Chapter 1
Introduction

Conduct of the inquiry

1.1 On 17 November 2010 the Senate referred the matter of the status, health and sustainability of Australia's koala population to the Environment and Communications References Committee (the committee) for inquiry and report by 1 June 2011.[1] The inquiry formally commenced on 8 February 2011. The reporting date was subsequently extended by the Senate to 24 August and later to 20 September 2011.

1.2 The terms of reference required that the committee have regard to:

(a) the iconic status of the koala and the history of its management;

(b) estimates of koala populations and the adequacy of current counting methods;

(c) knowledge of koala habitat;

(d) threats to koala habitat such as logging, land clearing, poor management, attacks from feral and domestic animals, disease, roads and urban development;

(e) the listing of the koala under the *Environment Protection and Biodiversity Conservation Act 1999*;

(f) the adequacy of the National Koala Conservation and Management Strategy;

(g) appropriate future regulation for the protection of koala habitat;

(h) interaction of state and federal laws and regulations; and

(i) any other related matters.

1.3 The committee advertised the inquiry on its website and wrote to relevant organisations inviting submissions by 8 February 2011. The inquiry was advertised nationally in *The Australian* on 8 December 2010 and 2 February 2011. The committee received 101 submissions (see Appendix 1).[2]

1.4 The committee also received two petitioning documents. The first, received from the Koala Preservation Society of NSW, was signed by 2010 petitioners and called for the protection of existing koala habitat. The second, received from Ms Meghan Halverson, was signed by 427 petitioners and called for the species to be listed as 'endangered' or 'vulnerable'. The text of these two petitions is reproduced in Appendix 2.

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1 *Journals of the Senate*, 17 November 2010, pp 318–319.

2 Public submissions are available on the committee's website at: www.aph.gov.au/Senate/committee/ec_ctte/koalas/submissions.htm.

1.5 The committee held three public hearings: the first in Brisbane on 3 May, the second in Canberra on 19 May and the third in Melbourne on 1 August 2011 (see Appendix 3).[3]

1.6 The committee also received a large amount of evidence in the form of answers to questions on notice and additional information.[4] In this regard the committee notes the disappointing contribution provided by the Department of Sustainability, Environment, Water, Population and Communities. Departmental officials gave evidence to the committee on 19 May 2011. Responses were to be returned three weeks later, on 9 June 2011. The department's answers were provided to the committee over two months late, on 12 August 2011. Several of these late responses were evasive or did not attempt to address the question which was asked.[5] The committee finds the department's performance in this regard unsatisfactory and expects much higher standards in future.

Accessibility trial

1.7 The committee used this inquiry to trial online accessibility arrangements of committee documents for people with vision impairment. Details about the trial, including a report on the trial's outcomes, can be found on the committee's website at: www.aph.gov.au/Senate/committee/ec_ctte/koalas/submissions_accessibility_trial/index.htm.

Report structure

1.8 The remainder of this chapter provides background species information on the Koala and highlights the iconic status of this unique Australian symbol.

1.9 Chapter 2 of this report examines the available information on Australia's koala population, including counting methodologies, historical and current estimates and data deficiencies;

1.10 Chapter 3 considers the various threats to koala habitat, including urban development, forestry, mining, drought, bushfire and climate change, while chapter 4 considers other threats such as disease, dog attacks and motor vehicles.

1.11 Chapter 5 explores the status of the koala under state and federal environmental protection laws, including the current assessment of whether to list the koala as a threatened species under the Environment Protection and Biodiversity Conservation Act; and

1.12 Finally, chapter 6 examines the national strategy designed to conserve and manage koala numbers – the National Koala Conservation and Management Strategy.

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3 Transcripts from the public hearings are available on the committee's website at: www.aph.gov.au/Senate/committee/ec_ctte/koalas/hearings/index.htm.

4 Answers to questions on notice and additional information are available on the committee's website at: www.aph.gov.au/Senate/committee/ec_ctte/koalas/submissions.htm.

5 See for example Department of Sustainability, Environment, Water, Populations and Communities, responses to questions on notice, 19 May 2011 (received 12 August 2011), pp 1 and 7 at www.aph.gov.au/Senate/committee/ec_ctte/koalas/submissions.htm.

Acknowledgements

1.13 The committee would like to thank all the individuals, organisations and local, state and federal governments and government departments that contributed to this inquiry. The inquiry generated very strong public interest with many supporters of koala advocacy organisations filling the public gallery at each hearing.

