion area – S3.3 and S3.4 (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. Under standard S3.4 the operator would need to ensure that the visitor exclusion area must be a minimum of 25% of the minimum required enclosure floor area contained in Appendix 1 of the standards and guidelines for the number of macropods kept in the enclosure. 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 \$536 per enclosure.

The estimated one-off cost of ensuring sufficient spatial dimensions of an exclusion area under proposed standards S3.3 and S3.4 would be \$4,221 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) ¹⁹⁰ *5%*\$536	Cost to medium facilities (u3)= (q) *5%*\$536	Cost to small facilities (v3)= (q)*5%*\$536	Total cost to all facilities (w3) = (t3)+(u3)+(v3)
NSW	\$0	\$0	\$0	\$0
VIC	\$54	\$308	\$1,259	\$1,621
QLD	\$0	\$0	\$0	\$0
SA	\$54	\$38	\$154	\$245
WA	\$54	\$293	\$1,198	\$1,544
TAS	\$54	\$83	\$338	\$474
NT	\$54	\$38	\$154	\$245
ACT	\$54	\$8	\$31	\$92
Total one-off cost (Australia)	\$321	\$767	\$3,132	\$4,221

As shown in Table A4.8, the estimated one-off cost of providing sufficient spatial dimensions for exclusion areas for macropods over 10 years under standards S3.3 and S3.4 would be **\$3,945** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$50	\$288	\$1,177	\$1,515
QLD	\$0	\$0	\$0	\$0
SA	\$50	\$35	\$143	\$229
WA	\$50	\$274	\$1,119	\$1,443
TAS	\$50	\$77	\$316	\$443
NT	\$50	\$35	\$143	\$229
ACT	\$50	\$7	\$29	\$86
Total one-off cost (Australia) PV - 7% discount	\$300	\$717	\$2,927	\$3,945
% share of one-off cost	7.62%	18.17%	74.21%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	<i>\$312</i>	<i>\$745</i>	<i>\$3,041</i>	<i>\$4,098</i>
<i>One-off cost PV - 10% discount sensitivity</i>	<i>\$292</i>	<i>\$697</i>	<i>\$2,847</i>	<i>\$3,837</i>

¹⁹⁰ See Table A2.13 of Appendix 2 for source of estimates for walk through enclosures for macropods.
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A4.4 – 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 ECF¹⁹¹ agreed that a 12.5% non-compliance rate (current level) 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 \$14.15 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:

$$60.8\text{sqm} \times 2 + (91.2\text{sqm} \times (20\% \times 12 \text{ animals}) - 1 \text{ male}) + (76\text{sqm} \times (80\% \times 12 \text{ animals}) - 1 \text{ female}) = 902.88\text{sqm per enclosure}$$

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 \$14.15/metre x 120.19 metres = \$1,700.16. 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 \$0.122m, as shown in Table A4.9.

¹⁹¹ See Part 1.3.1 of this RIS.

Table A4.9: Estimated one-off cost of changes to macropod fencing

Jurisdiction	Cost to large facilities (x3)= (q) ¹⁹² *12.5%*\$1,700.16 or (q)*12.5%*12.5% ¹⁹³ *\$1,700.16 (for VIC)	Cost to medium facilities (y3)= (q) *12.5%*\$1,700.16 or (q)*12.5%*12.5%*\$1,700.16 (for VIC)	Cost to small facilities (z3)= (q) *12.5%*\$1,700.16 or (q)*12.5%*12.5%*\$1,700.16 (for VIC)	Total cost to all facilities (a4) = (x3)+(y3)+(z3)
NSW	\$0	\$0	\$0	\$0
VIC	\$223	\$1,223	\$7,490	\$8,936
QLD	\$0	\$0	\$0	\$0
SA	\$1,785	\$1,193	\$7,308	\$10,286
WA	\$1,785	\$9,306	\$57,000	\$68,092
TAS	\$1,785	\$2,625	\$16,077	\$20,487
NT	\$1,785	\$1,193	\$7,308	\$10,286
ACT	\$1,785	\$239	\$1,462	\$3,485
Total one-off cost (Australia)	\$9,149	\$15,779	\$96,645	\$121,572

As shown in Table A4.10, 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 2015-16 dollars with 79.5% of the cost incurred by small size facilities and particularly in WA and TAS.

Table A4.10: Estimated one-off cost of changes to macropod fencing by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$0	\$0	\$0	\$0
VIC	\$209	\$1,143	\$7,000	\$8,352
QLD	\$0	\$0	\$0	\$0
SA	\$1,668	\$1,115	\$6,830	\$9,613
WA	\$1,668	\$8,697	\$53,271	\$63,637
TAS	\$1,668	\$2,453	\$15,025	\$19,147
NT	\$1,668	\$1,115	\$6,830	\$9,613
ACT	\$1,668	\$223	\$1,366	\$3,257
Total one-off cost (Australia) PV - 7% discount	\$8,550	\$14,746	\$90,322	\$113,619
% share of one-off cost	7.53%	12.98%	79.50%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$8,883	\$15,319	\$93,830	\$118,031
<i>One-off cost PV - 10% discount sensitivity</i>	\$8,317	\$14,344	\$87,859	\$110,520

¹⁹² 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.

¹⁹³ Assumed proportion of rock wallaby enclosures to total macropod enclosures.

A4.5 – Incremental cost of providing furniture to rock wallaby enclosures – S3.9 (Macropods)

Under S3.9, 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 furniture at a conservative \$1071.62 per enclosure (e.g. tree trunk, vegetation etc.) apart from NSW, QLD and VIC, where such furniture 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 S3.9 would be \$1,663, as shown in Table A4.11. The implication of this is that the code would effectively encourage roughly 2 medium and 10.5 small facilities to improve surroundings for their rock wallaby inhabitants.

Table A4.11: Estimated one-off cost of providing enrichment to rock wallaby enclosures

Jurisdiction	Cost to medium facilities (b4) = (q) ¹⁹⁴ *5%*12.5%*\$1071.62	Cost to small facilities (c4) = (q)*5%*12.5%*\$1071.62	Total cost to all facilities (d4) = (b4)+(c4)
NSW	\$0	\$0	\$0
VIC	\$0	\$0	\$0
QLD	\$0	\$0	\$0
SA	\$21	\$115	\$136
WA	\$165	\$898	\$1,063
TAS	\$47	\$253	\$300
NT	\$21	\$115	\$136
ACT	\$4	\$23	\$27
Total one-off cost (Australia)	\$258	\$1,405	\$1,663

As shown in Table A4.12, the estimated one-off cost of providing furniture to rock wallaby enclosures over 10 years would be **\$1,554** in present value 2015-16 dollars with 84.48% of the cost incurred by small size facilities and particularly in WA and TAS.

Table A4.12: Estimated one-off cost of providing furniture to rock wallaby enclosures by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$0	\$0	\$0

¹⁹⁴ 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
VIC	\$0	\$0	\$0
QLD	\$0	\$0	\$0
SA	\$20	\$108	\$127
WA	\$154	\$839	\$994
TAS	\$43	\$237	\$280
NT	\$20	\$108	\$127
ACT	\$4	\$22	\$25
Total one-off cost (Australia) PV - 7% discount	\$241	\$1,313	\$1,554
% share of one-off cost	15.52%	84.48%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$251	\$1,364	\$1,614
<i>One-off cost PV - 10% discount sensitivity</i>	\$235	\$1,277	\$1,512

A4.6 – Incremental cost of providing minimum spatial requirements – S3.10 (Macropods)

Under proposed standard S3.10, 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 \$55.69 per hour for 2hrs of labour time (i.e. \$111.38 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 S3.10 would be \$2,663, as shown in Table A4.15. This code would encourage the improvement of spatial dimensions for about 22 macropod enclosures.

Table A4.13: Estimated one-off cost of spatial requirements for macropods

Jurisdiction	Cost to large facilities (e4)= (q) ¹⁹⁵ *5%*\$111.38	Cost to medium facilities (f4)= (q) *5%*\$111.38	Cost to small facilities (g4)= (q)*5%*\$111.38	Total cost to all facilities (h4) = (e4)+(f4)+(g4)
NSW	\$0	\$0	\$0	\$0
VIC	\$0	\$0	\$0	\$0
QLD	\$0	\$0	\$0	\$0
SA	\$30	\$18	\$96	\$143
WA	\$30	\$137	\$747	\$914
TAS	\$30	\$39	\$211	\$279
NT	\$30	\$18	\$96	\$143
ACT	\$30	\$4	\$1,149	\$1,183
Total one-off cost (Australia)	\$150	\$215	\$2,298	\$2,663

As shown in Table A4.14, the estimated one-off cost of spatial requirements for macropods over 10 years would be **\$2,489** in present value 2015-16 dollars with 86.3% of the cost incurred by small size facilities - particularly in WA and TAS.

Table A4.14: Estimated one-off cost of spatial requirements for macropods by state and territory and size of facility over 10 years – 2015-16 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	\$28	\$16	\$89	\$134
WA	\$28	\$128	\$698	\$854
TAS	\$28	\$36	\$197	\$261
NT	\$28	\$16	\$89	\$134
ACT	\$28	\$3	\$1,074	\$1,105
Total one-off cost (Australia) PV - 7% discount	\$141	\$201	\$2,148	\$2,489
% share of one-off cost	5.65%	8.06%	86.30%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$146	\$208	\$2,231	\$2,585
<i>One-off cost PV - 10% discount sensitivity</i>	\$137	\$195	\$2,089	\$2,421

A4.7 – 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

¹⁹⁵ 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 \$536 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 **\$2,978**, as shown in Table A4.15.

Table A4.15: Estimated one-off cost of providing elevated positions for macropod enclosures

Jurisdiction	Cost to large facilities (i4)= (q) ¹⁹⁶ *5%*\$536	Cost to medium facilities (j4)= (q) *5%*\$536	Cost to small facilities (k4)= (q)*5%*\$536	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	\$145	\$85	\$461	\$690
WA	\$0	\$0	\$0	\$0
TAS	\$145	\$186	\$1,013	\$1,344
NT	\$145	\$85	\$461	\$690
ACT	\$145	\$17	\$92	\$254
Total one-off cost (Australia)	\$579	\$372	\$2,027	\$2,978

As shown in Table A4.16, the estimated one-off cost of providing elevated positions for macropod enclosures over 10 years would be **\$2,783** in present value 2015-16 dollars with 68.06% of the cost incurred by small size facilities - particularly in TAS, SA and NT.

Table A4.16: Estimated one-off cost of providing elevated positions for macropod enclosures by state and territory and size of facility over 10 years – 2015-16 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	\$135	\$79	\$430	\$645
WA	\$0	\$0	\$0	\$0
TAS	\$135	\$174	\$947	\$1,256
NT	\$135	\$79	\$430	\$645
ACT	\$135	\$16	\$86	\$237
Total one-off cost (Australia) PV - 7% discount	\$541	\$348	\$1,894	\$2,783
% share of one-off cost	19.43%	12.50%	68.06%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	<i>\$562</i>	<i>\$361</i>	<i>\$1,968</i>	<i>\$2,891</i>
<i>One-off cost PV - 10% discount sensitivity</i>	<i>\$526</i>	<i>\$338</i>	<i>\$1,842</i>	<i>\$2,707</i>

¹⁹⁶ See Table A2.13 of Appendix 2 for source of estimates for the sum of walk and non-walk through display enclosures for macropods.

A4.8 – Incremental cost of providing for written procedures for capture and restraint – S8.1 (Macropods)

Under the proposed macropod taxon standard S8.1 there would be a requirement for operators to develop, maintain and implement written procedures for capture and restraint and guidelines that deal with capture myopathy and the macropods overheating.

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 3 days i.e. one day for the development and half a day for the implementation of procedures (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 11.25hrs for such procedures.

As discussed in Part A2.9 of Appendix 2 the hourly charge out rate for a program administrator is taken to be \$112.12 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 procedures under S8.1 would be **\$15,923**, as shown in Table A4.17.

Table A4.17: Estimated cost of plans and procedures (macropods)

Jurisdiction	Cost to medium facilities (m4) = (a1) ¹⁹⁷ *5%*11.25hrs*\$112.12	Cost to small facilities (n4) = [(a1) ¹⁹⁸ *5%*11.25hrs*\$112.12	Total cost to all facilities (o4) =(m4)+(n4)
NSW	\$321	\$1,967	\$2,288
VIC	\$63	\$321	\$384
QLD	\$2,351	\$63	\$2,414
SA	\$1,362	\$2,351	\$3,713
WA	\$222	\$1,362	\$1,585
TAS	\$63	\$222	\$286
NT	\$1,648	\$63	\$1,711
ACT	\$1,894	\$1,648	\$3,542
Total one-off cost (Australia)	\$7,925	\$7,997	\$15,923

As shown in Table A4.18, the estimated one-off cost of providing procedures (macropods) over 10 years would be **\$14,881** in present value 2015-16 dollars with 50.23% of the cost incurred by small size facilities.

¹⁹⁷ See Table A2.17 column (a1) in Appendix 2 for source of these estimates.

¹⁹⁸ See Table A2.17 column (a1) in Appendix 2 for source of these estimates.

Table A4.18: Estimated one-off cost of providing plans and procedures (macropods) by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$300	\$1,838	\$2,138
VIC	\$59	\$300	\$359
QLD	\$2,197	\$59	\$2,256
SA	\$1,273	\$2,197	\$3,470
WA	\$208	\$1,273	\$1,481
TAS	\$59	\$208	\$267
NT	\$1,540	\$59	\$1,599
ACT	\$1,770	\$1,540	\$3,311
Total one-off cost (Australia) PV - 7% discount	\$7,407	\$7,474	\$14,881
% share of one-off cost	49.77%	50.23%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$7,694	\$7,764	\$15,459
<i>One-off cost PV - 10% discount sensitivity</i>	\$7,205	\$7,270	\$14,475

A4.9 – 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 filling in gaps between slats 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.

A4.10 – 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 facility¹⁹⁹ 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 \$112.12 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 standards S1.2, S5.4 and S6.2 would be \$14,069, as shown in Table A4.19.

Table A4.19: Estimated cost of providing plans procedures (crocodiles)

Jurisdiction	Cost to medium facilities (p4) = (e1) ²⁰⁰ *5%*33.75hrs* \$112.12	Cost to small facilities (q4) = (e1) *5%*33.75hrs* \$112.12	Total cost of all facilities (r4) =(p4)+(q4)
NSW	\$619	\$3,793	\$4,412
VIC	\$164	\$1,506	\$1,670
QLD	\$825	\$5,052	\$5,877
SA	\$53	\$325	\$378
WA	\$115	\$705	\$820
TAS	\$49	\$298	\$347
NT	\$66	\$407	\$473
ACT	\$11	\$81	\$92
Total one-off cost (Australia)	\$1,902	\$12,167	\$14,069

As shown in Table A4.20, the estimated one-off cost of providing plans and procedures (crocodiles) over 10 years would be **\$13,149** in present value 2015-16 dollars with 86.48% of the cost incurred by small size facilities - particularly in NSW, VIC, and QLD.

Table A4.20: Estimated one-off cost of providing plans and procedures (crocodiles) by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
NSW	\$579	\$3,545	\$4,123
VIC	\$153	\$1,407	\$1,561
QLD	\$771	\$4,721	\$5,492
SA	\$50	\$304	\$354
WA	\$108	\$659	\$766
TAS	\$46	\$279	\$324
NT	\$62	\$380	\$442
ACT	\$10	\$76	\$86
Total one-off cost (Australia) PV - 7% discount	\$1,778	\$11,371	\$13,149
% share of one-off cost	13.52%	86.48%	100.00%

¹⁹⁹ See Table A2.17 column (e1) in Appendix 2 for source of these estimates.

²⁰⁰ See Table A2.17 column (e1) in Appendix 2 for source of these estimates.

Jurisdiction	Medium Facilities	Small Facilities	Total Facilities
<i>One-off cost PV - 3% discount sensitivity</i>	\$1,847	\$11,812	\$13,659
<i>One-off cost PV - 10% discount sensitivity</i>	\$1,729	\$11,061	\$12,790

A4.11 – 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.

A4.12 – 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**);
- crocodilian enclosure provides a base minimum land area equivalent to a square with side lengths equal to the total length of the longest crocodilian in the enclosure. For each additional crocodilian the operator must ensure the land area is increased by 50% of the base minimum land area. (**S3.4**) (*except for QLD*);
- each crocodilian enclosure provides a pond that has a base minimum water surface area equivalent to a rectangle with:
 - i. a length of 2 x total length of the longest crocodilian in the enclosure; and
 - ii. a width of 0.5 x total length of the longest crocodilian in the enclosure. This width must cover the length dimension stipulated in S3.5.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 a depth where the crocodilian is covered by a depth of water that is at least the greater of :
 - i. 200 mm; or
 - ii. 0.1 x the total length of the crocodilian. (**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 4% of non-compliant non-walkthrough display enclosures, this would involve moving or removing barriers at a rate of \$53.58 per hour for 14hrs (2 days) of labour time (\$780) plus estimated material costs at

\$16,074²⁰¹ 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 plus an estimated \$536 for building up the sides of a pool – (i.e. a total cost of \$17,389.81 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 \$1,071.12 per enclosure. Therefore the total cost of furniture and spatial requirements would be \$17,389.81 for all jurisdictions except for QLD where the cost per enclosure would be \$2,387.10 (pond and basking area and labour only plus an estimated \$536 for building up the sides of a pool).