1.14 The committee also notes that the majority of submissions came from individuals and community groups who are passionate about the koala's wellbeing. The committee acknowledges the significant commitment and effort made by these individuals and organisations in submitting evidence and attending the public hearings.

Species information[6]

1.15 The koala is a tree-dwelling, medium sized marsupial with a stocky body, large rounded ears, sharp claws and variable but predominantly grey-coloured fur.

1.16 Koalas in the south of Australia are larger than individuals in the north, with a gradient in body weight from north to south occurring across the koala's range. The average weight of males is 6.5 kilograms in Queensland, compared with 12 kilograms in Victoria. Koalas in the north tend to have shorter, silver-grey fur, whereas those in the south have longer, thicker, brown-grey fur. Males are also generally larger than females.

Genetic variation

1.17 The species is conventionally accepted as *Phascolarctos cinereus* and is the only species in the family Phascolarctidae.

1.18 Three subspecies of koala were proposed by early taxonomists, based on differences in the species' morphology across its geographical range: *Phascolarctos cinereus adjustus* in Queensland, *P. c. cinereus* in New South Wales and *P. c. victor* in Victoria.

1.19 According to the Threatened Species Scientific Committee (TSSC), the state border subspecies boundaries are unlikely to represent natural barriers to koala dispersal.

1.20 Studies by scientists have found relatively low levels of genetic differentiation among the proposed subspecies, suggesting that physical variations across the species' range may reflect different adaptations to different climates rather than separate subspecies.[7] Southern koalas are able to be distinguished from northern koalas by

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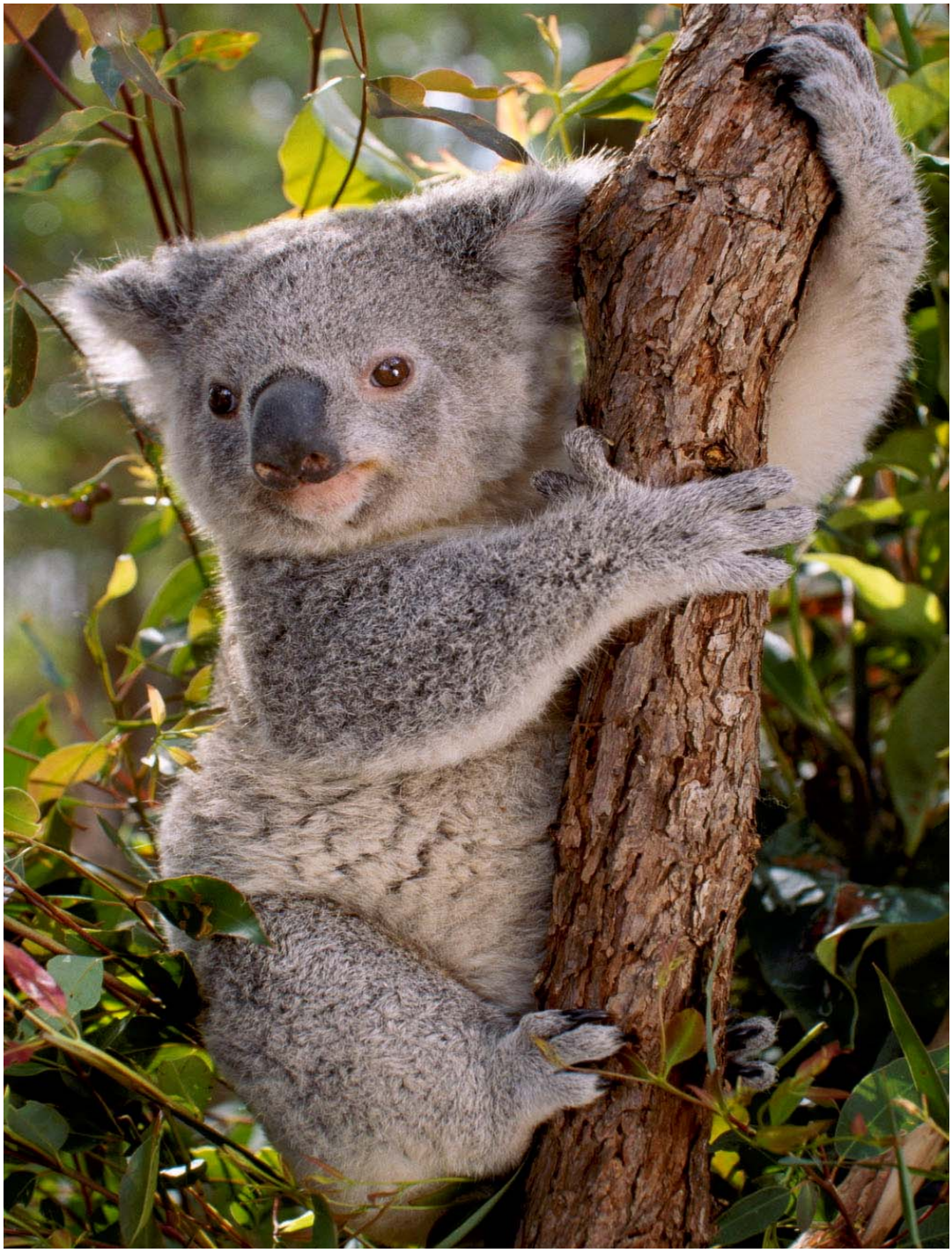
6 Unless otherwise referenced, the scientific information contained in this section is sourced from the Threatened Species Scientific Committee, 'Advice to the Minister for Environment, Protection, Heritage and the Arts from the Threatened Species Scientific Committee on Amendment to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999*', pp 1–8.