The estimated one-off cost of meeting furniture and spatial requirements under Clauses S3.3, S3.4, S3.5 and S3.6 would be \$0.26m, as shown in Table A4.21. This would affect approximately 18 crocodile enclosures across Australia.

Table A4.21: Estimated one-off cost of furniture and spatial requirements (crocodiles)

Jurisdiction	Cost to large facilities (s4)= (r) ²⁰² *4%*\$17389.81 or (r)*4%*\$2387.10 (QLD)	Cost to medium facilities (t4)= (r)*4%*\$17389.81 or (r)*4%*\$2387.10 (QLD)	Cost to small facilities (u4)= (r)*4%*\$17389.81 or (r)*4%*\$2387.10 (QLD)	Total cost to all facilities (v4) = (s4)+(t4)+(u4)
NSW	\$3,756	\$47,300	\$34,084	\$85,141
VIC	\$3,756	\$34,023	\$24,517	\$62,296
QLD	\$594	\$4,619	\$3,329	\$8,542
SA	\$3,756	\$4,149	\$2,990	\$10,895
WA	\$3,756	\$32,363	\$23,321	\$59,440
TAS	\$3,756	\$9,128	\$6,578	\$19,462
NT	\$3,756	\$4,149	\$2,990	\$10,895
ACT	\$3,756	\$830	\$598	\$5,184
Total one-off cost (Australia)	\$26,887	\$136,562	\$98,405	\$261,855

As shown in Table A4.22, the estimated one-off cost of furniture and spatial requirements (crocodiles) over 10 years would be **\$0.24m** in present value 2015-16 dollars with 52.16% of the cost incurred by medium size facilities - particularly in NSW, VIC, and WA.

Table A4.22: Estimated one-off cost of furniture and spatial requirements (crocodiles) by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$3,510	\$44,206	\$31,854	\$79,571
VIC	\$3,510	\$31,797	\$22,913	\$58,220

²⁰¹ Estimated cost of an enclosure for a salt water crocodile - See <http://www.cooberriepark.com.au/> Viewed 29 April 2003.

²⁰² See Table A2.13 of Appendix 2 for source of estimates for non walk through display enclosures for crocodilians.

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
QLD	\$555	\$4,317	\$3,111	\$7,983
SA	\$3,510	\$3,878	\$2,794	\$10,182
WA	\$3,510	\$30,246	\$21,795	\$55,552
TAS	\$3,510	\$8,531	\$6,147	\$18,189
NT	\$3,510	\$3,878	\$2,794	\$10,182
ACT	\$3,510	\$776	\$559	\$4,845
Total one-off cost (Australia) PV - 7% discount	\$25,128	\$127,628	\$91,967	\$244,724
% share of one-off cost	10.27%	52.15%	37.58%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$26,104	\$132,585	\$95,539	\$254,228
<i>One-off cost PV - 10% discount sensitivity</i>	\$24,443	\$124,147	\$89,459	\$238,050

A4.13 – Incremental cost of holding enclosure requirements – S3.7, S3.8 and S3.9 (Crocodiles)

Under the taxon standards an operator must ensure that:

- a *holding enclosure* for an individual crocodilian provides a minimum land area equivalent to a rectangle with:
 - iii. a length of 1.0 x total length of the longest crocodilian in the enclosure; and
 - iv. a width of 0.5 x total length of the longest crocodilian in the enclosure. This width must cover the length dimension stipulated in S3.7.i. **(S3.7)** (*except Qld*)
- a *holding enclosure* for an individual *crocodilian* provides a pond that has a minimum water surface area equivalent to a rectangle with:
 - iii. a length of 1.25 x *total length* of the longest *crocodilian* in the *enclosure*; and
 - iv. a width of 0.5 x *total length* of the longest *crocodilian* in the *enclosure*. This width must cover the length dimension stipulated in S3.8.i. **(S3.8)** (*except Qld*)
- *holding enclosures* that do not allow effective thermoregulatory behaviours protect crocodilians from extremes of temperature **(S3.9)**.

The cost of holding enclosures for an individual crocodilian for 5% of all facilities in jurisdictions except for QLD (around 23 enclosures) would include an additional one-off capital cost of moving or removing fencing to allow for the necessary spatial requirements as well as the installation of a wooden platform in each for land area. This is estimated to be \$55.69 for labour at 2hrs or \$111.12 plus \$55.69 for installing wooden platforms (i.e. \$167.07 in total).

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 \$107.16 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 \$274.23 per non-compliant enclosure in all jurisdictions and \$167.07 per non-compliant enclosure for QLD.

The one-off estimated cost of holding enclosure requirements under Clauses S3.7, S3.8 and S3.9 would be \$5,754, as shown in Table A4.23. This would affect approximately 23 crocodile holding enclosures across Australia.

Table A4.23: Estimated cost of holding enclosure requirements (crocodiles)

Jurisdiction	Cost to large facilities (w4)= (r) ²⁰³ *5%* \$274.23 or (r)*5%*\$167.07 (for QLD)	Cost to medium facilities (x4)= (r)*5%* \$274.23 or (r)*5%*\$167.07 (for QLD)	Cost to small facilities (y4)= (r)*5%* \$274.23 or (r)*5%*\$160.07 (for QLD)	Total cost to all facilities (z4) = (w4)+(x4)+(y4)
NSW	\$118	\$1,042	\$448	\$1,608
VIC	\$118	\$750	\$322	\$1,190
QLD	\$72	\$490	\$211	\$773
SA	\$118	\$91	\$39	\$249
WA	\$118	\$713	\$306	\$1,137
TAS	\$118	\$201	\$86	\$405
NT	\$118	\$91	\$39	\$249
ACT	\$118	\$18	\$8	\$144
Total one-off cost (Australia)	\$897	\$3,397	\$1,460	\$5,754

As shown in Table A4.24, the estimated one-off cost of holding enclosure requirements (crocodiles) over 10 years would be **\$5,243** in present value 2015-16 dollars with 59.02% of the cost incurred by medium size facilities - particularly in NSW, VIC, QLD, and WA.

Table A4.24: Estimated one-off cost of holding enclosure requirements (crocodiles) by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$110	\$974	\$419	\$1,503
VIC	\$110	\$701	\$301	\$1,112
QLD	\$67	\$458	\$197	\$722
SA	\$110	\$85	\$37	\$232
WA	\$110	\$666	\$286	\$1,063
TAS	\$110	\$188	\$81	\$379
NT	\$110	\$85	\$37	\$232
ACT	\$110	\$17	\$7	\$135
Total one-off cost (Australia) PV - 7% discount	\$839	\$3,175	\$1,365	\$5,378

²⁰³ See Table A2.13 of Appendix 2 for source of estimates for holding enclosures for crocodilians.

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
% share of one-off cost	15.59%	59.03%	25.37%	100.00%
One-off cost PV - 3% discount sensitivity	\$871	\$3,298	\$1,418	\$5,587
One-off cost PV - 10% discount sensitivity	\$816	\$3,088	\$1,327	\$5,231

A4.14 – Incremental cost of access to drinking water – S4.2 (Crocodiles)

Under Standard S4.2, an operator must ensure that a crocodilian housed in saline conditions has access to fresh drinking water. This would entail a minor cost of \$428.65 per annum to around 18 enclosures or 5% of all facilities (i.e. non-compliant non walk through enclosures) for all jurisdictions except for QLD.

The 10-year estimated cost of providing fresh water under Clause S4.2 would be \$7,805, as shown in Table A4.25.

Table A4.25: Estimated annual cost of fresh water requirements (crocodiles)

Jurisdiction	Cost to large facilities (a5)= (r) ²⁰⁴ *5%*\$428.65	Cost to medium facilities (b5)= (r)*5%*\$428.65	Cost to small facilities (c5)= (r)*5%*\$428.65	Total cost to all facilities (d5) = (a5)+(b5)+(c5)
NSW	\$116	\$1,457	\$1,050	\$2,623
VIC	\$116	\$1,048	\$755	\$1,919
QLD	\$0	\$0	\$0	\$0
SA	\$116	\$128	\$92	\$336
WA	\$116	\$997	\$719	\$1,831
TAS	\$116	\$281	\$203	\$600
NT	\$116	\$128	\$92	\$336
ACT	\$116	\$26	\$18	\$160
Total annual cost (Australia)	\$810	\$4,065	\$2,929	\$7,805

As shown in Table A4.26, the estimated cost of fresh water requirements (crocodiles) over 10 years would be **\$54,819** in present value 2015-16 dollars with 52.09% of the cost incurred by medium size facilities - particularly in NSW, VIC, and WA.

Table A4.26: Estimated cost of holding enclosure requirements (crocodiles) by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$813	\$10,236	\$7,376	\$18,425
VIC	\$813	\$7,363	\$5,306	\$13,481
QLD	\$0	\$0	\$0	\$0
SA	\$813	\$898	\$647	\$2,358

²⁰⁴ See Table A2.13 of Appendix 2 for source of estimates for non walk-through enclosures for crocodilians.