7 Natural Resource Management Ministerial Council, *National Koala Conservation and Management Strategy 2009–2014*, Department of Environment, Heritage and the Arts, Canberra, 2009, p. 17.

physical features such as fur colour and size. Some regional variation in the species is also apparent.

1.21 This was a matter of considerable contention during the inquiry which is discussed further in chapter 2.

Picture 1.1—The koala



Source: Queensland Department of Environment and Resource Management. Reproduced with the permission of the Queensland Department of Environment and Resource Management.

Life expectancy and reproduction cycle

1.22 In the wild, koalas are estimated to live to 15 years for females and more than 12 years for males. The life expectancy of koalas may be shortened due to the presence of disease and other threats.[8]

1.23 Female koalas can potentially produce up to one offspring each year, with births occurring between October and May. Twins are occasionally recorded.[9] The gestation period of koalas is 35 days.[10] The newly-born koala lives in its mother's pouch for between 6 to 8 months. The young joey then leaves the pouch and rides on its mother's back. Young koalas are independent from 12 months of age.

Picture 1.2—Koala with joey, Adelaide Hills, South Australia

Source: Australian Koala Foundation. Reproduced with the permission of the Australian Koala Foundation.

8 For further information on the threat of disease for koalas see chapter 4.

9 Dr Jon Hangar, Private capacity, *Committee Hansard*, 3 May 2011, p. 18.

10 Bill Phillips, *Koalas: The little Australians we'd all hate to lose*, Australian Government Publishing Service, Canberra, 1990, p. 27.

Home range

1.24 The koala is not territorial and the home ranges of individuals extensively overlap. Individuals tend to use the same set of trees, but generally not at the same time. Home ranges are variable depending on the location, with those in poorer habitats being larger than those in high quality habitats. On average, males usually have larger home ranges than do females.

1.25 Koalas spend a lot of time alone, devoting little time to social interactions. They do not tend to move much, under most conditions changing trees only a few times a day. There is little evidence of longer movements by individuals, though dispersing individuals, mostly young males, may occasionally cover distances of several kilometres over land with little vegetation.

Diet

1.26 Koalas have complex foraging strategies. The koala is a leaf-eating specialist with its diet mainly restricted to foliage of *Eucalyptus* species.[11] Koalas have been observed sitting in or eating the leaves of up to 120 species of eucalypt. Koalas may also consume foliage of related trees including *Corymbia*, *Angophora* and *Lophostemon* and at times supplement their diet with other species such as *Leptospermum* and *Melaleuca*. Preference between tree species may be influenced by factors including region, season, leaf chemistry, elevation, temperature, water content and soil nutrients. Koalas also have a strong preference for individual trees within a species.

1.27 When koala populations reach high densities, their browsing preferences can change the species composition of the local eucalypt community. This is apparent in some areas of Victoria and South Australia where koalas have been introduced and become abundant.

Bark-eating

1.28 The committee heard evidence from Mr Chris Allen, a NSW Parks and Wildlife service ecologist who appeared before the committee in a personal capacity, about the very recent discovery that a koala population in Bredbo, New South Wales eats bark as part of their diet. According to Mr Allen, landowners in the area have been noticing chew marks in trees for over twenty years. A recent study was conducted using infra-red movement sensitive cameras to record nocturnal bark chewing.[12]

1.29 The koalas were observed to chew through to the 'cambium' layer, eating bark up the full height of the tree. The koalas would chew the bark and would eat and digest some it. Mr Allen told the committee that it is currently theorised that the koalas chew the bark of the trees to supplement their diet:

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11 For a list of species considered to be primary or secondary koala food trees see Australian Koala Foundation, *Submission 25*, pp 17–20.