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
WA	\$813	\$7,004	\$5,047	\$12,863
TAS	\$813	\$1,975	\$1,423	\$4,212
NT	\$813	\$898	\$647	\$2,358
ACT	\$813	\$180	\$129	\$1,122
Total one-off cost (Australia) PV - 7% discount	\$5,690	\$28,554	\$20,575	\$54,819
% share of one-off cost	10.38%	52.09%	37.53%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$6,911	\$34,679	\$24,989	\$66,578
<i>One-off cost PV - 10% discount sensitivity</i>	\$4,978	\$24,980	\$18,000	\$47,958

A4.15 – Providing for an exclusion area – S3.1 (Ratites)

Under proposed standard S3.1 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 \$535.81 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 4²⁰⁵.

A4.16 – Incremental cost of providing for appropriate enclosure height – S3.2 (Ratites)

Under proposed standard S3.2, 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 (current level of non-compliance) 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 \$14.15²⁰⁶ 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:

$$200\text{sqm} + (125\text{sqm} \times 9) = 1325\text{sqm per enclosure}$$

²⁰⁵ 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.

²⁰⁶ Estimate to be confirmed.

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 \$14.15/metre x 145.6 metres = \$2,059.60.

The estimated one-off cost of providing changes to ratite fencing under proposed standard S3.2 would be \$0.10m, 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) ²⁰⁷ *12.5%*\$2,059.60	Cost to medium facilities (f5)= (s) *12.5%*\$2,059.60	Cost to small facilities (g5)= (s) *12.5%*\$2,059.60	Total cost to all facilities (h5) = (e5)+(f5)+(g5)
NSW	\$927	\$15,447	\$16,820	\$33,194
VIC	\$927	\$11,111	\$12,099	\$24,137
QLD	\$0	\$0	\$0	\$0
SA	\$927	\$1,355	\$1,475	\$3,757
WA	\$927	\$10,569	\$11,508	\$23,004
TAS	\$927	\$2,981	\$3,246	\$7,154
NT	\$927	\$1,355	\$1,475	\$3,757
ACT	\$927	\$271	\$295	\$1,493
Total one-off cost (Australia)	\$6,488	\$43,089	\$46,919	\$96,496

As shown in Table A4.28, the estimated one-off cost changes to ratite fencing over 10 years would be **\$0.09m** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$866	\$14,436	\$15,720	\$31,022
VIC	\$866	\$10,384	\$11,307	\$22,557
QLD	\$0	\$0	\$0	\$0
SA	\$866	\$1,266	\$1,379	\$3,511
WA	\$866	\$9,878	\$10,756	\$21,499
TAS	\$866	\$2,786	\$3,034	\$6,686
NT	\$866	\$1,266	\$1,379	\$3,511
ACT	\$866	\$253	\$276	\$1,395
Total one-off cost (Australia) PV - 7% discount	\$6,063	\$40,270	\$43,850	\$90,183
% share of one-off cost	6.72%	44.65%	48.62%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$6,299	\$41,834	\$45,553	\$93,685
<i>One-off cost PV - 10% discount sensitivity</i>	\$5,898	\$39,172	\$42,654	\$87,724

²⁰⁷ 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.

A4.17 – Incremental cost of providing additional furniture and spatial requirements to ratite enclosures – S3.3, S3.4 and S3.5 (Ratites)

Under proposed standard S3.3, the operator would need to ensure ratite display enclosures included a species-appropriate wallow²⁰⁸. This would apply to 5% non-compliant ratite enclosures apart from QLD where this is required under the base case at a proxy²⁰⁹ estimated cost of \$1,875.34 per display enclosure (see A4.12 of Appendix 4 for cost of crocodilian pond and basking area).

Also under proposed standard S3.4, 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 \$55.69 given a one-off cost of \$490.67.

Under proposed standard S3.5, 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 \$55.69 per hour for 2hrs of labour time (i.e. \$111.38 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.

The total cost per display enclosure under Clauses, S3.3, S3.4 and S3.5 is therefore given as \$2,477.38

The estimated one-off cost of providing changes to furniture and space for ratite enclosures under Clauses S3.4, S3.4 and S3.5 would be \$0.021m, 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) ²¹⁰ *5%*\$2,477.38	Cost to medium facilities (j5)= (s) *5%*\$2,477.38	Cost to small facilities (k5)= (s) *5%*\$2,477.38	Total cost to all facilities (I5) = (i5)+(j5)+(k5)
NSW	\$347	\$2,477	\$4,046	\$6,871
VIC	\$347	\$1,782	\$2,911	\$5,039
QLD	\$0	\$0	\$0	\$0
SA	\$347	\$217	\$355	\$919
WA	\$347	\$1,695	\$2,769	\$4,810
TAS	\$347	\$478	\$781	\$1,606
NT	\$347	\$217	\$355	\$919

²⁰⁸ All ratites, particularly cassowaries and emus, like to swim or wallow in water.

²⁰⁹ Due to lack of data on the cost of ratite ponds.

²¹⁰ 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	Cost to large facilities (i5)= (s) ²¹⁰ *5%*\$2,477.38	Cost to medium facilities (j5)= (s) *5%*\$2,477.38	Cost to small facilities (k5)= (s) *5%*\$2,477.38	Total cost to all facilities (I5) = (i5)+(j5)+(k5)
ACT	\$347	\$43	\$71	\$461
Total one-off cost (Australia)	\$2,428	\$6,911	\$11,287	\$20,626

As shown in Table A4.30, the estimated one-off cost of providing furniture and space for ratite enclosures over 10 years would be **\$0.019m** in present value 2015-16 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$324	\$2,315	\$3,782	\$6,421
VIC	\$324	\$1,665	\$2,720	\$4,710
QLD	\$0	\$0	\$0	\$0
SA	\$324	\$203	\$332	\$859
WA	\$324	\$1,584	\$2,587	\$4,496
TAS	\$324	\$447	\$730	\$1,501
NT	\$324	\$203	\$332	\$859
ACT	\$324	\$41	\$66	\$431
Total one-off cost (Australia) PV - 7% discount	\$2,269	\$6,459	\$10,549	\$19,276
% share of one-off cost	11.77%	33.50%	54.72%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$2,357	\$6,709	\$10,959	\$20,025
<i>One-off cost PV - 10% discount sensitivity</i>	\$2,207	\$6,282	\$10,261	\$18,751

A4.18 – 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 \$216²¹¹ 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. \$433) and 1 fork needed per holding enclosure (i.e. \$216).

²¹¹\$1500 buys materials needed for a Koala enclosure (see

<http://www.cooberriepark.com.au/shop_summary.html>). Viewed 29 April 2003.

The estimated one-off cost of providing resting forks under proposed standard S3.3 would be \$5,439, as shown in Table A4.31. 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.

Table A4.31: Estimated one-off cost of providing enclosure furniture for koalas²¹²

Jurisdiction	Cost to large facilities (m5)= (t) ²¹³ *5%*\$433 +(t) ²¹⁴ *5%*\$216	Cost to medium facilities (n5)= (t)*5%*\$433 +(t)*5%*\$216	Total cost to all facilities (o5) = (m5)+(n5)
NSW	\$0	\$0	\$0
VIC	\$106	\$1,930	\$0
QLD	\$0	\$0	\$0
SA	\$106	\$235	\$0
WA	\$106	\$1,836	\$0
TAS	\$106	\$518	\$0
NT	\$106	\$235	\$0
ACT	\$106	\$47	\$0
Total one-off cost (Australia)	\$636	\$4,803	\$0

As shown in Table A4.32, the estimated one-off cost of providing enclosure furniture for koalas over 10 years would be **\$5,083** in present value 2015-16 dollars with 88.3% of the cost incurred by medium size facilities - particularly in VIC and WA.

Table A4.32: Estimated one-off cost of providing enclosure furniture for koalas by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	\$0	\$0	\$0
VIC	\$99	\$1,804	\$1,903
QLD	\$0	\$0	\$0
SA	\$99	\$220	\$319
WA	\$99	\$1,716	\$1,815
TAS	\$99	\$484	\$583
NT	\$99	\$220	\$319
ACT	\$99	\$44	\$143
Total one-off cost (Australia) PV - 7% discount	\$595	\$4,488	\$5,083
% share of one-off cost	11.70%	88.30%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$618	\$4,663	\$5,280

²¹² Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

²¹³ See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.

²¹⁴ See column (t) in Table A2.13 of Appendix 2 for source of estimates for holding enclosures for koalas.

<i>One-off cost PV - 10% discount sensitivity</i>	<i>\$535</i>	<i>\$4,034</i>	<i>\$4,569</i>
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A4.19 – Incremental cost of enclosure height requirements – S3.8 and S3.9 (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 the estimate of a 12.5% non-compliance rate (current rate of non-compliance) 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 \$14.15²¹⁵ a metre²¹⁶.

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 koalas²¹⁷. 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 \$14.15/metre x 29 metres = \$410.22.

The estimated one-off cost of providing for height requirements under Clauses S3.8, and S3.9 would be \$30,047, as shown in Table A4.33.

²¹⁵ Estimate to be confirmed.

²¹⁶ Some parks could comply by repositioning forks rather than adding new fencing.

²¹⁷ Based on data from ZAA census survey 2011.

Table A4.33: Estimated one-off cost of providing for height requirements for koalas²¹⁸

Jurisdiction	Cost to large facilities (t5)= (t) ²¹⁹ *12.5%*\$410.22	Cost to medium facilities (u5)= (t)*12.5%*\$410.22	Total cost to all facilities (v5) = (t5)+(u5)
NSW	\$0	\$0	\$0
VIC	\$390	\$7,672	\$8,061
QLD	\$390	\$8,233	\$8,623
SA	\$390	\$936	\$1,325
WA	\$390	\$7,298	\$7,687
TAS	\$390	\$2,058	\$2,448
NT	\$390	\$936	\$1,325
ACT	\$390	\$187	\$577
Total one-off cost (Australia)	\$2,728	\$27,319	\$30,047

As shown in Table A4.34, the estimated one-off cost of providing for height requirements for koalas over 10 years would be **\$28,081** in present value 2015-16 dollars with 90.92% of the cost incurred by medium size facilities - particularly in VIC, QLD and WA.

Table A4.34: Estimated one-off cost of providing for height requirements for koalas by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	\$0	\$0	\$0
VIC	\$364	\$7,170	\$7,534
QLD	\$364	\$7,695	\$8,059
SA	\$364	\$874	\$1,239
WA	\$364	\$6,820	\$7,184
TAS	\$364	\$1,924	\$2,288
NT	\$364	\$874	\$1,239
ACT	\$364	\$175	\$539
Total one-off cost (Australia) PV - 7% discount	\$2,549	\$25,532	\$28,081
% share of one-off cost	9.08%	90.92%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	<i>\$2,648</i>	<i>\$26,523</i>	<i>\$29,172</i>
<i>One-off cost PV - 10% discount sensitivity</i>	<i>\$2,480</i>	<i>\$24,835</i>	<i>\$27,315</i>

A4.20 – 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

²¹⁸ Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

²¹⁹ See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display and holding enclosures for koalas.

relevant for all jurisdictions except for NSW. Proposed standard S3.7 would be relevant for all jurisdictions except for Qld where existing codes already specify these requirements under the base case for mixed-sex enclosures.

The implication of proposed standard S3.6, is that for the 12.5% of large and medium non-compliant non-walkthrough display enclosures, excluding NSW, this would involve moving or removing fencing at a rate of \$55.69 per hour for 2hrs of labour time (i.e. \$111.38 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:

\$111.38 x 12.5% x non-walk through enclosures in large and medium facilities excluding
NSW

The implication of proposed standard S3.7 is that 50% of non-compliant²²⁰ non-walkthrough display enclosures in medium size facilities, except for QLD would be 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 based on a minimum requirement of 25sqm per male and 3sqm for each additional female = 13.86 additional metres²²¹ for the perimeter). This would entail additional fencing costs of \$52.73 per metre and labour costs of \$111.38 (for 2hrs work) per non-walk through enclosure. This would make the total one-off cost of this requirement for relevant enclosures equal to \$842.28:

\$842.28 x 50% x non-walk-through enclosures in medium size facilities excluding QLD

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 in large and medium facilities apart from NSW, this would involve putting in a shade tree at around \$267.91 (average cost of an advanced 2.5m tree) plus 4hrs labour at \$55.69 given a one-off cost of \$478.84:

\$478.84 x 5% x non-walk through enclosures in large and medium facilities excluding NSW

Therefore, the cost of Clauses S3.6, S3.7 and S5.2 per jurisdiction would be:

- non-compliant enclosures in large and medium facilities:
 - [\$111.38 x 12.5% x no enclosures] + [\$478.84 x 5% x no enclosures] (for standards S3.6 and S5.2 excluding NSW)
- non-compliant enclosures in medium facilities:
 - \$842.28 x 50% x no enclosures (for standard S3.7 excluding QLD)

²²⁰ Non-compliance rate agreed to be 12.5% by the ECF and represents the estimated current level of non-compliance. See Part 1.3.1 of this RIS.

²²¹ Taking the square root of the area and multiplying by 4.

The estimated one-off cost of providing for spatial and shade requirements under Clauses S3.6, S3.7 and S5.2 would be \$46,864, as shown in Table A4.35.

Table A4.35: Estimated one-off cost of providing spatial and shade requirements for koalas²²²

Jurisdiction	Cost to large facilities (w5) = (t) ²²³ {[12.5%*\$111.38] + [5%*\$478.84]} or \$0 for NSW	Cost to medium facilities (x5) = (t){[12.5%*\$111.38] + [5%*\$478.84] + [50%*\$842.28]} or (t)*50%*\$781.87 for NSW or (t){[12.5%*\$111.38] + [5%*\$478.84]} for QLD	Total cost to all facilities (y5) = (w5)+(x5)
NSW	\$0	\$16,846	\$16,846
VIC	\$83	\$13,206	\$13,290
QLD	\$83	\$1,169	\$1,252
SA	\$83	\$1,611	\$1,694
WA	\$83	\$12,562	\$12,646
TAS	\$83	\$3,543	\$3,627
NT	\$83	\$1,611	\$1,694
ACT	\$83	\$322	\$405
Total one-off cost (Australia)	\$583	\$50,870	\$51,453

As shown in Table A4.36, the estimated one-off cost of providing spatial and shade requirements for koalas over 10 years would be **\$48,087** in present value 2015-16 dollars with 99.1% of the cost incurred by medium size facilities - particularly in NSW, VIC, and WA.

Table A4.36: Estimated one-off cost of providing spatial and shade requirements for koalas by state and territory and size of facility over 10 years – 2015-16 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	\$0	\$15,744	\$15,744
VIC	\$78	\$12,343	\$12,420
QLD	\$78	\$1,093	\$1,171
SA	\$78	\$1,505	\$1,583
WA	\$78	\$11,740	\$11,818
TAS	\$78	\$3,311	\$3,389
NT	\$78	\$1,505	\$1,583
ACT	\$78	\$301	\$379
Total one-off cost (Australia) PV - 7% discount	\$545	\$47,542	\$48,087

²²² Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

²²³ See column (t) in Table A2.15 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.

% share of one-off cost	1.13%	98.87%	100.00%
One-off cost PV - 3% discount sensitivity	\$566	\$49,388	\$49,954
One-off cost PV - 10% discount sensitivity	\$530	\$46,245	\$46,775

A4.21 – Incremental cost of weighing and recording requirements – S5.1, S10.6, 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 S10.6, 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 for three years from the occurrence of the handling.

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 koalas²²⁴ 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 \$55.69 (i.e. \$2,673.14 per enclosure).

²²⁴ 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 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.

The estimated annual cost of providing for weighing and recording requirements under Clauses S5.1, S10.6, S10.9, S12.1 and S12.2 would be **\$15,752**, as shown in Table A4.37.

Table A4.37: Estimated annual cost of providing for weighing and recording requirements for koalas²²⁵

Jurisdiction	Cost to large facilities (z5)= (t) ²²⁶ *5%* \$2,673.14	Cost to medium facilities (a6)= (t)*5%*\$2,673.14	Total cost to all facilities (b6) = (z5)+(a6)
NSW	\$0	\$0	\$0
VIC	\$294	\$3,846	\$4,140
QLD	\$294	\$4,127	\$4,421
SA	\$294	\$469	\$763
WA	\$294	\$3,658	\$3,952
TAS	\$294	\$1,032	\$1,326
NT	\$294	\$469	\$763
ACT	\$294	\$94	\$388
Total annual cost (Australia)	\$2,058	\$13,694	\$15,752

As shown in Table A4.38, the estimated 10-year cost of providing for weighing and recording requirements for koalas would be **\$110,638** in present value 2015-16 dollars with 86.93% of the cost incurred by medium size facilities - particularly in VIC, QLD and WA.

Table A4.38: Estimated 10-year cost of providing for weighing and recording requirements for koalas by state and territory and size of facility – 2015-16 dollars

Jurisdiction	Large Facilities	Medium Facilities	Total Facilities
NSW	\$0	\$0	\$0
VIC	\$2,065	\$27,010	\$29,075
QLD	\$2,065	\$28,986	\$31,051
SA	\$2,065	\$3,294	\$5,359
WA	\$2,065	\$25,692	\$27,757
TAS	\$2,065	\$7,247	\$9,312
NT	\$2,065	\$3,294	\$5,359
ACT	\$2,065	\$659	\$2,724

²²⁵ Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

²²⁶ See column (t) in Table A2.13 of Appendix 2 for source of estimates for non-walk through display enclosures for koalas.