12 Mr Chris Allen, Private capacity, *Committee Hansard*, 19 May 2011, p. 17.

> Our best guess is that within the sap flow of the tree there is a mix of nutrients, minerals and moisture and probably they are accessing one or a suite of nutrients, minerals and moisture to assist with their digestive process.[13]

1.30 The chewing is strategic on the part of the koala, as they repeatedly target a specific tree species. On some occasions one specific tree would be repeatedly targeted for chewing. Mr Allen told the committee that the frequent chewing of a tree places the tree in a state of stress, changing the chemical content of the tree. The tree then becomes more nutritious, making it an important part of their diet.[14] In some instances trees have died as a result of stress from chewing.

1.31 The bark-chewing phenomenon is currently only recorded on the Monaro plains in NSW, though is speculated to be more wide-spread.[15]

Habitat

1.32 Koalas inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by eucalypt species. The distribution of koalas is also affected by altitude (up to 800 metres above sea level), temperature and leaf moisture. A discussion on the threats posed to koala habitat is contained in Chapter 3.

Species range – historic and current

1.33 The koala is endemic to Australia, with its range extending from the south east corner of South Australia to the north coast of Queensland and to the west of the Great Dividing Range (see Figure 1). The range extends over 22° of latitude and 18° of longitude.[16]

1.34 According to the *National Koala Conservation and Management Strategy 2009–2014*, prior to European settlement the koalas' natural range occurred throughout:

> ...the broad band of eucalypt forest and woodland communities extending from north-eastern Queensland to the south-eastern corner of South Australia.[17]

1.35 The current distribution of Australia's koala population is scattered throughout a similarly large region of the east-coast of the continent. Their range extends from the

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13 Mr Chris Allen, Private capacity, *Committee Hansard*, 19 May 2011, p. 17.

14 Mr Chris Allen, Private capacity, *Committee Hansard*, 19 May 2011, p. 17.

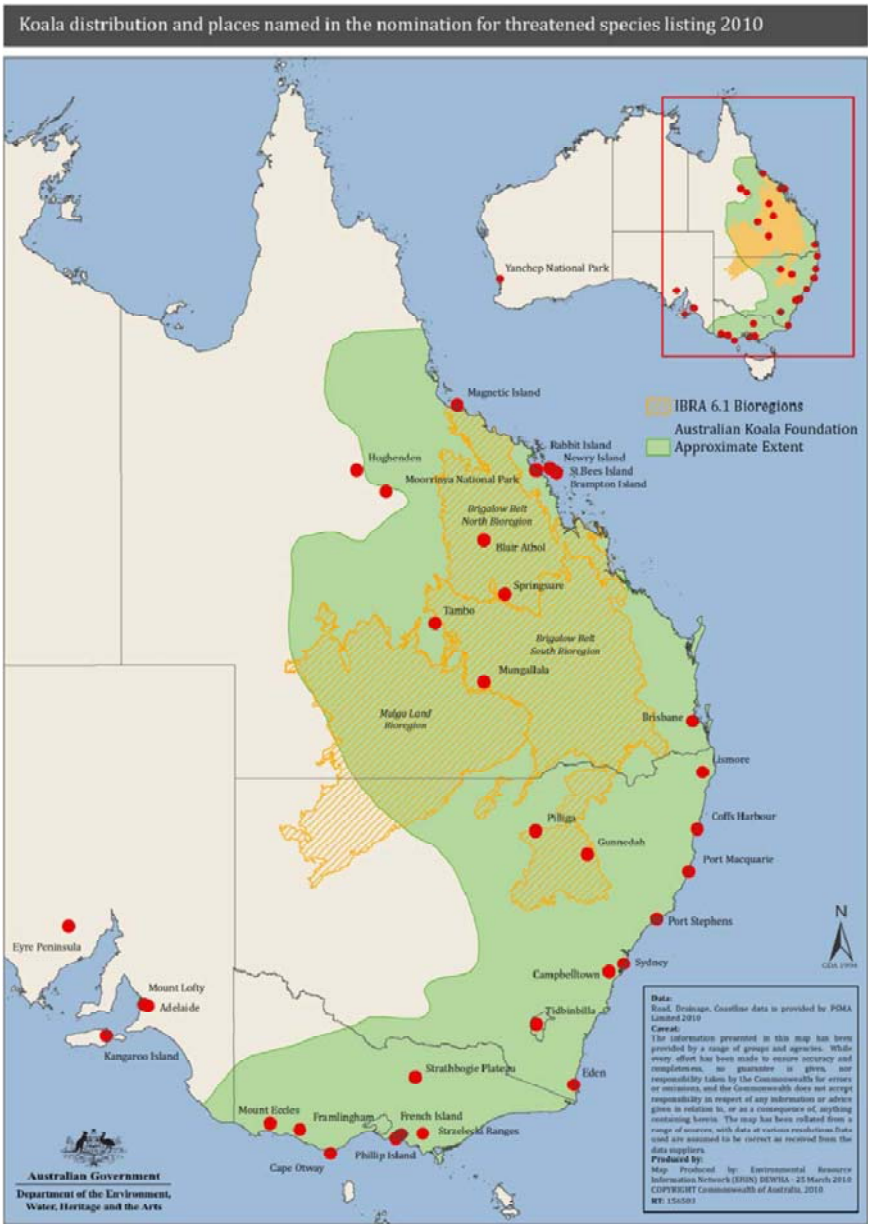
15 Mr Chris Allen, Private capacity, *Committee Hansard*, 19 May 2011, p. 17.

16 Threatened Species Scientific Committee, 'Advice to the Minister for Environment, Protection, Heritage and the Arts from the Threatened Species Scientific Committee on Amendment to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999*', p. 2, www.environment.gov.au/biodiversity/threatened/species/pubs/64971-listing-advice.pdf (accessed 28 June 2011).

17 National Resource Management Ministerial Council, *National Koala Conservation and Management Strategy 2009–2014*, December 2009, p. 12.

south-east corner of South Australia, through Victoria, New South Wales and up to the north-east of Queensland. Figure 1 illustrates the approximate extent of the koala's distribution across Australia, an area encompassing more than one million square kilometres.[18]

Figure 1.1—Distribution of the koala



Source: Threatened Species Scientific Committee, 'Advice to the Minister for Environment, Protection, Heritage and the Arts from the Threatened Species Scientific Committee on Amendment to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999*', p. 38.

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18 Threatened Species Scientific Committee, *Advice to the Minister for Environment, Protection, Heritage and the Arts from the Threatened Species Scientific Committee (the Committee) on Amendment to the list of Threatened Species under the* Environment Protection and Biodiversity Conservation Act 1999 *(EPBC Act)*, September 2010, p. 2, www.environment.gov.au/biodiversity/threatened/species/pubs/koala-listing-advice.pdf (accessed 12 July 2011).

1.36 As a consequence of translocations, several koala populations also occur outside the species' natural range. These include Kangaroo Island, the Eyre Peninsula and Adelaide Hills in South Australia; and Phillip Island and French Island in Victoria. Similarly there are introduced populations on several islands off the Queensland coast including St Bees Island and Magnetic Island.

1.37 The spread of the koala is not evenly distributed across the species' range. Individual populations are fragmented across the breadth of this range as a result of vegetation clearing, fire, land management practices and unsuitable habitats.[19] Population densities within states range from very high in isolated areas or island populations within Victoria and South Australia to low across parts of New South Wales and Queensland. Detailed information on the natural range of the koala in each east coast jurisdiction is detailed in the Threatened Species Scientific Committee's advice to the Environment Minister of September 2010.[20]

Iconic status

1.38 A majority of the submissions received by the committee commented on the iconic nature of the species.

1.39 Koalas were variously described as 'an icon of Australia's fauna';[21] the 'iconic Ambassador for the conservation of Australian native wildlife and habitats';[22] 'a symbol of the Australian landscape and culture';[23] and 'a species of international significance'.[24]

1.40 The koala is the faunal emblem of Queensland and according to the Queensland government 'holds a special place in the hearts of Queenslanders.'[25]

1.41 Imagery of the koala has permeated Australian cultural heritage for nearly a century. The quintessential Australian children's classic *Blinky Bill* (by Dorothy Wall) and Norman Lindsay's renowned children's book *The Magic Pudding* (which features *Bunyip Bluegum* the koala) are symbolic of the koala's significance to Australia's national identity.

1.42 The koala is also of great cultural significance to many indigenous Australians. For example the Coastwatchers Association told the committee that 'the

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19 Dr Alistair Melzer, *Submission 7*, pp 2 and 5.