Total 10-year cost (Australia) PV - 7% discount	\$14,457	\$96,181	\$110,638
% share of 10-year cost	13.07%	86.93%	100.00%
10-year cost PV - 3% discount sensitivity	\$17,558	\$116,813	\$134,371
10-year cost PV - 10% discount sensitivity	\$12,647	\$84,144	\$96,791

A4.22 – 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.

A4.23 – 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 only²²⁷. Taking 7.5hrs as a typical working day, this would require a total one-off time cost of 11.25hrs per affected facility²²⁸ 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 **\$112.12** 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 \$972, as shown in Table A4.39 and would only affect medium size facilities.

Table A4.39: Estimated one-off cost of developing maintaining and implementing procedures for koala interactive programs

Jurisdiction	Cost to medium facilities (c6)= (c1) ²²⁹ *5%*11.25hrs*\$112.12	Total cost
NSW	\$252	\$252

²²⁷ Based on data collected from the enclosure survey - small facilities did not have any koala enclosures.

²²⁸ See Table A2.15 column (c1) in Appendix 2 for source of these estimates.

²²⁹ See column (c1) in Table A2.15 of Appendix 2 for source of estimates for facilities operating across koalas.

Jurisdiction	Cost to medium facilities (c6)= (c1) ²²⁹ *5%*11.25hrs*\$112.12	Total cost
VIC	\$187	\$187
QLD	\$241	\$241
SA	\$27	\$27
WA	\$192	\$192
TAS	\$65	\$65
NT	\$0	\$0
ACT	\$9	\$9
Total one-off cost (Australia)	\$972	\$972

As shown in Table A4.40, the estimated one-off cost of developing maintaining and implementing procedures for koala interactive programs over 10 years would be **\$909** in present value 2015-16 dollars with all the cost incurred by medium size facilities - particularly in NSW, VIC, QLD and WA.

Table A4.40: 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 – 2015-16 dollars

Jurisdiction	Medium Facilities	Total Facilities
NSW	\$236	\$236
VIC	\$175	\$175
QLD	\$225	\$225
SA	\$25	\$25
WA	\$179	\$179
TAS	\$61	\$61
NT	\$0	\$0
ACT	\$8	\$8
Total one-off cost (Australia) PV - 7% discount	\$909	\$909
% share of one-off cost	100.00%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$944	\$944
<i>One-off cost PV - 10% discount sensitivity</i>	\$884	\$884

A4.24 – 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.

A4.25 – 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 \$544.25²³⁰ 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 minimises the risk of 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 required 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 \$55.69 per hour for 2hrs of labour time (i.e. \$111.38 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

²³⁰ Cost of mulch at around \$3.21 a bag (about a 100 bags) + \$222.76 (i.e. 4 hrs of labour).

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.²³¹ This cost would be estimated to be around \$214.32 of materials and \$222.76 labour (4 hours) per burrow. For a typical enclosure with around 4 wombats the estimated incremental cost would be around \$1,748.35 per enclosure.

The total incremental cost to 5% of non-compliant enclosures would therefore be approximately **\$2,403.98** 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 \$47,855, as shown in Table A4.41.

Table A4.41: Estimated cost of substrate drainage, furniture, spatial and health requirements for wombats

Jurisdiction	Cost to large facilities (d6)= (u) ²³² *5%* \$2403.98	Cost to medium facilities (e6)=(u) *5%*\$2403.98	Cost to small facilities (f6)=(u) *5%*\$2403.98	Total cost to all facilities (g6) = (d6)+(e6)+(f6)
NSW	\$264	\$8,654	\$7,853	\$16,772
VIC	\$264	\$6,225	\$5,649	\$12,138
QLD	\$0	\$0	\$0	\$0
SA	\$264	\$759	\$689	\$1,712
WA	\$264	\$5,921	\$5,373	\$11,559
TAS	\$264	\$1,670	\$1,515	\$3,450
NT	\$264	\$759	\$689	\$1,712
ACT	\$138	\$120	\$253	\$511
Total one-off cost (Australia)	\$1,724	\$24,109	\$22,021	\$47,855

As shown in Table A4.42, the estimated one-off cost of substrate drainage, furniture, spatial and health requirements for wombats over 10 years would be **\$44,724** in present value 2015-16 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 A4.42: 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 – 2015-16 dollars

Jurisdiction	Large facilities	Medium facilities	Small facilities	Total Facilities
NSW	\$247	\$8,088	\$7,339	\$15,675
VIC	\$247	\$5,818	\$5,279	\$11,344
QLD	\$0	\$0	\$0	\$0

²³¹ Fauna first aid, A Guide to the Care of Bare-nosed wombats (See <www.fourthcrossingwildlife.com>). Viewed 1 May 2013.

²³² 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
SA	\$247	\$709	\$644	\$1,600
WA	\$247	\$5,534	\$5,022	\$10,803
TAS	\$247	\$1,561	\$1,416	\$3,224
NT	\$247	\$709	\$644	\$1,600
ACT	\$129	\$112	\$236	\$478
Total one-off cost (Australia) PV - 7% discount	\$1,612	\$22,532	\$20,580	\$44,724
% share of one-off cost	3.60%	50.38%	46.02%	100.00%
<i>One-off cost PV - 3% discount sensitivity</i>	\$1,674	\$23,407	\$21,380	\$46,461
<i>One-off cost PV - 10% discount sensitivity</i>	\$1,568	\$21,918	\$20,019	\$43,504

A4.26 – Unquantifiable minor cost of transport requirements – S11.1, S11.2 and S11.3 (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. Under proposed standard S11.3 an operator sending a young-at-foot wombat, i.e. a wombat that has left the pouch but is still dependent on its mother, must ensure the wombat not transported in the same box as its mother.

These clauses would result in 5% of non-compliant facilities having to obtain both additional containers and ones that would meet spatial requirements plus additional freight charges. However, given that the population and frequency of wombat transport is unknown – these clauses remain unquantifiable.

A4.27 – 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 A4.43 and equal to **\$0.89m**.

Table A4.43: Summary of incremental quantifiable costs of taxon standards (Option B) – 2015-16 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	\$0.006	\$0.010	\$0.065	\$0.080	\$0.083	\$0.078
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0.000	\$0.001	\$0.003	\$0.004	\$0.004	\$0.004
Fencing requirements (macropods)	S3.6	\$0.009	\$0.015	\$0.090	\$0.114	\$0.118	\$0.111
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0.000	\$0.000	\$0.001	\$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%
Minimum spatial requirements (macropods)	S3.10	\$0.000	\$0.000	\$0.002	\$0.002	\$0.003	\$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)	S8.1	\$0.000	\$0.007	\$0.007	\$0.015	\$0.015	\$0.014
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$0.000	\$0.002	\$0.011	\$0.013	\$0.014	\$0.013
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$0.025	\$0.128	\$0.092	\$0.245	\$0.254	\$0.238
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	\$0.001	\$0.003	\$0.001	\$0.005	\$0.006	\$0.005
Providing access to fresh water (crocodiles)	S4.2	\$0.006	\$0.029	\$0.021	\$0.055	\$0.067	\$0.048
Providing for appropriate enclosure height (ratites)	S3.2	\$0.006	\$0.040	\$0.044	\$0.090	\$0.094	\$0.088
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$0.002	\$0.006	\$0.011	\$0.019	\$0.020	\$0.019
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	\$0.003	\$0.026	\$0.000	\$0.028	\$0.029	\$0.027
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0.001	\$0.048	\$0.000	\$0.048	\$0.050	\$0.047
Weighing and recording requirements (koalas)	S5.1, S10.6 S10.9, S12.1, S12.2	\$0.014	\$0.096	\$0.000	\$0.111	\$0.134	\$0.097
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	\$0.002	\$0.023	\$0.021	\$0.045	\$0.046	\$0.044
Total quantifiable incremental cost of taxon standards		\$0.075	\$0.438	\$0.371	\$0.885	\$0.948	\$0.844
Percentage of quantifiable incremental cost		8.46%	49.55%	42.00%	100.00%		

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option B is presented in Table A4.44 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 macropods²³³; fencing requirements for macropods²³⁴; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; weighing and recording requirements for koalas²³⁵.

²³³ Except for NSW.

²³⁴ Except for NSW.

²³⁵ Except for NSW.

Table A4.44: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) – 2015-16 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	\$0.00 0	\$0.00 0	\$0.05 1	\$0.00 7	\$0.00 0	\$0.01 4	\$0.00 7	\$0.00 2	\$0.08 0
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0.00 0	\$0.00 2	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 4
Fencing requirements (macropods)	S3.6	\$0.00 0	\$0.00 8	\$0.00 0	\$0.01 0	\$0.06 4	\$0.01 9	\$0.01 0	\$0.00 3	\$0.11 4
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 2
Minimum spatial requirements (macropods)	S3.10	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 2
Providing for elevated positions (macropods)	S5.1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 1	\$0.00 1	\$0.00 0	\$0.00 3
Animal collection management plans and procedures (macropods)	S8.1	\$0.00 2	\$0.00 0	\$0.00 2	\$0.00 3	\$0.00 1	\$0.00 0	\$0.00 2	\$0.00 3	\$0.01 5
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$0.00 4	\$0.00 2	\$0.00 5	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.01 3
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$0.08 0	\$0.05 8	\$0.00 8	\$0.01 0	\$0.05 6	\$0.01 8	\$0.01 0	\$0.00 5	\$0.24 5
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	\$0.00 2	\$0.00 1	\$0.00 1	\$0.00 0	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 5
Providing access to fresh water (crocodiles)	S4.2	\$0.01 8	\$0.01 3	\$0.00 0	\$0.00 2	\$0.01 3	\$0.00 4	\$0.00 2	\$0.00 1	\$0.05 5
Providing for appropriate enclosure height (ratites)	S3.2	\$0.03 1	\$0.02 3	\$0.00 0	\$0.00 4	\$0.02 1	\$0.00 7	\$0.00 4	\$0.00 1	\$0.09 0

Category of incremental cost	Std/s	NSW \$AUD	VIC \$AUD	QLD \$AUD	SA \$AUD	WA \$AUD	TAS \$AUD	NT \$AUD	ACT \$AUD	AUS \$AUD
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$0.00 6	\$0.00 5	\$0.00 0	\$0.00 1	\$0.00 4	\$0.00 2	\$0.00 1	\$0.00 0	\$0.01 9
Enclosure furniture requirements (koalas)	S3.3	\$0.00 0	\$0.00 2	\$0.00 0	\$0.00 0	\$0.00 2	\$0.00 1	\$0.00 0	\$0.00 0	\$0.00 5
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	\$0.00 0	\$0.00 8	\$0.00 8	\$0.00 1	\$0.00 7	\$0.00 2	\$0.00 1	\$0.00 1	\$0.02 8
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0.01 6	\$0.01 2	\$0.00 1	\$0.00 2	\$0.01 2	\$0.00 3	\$0.00 2	\$0.00 0	\$0.04 8
Weighing and recording requirements (koalas)	S5.1, S10.6, S10.9, S12.1, S12.2	\$0.00 0	\$0.02 9	\$0.03 1	\$0.00 5	\$0.02 8	\$0.00 9	\$0.00 5	\$0.00 3	\$0.11 1
Procedure requirements (koalas)	S10.1	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 0	\$0.00 1
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	\$0.01 6	\$0.01 1	\$0.00 0	\$0.00 2	\$0.01 1	\$0.00 3	\$0.00 2	\$0.00 0	\$0.04 5
Total quantifiable incremental cost of taxon standards		\$0.17 5	\$0.17 4	\$0.10 8	\$0.04 9	\$0.22 4	\$0.08 5	\$0.04 7	\$0.02 3	\$0.88 5
Percentage of quantifiable incremental cost		19.77 %	19.71 %	12.20 %	5.49%	25.35 %	9.65%	5.29%	2.55%	100.0 0%

A summary of the 10-year quantifiable costs of the proposed taxon standards under Option C1 is presented in Table A4.45 and equal to **\$1.00m**.

Table A4.45: Summary of incremental quantifiable costs of variation of taxon standards (Option C1) – 2015-13 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	Amended S3.2	\$0.014	\$0.024	\$0.163	\$0.200	\$0.243	\$0.176

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%
(macropods)							
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0.000	\$0.001	\$0.003	\$0.004	\$0.004	\$0.004
Fencing requirements (macropods)	S3.6	\$0.009	\$0.015	\$0.090	\$0.114	\$0.118	\$0.111
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0.000	\$0.000	\$0.001	\$0.002	\$0.002	\$0.002
Minimum spatial requirements (macropods)	S3.10	\$0.000	\$0.000	\$0.002	\$0.002	\$0.003	\$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)	S8.1	\$0.000	\$0.007	\$0.007	\$0.015	\$0.015	\$0.014
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$0.000	\$0.002	\$0.011	\$0.013	\$0.014	\$0.013
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$0.025	\$0.128	\$0.092	\$0.245	\$0.254	\$0.238
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	\$0.001	\$0.003	\$0.001	\$0.005	\$0.006	\$0.005
Providing access to fresh water (crocodiles)	S4.2	\$0.006	\$0.029	\$0.021	\$0.055	\$0.067	\$0.048
Providing for appropriate enclosure height (ratites)	S3.2	\$0.006	\$0.040	\$0.044	\$0.090	\$0.094	\$0.088
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$0.002	\$0.006	\$0.011	\$0.019	\$0.020	\$0.019
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	\$0.003	\$0.026	\$0.000	\$0.028	\$0.029	\$0.027
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0.001	\$0.048	\$0.000	\$0.048	\$0.050	\$0.047
Weighing and recording requirements (koalas)	S5.1, S10.6 S10.9, S12.1, S12.2	\$0.014	\$0.096	\$0.000	\$0.111	\$0.134	\$0.097
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	\$0.002	\$0.023	\$0.021	\$0.045	\$0.046	\$0.044
Total quantifiable incremental cost of taxon standards		\$0.083	\$0.453	\$0.469	\$1.005	\$1.107	\$0.942
Percentage of quantifiable incremental cost		8.27%	45.05%	46.69%	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:

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enclosure, furniture and spatial requirements for crocodiles; alternatives to fox-proofing enclosures for macropods²³⁶; fencing requirements for macropods²³⁷; enclosure furniture and spatial requirements for crocodiles; providing for appropriate enclosure height for ratites; and weighing and recording requirements for koalas²³⁸.

Table A4.46: Summary of 10-year incremental quantifiable costs of taxon standards by state and territory (Option C1) – 2015-16 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	0.127	0.017	0.000	0.034	0.017	0.006	0.200
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.004
Fencing requirements (macropods)	S3.6	0.000	0.008	0.000	0.010	0.064	0.019	0.010	0.003	0.114
Furniture for rock wallaby enclosures (macropods)	S3.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002
Minimum spatial requirements (macropods)	S3.10	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)	S8.1	0.002	0.000	0.002	0.003	0.001	0.000	0.002	0.003	0.015
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	0.004	0.002	0.005	0.000	0.001	0.000	0.000	0.000	0.013
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	0.080	0.058	0.008	0.010	0.056	0.018	0.010	0.005	0.245
Holding enclosure requirements (crocodiles)	S3.7, S3.8, S3.9	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.005
Providing access to fresh water (crocodiles)	S4.2	0.018	0.013	0.000	0.002	0.013	0.004	0.002	0.001	0.055
Providing for appropriate enclosure height (ratites)	S3.2	0.031	0.023	0.000	0.004	0.021	0.007	0.004	0.001	0.090

²³⁶ Except for NSW.

²³⁷ Except for NSW.

²³⁸ 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
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	0.006	0.005	0.000	0.001	0.004	0.002	0.001	0.000	0.019
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	0.008	0.008	0.001	0.007	0.002	0.001	0.001	0.028
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	0.016	0.012	0.001	0.002	0.012	0.003	0.002	0.000	0.048
Weighing and recording requirements (koalas)	S5.1, S10.6 S10.9, S12.1, S12.2	0.000	0.029	0.031	0.005	0.028	0.009	0.005	0.003	0.111
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	0.016	0.011	0.000	0.002	0.011	0.003	0.002	0.000	0.045
Total quantifiable incremental cost of taxon standards		0.175	0.174	0.184	0.059	0.224	0.106	0.057	0.026	1.005
Percentage of quantifiable incremental cost		17.4%	17.3%	18.3%	5.8%	22.3%	10.5%	5.7%	2.6%	100%

A4.28 – 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 A4.47 to A4.49 incurred by small facilities, medium facilities and large facilities, respectively. As shown in Table A4.47 the average annualised cost for a small facility is estimated to be \$213 in present value dollars. For medium facilities the average annualised cost is estimated to be \$1,538 (see Table A4.48) and for large facilities it is \$935 (see Table A4.49).