20 Threatened Species Scientific Committee, *Advice to the Minister for Environment, Protection, Heritage and the Arts from the Threatened Species Scientific Committee (the Committee) on Amendment to the list of Threatened Species under the* Environment Protection and Biodiversity Conservation Act 1999 *(EPBC Act)*, September 2010, pp 2–4.

21 Property Council of Australia, *Submission 39*, p. 1.

22 Mr Al Mucci, General Manager, Life Sciences, Dreamworld, *Submission 8*, p. 2.

23 Dr Vanessa Standing, *Submission 60*, p. 1.

24 Koala Action Group Qld Inc, *Submission 17*, p. 3.

25 Department of Environment and Resource Management on behalf of the Queensland Government, *Submission 79*, p. 2.

koala is a highly significant ancestor, a philosopher, astronomer and linguist...' to the indigenous cultures of the Eurobodalla area in NSW.[26] Similarly, the Conservation Council ACT Region informed the committee that koalas 'form an important part of the spiritual and cultural life and are central to many Dreamtime stories' for the indigenous people of the far south coast of NSW.[27]

1.43 Dr Alistair Melzer of the Koala Research Centre of Central Queensland described the power of human's 'deep-seated' emotional connection to the koala as the reason for its iconic status:

> The appeal of the koala seems almost primal in humans. This seems to be a consequence of the appearance of the face (large round eyes, round face, soft fur and rounded soft ears), the tendency of the animals to grasp (hug) when held, and the passive response when encountered.[28]

1.44 This point was driven home by the youngest contributor to this inquiry, 11 year old Ms Sarah Halverson who told the committee:

> ...I really love the koala. They are such an incredible animal. The first time I met a koala I just gazed into its eyes and I knew that I wanted to protect it from going extinct. We need to list it as critically endangered because they are just the sweetest animal.[29]

1.45 The impact of the koala's iconic status manifests itself in dimensions of the human realm such as tourism, property values and state election results, as discussed briefly below.

1.46 The iconic status of the koala is particularly important to Australia's tourism sector through its appeal to international visitors. Mr Al Mucci from Dreamworld highlighted the extraordinary level of the koala's recognition internationally:

> I can show a picture of a koala to a child in Kenya and he will tell me it is a koala. If I show him a picture of a bilby he will not know what it is. That is the iconic status of the koala...
>
> When the koalas went from Currumbin to China [Guangzhou province]...their visitation went up from 20,000 people a day to 40,000 people a day because six koalas arrived. So I think that that animal internationally has iconic status—has rock star status.[30]

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26 Coastwatchers Association Inc, *Submission 54*, p. 6.

27 Conservation Council ACT Region Inc., *Submission 61*, p. 2, submitted on behalf of the South East Region Conservation Alliance.

28 Dr Alistair Melzer, *Submission 7*, p. 3.

29 Ms Sarah Halverson, *Committee Hansard*, 3 May 2011, p. 68.

30 Mr Al Mucci, General Manager, Life Sciences, Dreamworld, *Committee Hansard*, 19 May 2011, pp 3–4.

1.47 As a result of this high degree of international recognition, an Australian Koala Foundation study estimated that 'the koala creates over 9000 jobs and contributes between $1.1 billion and $2.5 billion for tourism per year to Australia.'[31]

1.48 The committee also heard evidence that residential property values are influenced by their proximity to koala habitat. The Mayor of Redland City Council, Councillor Hobson, told the committee of a Queensland University of Technology study which found that:

> A koala habitat area would add $29,600 or about five per cent of the value of an average home. If a koala might move through an area of 10, 15 or 20 homes you can then estimate the value...just to see the koala adds an extra $3,000 to the value of your property.[32]

1.49 Finally, Dr Melzer informed the committee of how public responses to threats to koala populations have influenced state elections:

> Our emotional connection to koalas becomes evident when threats to individuals or populations are publicized – and the response is seldom purely rational (Bagust 2010). The classic example is the international and national public outcry to proposals to cull koalas on Kangaroo Island while there has been no widespread mention of culling of other native species on the island. A similar public response (around proposals to build a motorway through known koala habitat) was sufficient to influence state electoral results in Queensland.[33]

31 Australian Koala Foundation, *Submission 25*, p. 3.

32 Councillor Hobson, Mayor of Redland City Council, *Committee Hansard*, 3 May 2011, p. 51.

33 Dr Alistair Melzer, *Submission 7*, p. 3.