Table A4.47: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for small facilities – 2015-16 dollars

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
No. small		49	35	38	4	34	9	4	1	175

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
facilities										
Fox proofing enclosures (macropods)	S3.2	\$0	\$0	\$43,438	\$4,936	\$0	\$10,859	\$4,936	\$987	\$65,157
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0	\$1,177	\$0	\$143	\$1,119	\$316	\$143	\$29	\$2,927
Fencing requirements (macropods)	S3.6	\$0	\$7,000	\$0	\$6,830	\$53,271	\$15,025	\$6,830	\$1,366	\$90,322
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0	\$0	\$0	\$108	\$839	\$237	\$108	\$22	\$1,313
Minimum spatial requirements (macropods)	S3.10	\$0	\$0	\$0	\$89	\$698	\$197	\$89	\$1,074	\$2,148
Providing for elevated positions (macropods)	S5.1	\$0	\$0	\$0	\$430	\$0	\$947	\$430	\$86	\$1,894
Animal collection management plans and procedures (macropods)	S8.1	\$1,838	\$300	\$59	\$2,197	\$1,273	\$208	\$59	\$1,540	\$7,474
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$3,545	\$1,407	\$4,721	\$304	\$659	\$279	\$380	\$76	\$11,371
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$31,854	\$22,913	\$3,111	\$2,794	\$21,795	\$6,147	\$2,794	\$559	\$91,967
Holding enclosure requirements (ratites)	S3.7, S3.8, S3.9	\$419	\$301	\$197	\$37	\$286	\$81	\$37	\$7	\$1,365
Providing access to fresh water (crocodiles)	S4.2	\$7,376	\$5,306	\$0	\$647	\$5,047	\$1,423	\$647	\$129	\$20,575
Providing for appropriate enclosure height (ratites)	S3.2	\$15,720	\$11,307	\$0	\$1,379	\$10,756	\$3,034	\$1,379	\$276	\$43,850
Providing additional furniture and spatial	S3.3, S3.4, S3.5	\$3,782	\$2,720	\$0	\$332	\$2,587	\$730	\$332	\$66	\$10,549

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
requirements (ratites)										
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
Weighing and recording requirements (koalas)	S5.1, S10.6, 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	\$7,339	\$5,279	\$0	\$644	\$5,022	\$1,416	\$644	\$236	\$20,580
Total cost taxon standards		\$71,872	\$57,710	\$51,526	\$20,870	\$103,353	\$40,899	\$18,808	\$6,454	\$371,492
Average 10-year cost per facility		\$1,467	\$1,637	\$1,362	\$4,856	\$3,083	\$4,325	\$4,376	\$7,507	\$2,129
Average annualised cost per facility		\$147	\$164	\$136	\$486	\$308	\$433	\$438	\$751	\$213

Table A4.48: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for medium facilities – 2015-16 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	\$6,383	\$725	\$0	\$1,596	\$725	\$145	\$9,574
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0	\$288	\$0	\$35	\$274	\$77	\$35	\$7	\$717

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
Fencing requirements (macropods)	S3.6	\$0	\$1,143	\$0	\$1,115	\$8,697	\$2,453	\$1,115	\$223	\$14,746
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0	\$0	\$0	\$20	\$154	\$43	\$20	\$4	\$241
Minimum spatial requirements (macropods)	S3.10	\$0	\$0	\$0	\$16	\$128	\$36	\$16	\$3	\$201
Providing for elevated positions (macropods)	S5.1	\$0	\$0	\$0	\$79	\$0	\$174	\$79	\$16	\$348
Animal collection management plans and procedures (macropods)	S8.1	\$300	\$59	\$2,197	\$1,273	\$208	\$59	\$1,540	\$1,770	\$7,407
Developing, maintaining and implementing procedures (crocodiles)	S1.2, S5.4, S6.2	\$579	\$153	\$771	\$50	\$108	\$46	\$62	\$10	\$1,778
Enclosure furniture and spatial requirements (crocodiles)	S3.3, S3.4, S3.5, S3.6	\$44,206	\$31,797	\$4,317	\$3,878	\$30,246	\$8,531	\$3,878	\$776	\$127,628
Holding enclosure requirements (ratites)	S3.7, S3.8, S3.9	\$974	\$701	\$458	\$85	\$666	\$188	\$85	\$17	\$3,175
Providing access to fresh water (crocodiles)	S4.2	\$10,236	\$7,363	\$0	\$898	\$7,004	\$1,975	\$898	\$180	\$28,554
Providing for appropriate enclosure height (ratites)	S3.2	\$14,436	\$10,384	\$0	\$1,266	\$9,878	\$2,786	\$1,266	\$253	\$40,270
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$2,315	\$1,665	\$0	\$203	\$1,584	\$447	\$203	\$41	\$6,459
Enclosure furniture requirements (koalas)	S3.3	\$0	\$1,804	\$0	\$220	\$1,716	\$484	\$220	\$44	\$4,488
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	\$0	\$7,170	\$7,695	\$874	\$6,820	\$1,924	\$874	\$175	\$25,532

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$15,744	\$12,343	\$1,093	\$1,505	\$11,740	\$3,311	\$1,505	\$301	\$47,542
Weighing and recording requirements (koalas)	S5.1, S10.6, S10.9, S12.1, S12.2	\$0	\$27,010	\$28,986	\$3,294	\$25,692	\$7,247	\$3,294	\$659	\$96,181
Procedure requirements (koalas)	S10.1	\$236	\$175	\$225	\$25	\$179	\$61	\$0	\$8	\$909
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	\$8,088	\$5,818	\$0	\$709	\$5,534	\$1,561	\$709	\$112	\$22,532
Total cost taxon standards		\$97,114	\$107,872	\$52,124	\$16,272	\$110,629	\$32,998	\$16,526	\$4,744	\$438,281
Average 10-year cost per facility		\$12,139	\$18,746	\$8,440	\$23,188	\$20,211	\$21,374	\$23,550	\$33,804	\$15,383
Average annualised cost per facility		\$1,214	\$1,875	\$844	\$2,319	\$2,021	\$2,137	\$2,355	\$3,380	\$1,538

Table A4.49: Summary of distribution 10-year incremental quantifiable costs of taxon standards by state and territory (Option B) for large facilities – 2015-16 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	\$1,102	\$1,102	\$0	\$1,102	\$1,102	\$1,102	\$5,512
Exclusion areas for walk through enclosures (macropods)	S3.3, S3.4	\$0	\$50	\$0	\$50	\$50	\$50	\$50	\$50	\$300
Fencing requirements (macropods)	S3.6	\$0	\$209	\$0	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$8,550
Furniture for rock wallaby enclosures (macropods)	S3.9	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Minimum spatial requirements (macropods)	S3.10	\$0	\$0	\$0	\$28	\$28	\$28	\$28	\$28	\$141

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
Providing for elevated positions (macropods)	S5.1	\$0	\$0	\$0	\$135	\$0	\$135	\$135	\$135	\$541
Animal collection management plans and procedures (macropods)	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	\$3,510	\$3,510	\$555	\$3,510	\$3,510	\$3,510	\$3,510	\$3,510	\$25,128
Holding enclosure requirements (ratites)	S3.7, S3.8, S3.9	\$110	\$110	\$67	\$110	\$110	\$110	\$110	\$110	\$839
Providing access to fresh water (crocodiles)	S4.2	\$813	\$813	\$0	\$813	\$813	\$813	\$813	\$813	\$5,690
Providing for appropriate enclosure height (ratites)	S3.2	\$866	\$866	\$0	\$866	\$866	\$866	\$866	\$866	\$6,063
Providing additional furniture and spatial requirements (ratites)	S3.3, S3.4, S3.5	\$324	\$324	\$0	\$324	\$324	\$324	\$324	\$324	\$2,269
Enclosure furniture requirements (koalas)	S3.3	\$0	\$99	\$0	\$99	\$99	\$99	\$99	\$99	\$595
Providing for appropriate enclosure height (koalas)	S3.8, S3.9	\$0	\$364	\$364	\$364	\$364	\$364	\$364	\$364	\$2,549
Spatial and shade requirements (koalas)	S3.6, S3.7, S5.2	\$0	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$545
Weighing and recording requirements (koalas)	S5.1, S10.6, S10.9, S12.1, S12.2	\$0	\$2,065	\$2,065	\$2,065	\$2,065	\$2,065	\$2,065	\$2,065	\$14,457
Procedure	S10.1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Jurisdiction	Std/s	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total Australia
requirements (koalas)										
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	\$247	\$247	\$0	\$247	\$247	\$247	\$247	\$129	\$1,612
Total cost taxon standards		\$5,871	\$8,736	\$4,232	\$11,462	\$10,224	\$11,462	\$11,462	\$11,343	\$74,792
Average 10-year cost per facility		\$5,871	\$8,736	\$4,232	\$11,462	\$10,224	\$11,462	\$11,462	\$11,343	\$9,349
Average annualised cost per facility		\$587	\$874	\$423	\$1,146	\$1,022	\$1,146	\$1,146	\$1,134	\$935

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 are sufficient to justify 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: In your experience, to what extent do the existing codes of practice and related regulations create uncertainty for industry? 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 sufficient 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: Do you have any evidence of poor risk management practices related to the environment or agriculture in connection with exhibited animals? If so, what is the extent of this problem?

Public consultation question 7: Do you think that the potential risks to the environment and agriculture are sufficient 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: Do you have evidence of the percentage of exhibited animal businesses that operate in more than one jurisdiction? Please provide percentage estimates for various combinations of states and territories.

Public consultation question 10: 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? Would the combination of costs and benefits under Option A be 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: 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? Would the combination of costs and benefits under Option B be superior to other options?

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

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