

**‘BUFFALO BELONG HERE, AS LONG AS HE
DOESN’T DO TOO MUCH DAMAGE’:
INDIGENOUS PERSPECTIVES ON THE PLACE
OF ALIEN SPECIES IN AUSTRALIA**

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ABSTRACT: Over the last three decades, commentators from the social sciences and beyond have produced a copious body of literature, linking the regulation of invasive alien species (IAS) with nativism and xenophobia. This discourse has largely developed without adequately engaging with key areas of the wider regulatory debate, including the views of community groups, such as, the agricultural product sector, environmentalists and Indigenous land managers. Notwithstanding these omissions, few commentators have addressed the allegations of nativism and xenophobia levelled against IAS regimes. Alien species can, and do, become invasive, threatening human pursuits and biodiversity. At the same time, society has developed complex relationships with alien species where species such as introduced pigs and horses can be seen as both an IAS and a resource. What is more, Indigenous land managers regard all species as living beings that can earn their place in country. The strength of the social sciences discourse lies in its premise that society needs to re-define its relationship with nature, including species that humans have introduced. Indigenous perspectives, as they apply in Australia, potentially offer a ‘road map’ for drawing together commonalities in the IAS literature, which in turn can lead to better-quality regulation, particularly with regard to animal IAS.

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I INTRODUCTION

In the late 1980s, rangers in the recently-created Kakadu National Park¹ found a severed horse's head left at the entrance to their station.² The incident was an apparent 'pay back' for the culling of a herd of horses by the park rangers. Although the rangers considered that the horses, an introduced species, were harming the natural environment, a newspaper report noted that the local Indigenous community regarded the animals as 'bush pets'.³ The complexities inherent in regulating introduced species, particularly animals, had crystallised in this act of defiance.

The practice of introducing species is as old as civilisation itself,⁴ with humans having an array of pragmatic and aesthetic uses for imported plants and animals, including for hunting, farming and horticulture. While such

¹ Kakadu National Park was declared in stages: commencing with a proclamation made pursuant to the *National Parks and Wildlife Conservation Act 1975* (Cth) s 7(2) (this Act is now subsumed into the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)): Department of Science and the Environment, 'Proclamation' in Commonwealth, *Gazette* No S61, 5 April 1979; and extending to subsequent relevant proclamations: Department of the Arts, Heritage and the Environment, 'Proclamation', Commonwealth, *Gazette* No S552, 20 December 1985; Department of the Arts, Heritage and the Environment, 'Proclamation', Commonwealth, *Gazette* No S126, 12 June 1987; Department of Arts, Sport, Environment, Tourism and Territories, 'Proclamation', *Gazette* No GN45, 22 November 1989, 2594; Department of Arts, Sport, Environment, Tourism and Territories, *Gazette* NoS65,24 June 1991.

² Rory Callinan, 'Lines Drawn over Jewel in the Crown', *Sydney Morning Herald* (online), 9 March 2013 <<http://www.smh.com.au/environment/conservation/lines-drawn-over-jewel-in-the-crown-20130308-2fr3e.html>>.

³ Ibid.

⁴ Quentin C B Cronk and Janice L Fuller, *Plant Invaders: The Threat to Natural Ecosystems* (Chapman & Hall, 1995) 19 [2.2.1].

introductions have largely provided economic and social benefits to society,⁵ approximately one in ten becomes invasive, threatening biodiversity, ecosystems, and/or human pursuits.⁶ From an environmental perspective, these species are known as invasive alien species (IAS). They are defined by the *Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species* ('CBD Guiding Principles') as species whose introduction and spread threatens biological diversity.⁷ Examples of IAS found in Australia include a number of aquatic plants (including *Salvinia molesta*), rabbits, foxes and the yellow crazy ant (*Anoplolepis gracilipes*).⁸ Australia is a party to the *Convention on Biological Diversity* ('CBD')⁹ and Article 8(h) directs parties to prevent the entry of IAS and/or eradicate and control them. It is important to note that these obligations do not extend to alien species in general, rather they extend to those alien species that threaten biodiversity, or in other words, obligations extend to *invasive* alien species. By way of contrast, alien species are simply species that have been introduced by humans outside their natural past or present distribution.¹⁰

Specifically, with respect to the environment, the Millennium Ecosystem Assessment notes that the introduction and spread of IAS have had devastating consequences for environmental conservation; especially with regard to

⁵ Jeffrey A McNeely 'The Great Reshuffling: How Alien Species Help Feed the Global Economy' in O Sandlund, P Schel and A Viken (eds), *Proceedings of the Norway/UN Conference on Alien Species: Trondheim 1-5 July 1996* (Directorate for Nature Management and Norwegian Institute for Nature Research, 1996) 53 ('The Great Reshuffling'); and also UNEP Convention on Biological Diversity Subsidiary Body on Scientific, Technical and Technological Advice (CBD SBSTTA), *Development of Guiding Principles for the Prevention of Impacts of Alien Species by Identifying Priority Areas of Work on Isolated Ecosystems and by Evaluating and Giving Recommendations for the Further Development of the Global Invasive Species Programme*, UNEP/CBD/ SBSTTA/4/8 (15 February 1999) [23] ('CBD Development of Guiding Principles for the Prevention of Impacts of Alien Species').

⁶ Mark Williamson, *Biological Invasions* (Chapman & Hall, 1996) 3, 28, 31; for discussion see Reuben Keller et al, 'Invasive Species in Europe: Ecology, Status and Policy' (2011) 23 *Environmental Sciences Europe* 1, 2 via open access from <<http://www.enveurope.com/content/pdf/2190-4715-23-23.pdf>>.

⁷ CBD, 'Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species', Decision VI/23 of the CBD Conference of the Parties, *Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity*, UNEP/CBD/COP/6/20 (23 September 2002) ('CBD Guiding Principles') Annex I, 240 at 247 n 57 [ii].

⁸ See Australian Government, Department of the Environment, *Listed Key Threatening Processes* (25 November 2009) <http://www.environment.gov.au/cgi-bin/sprat/public/public_getkeythreats.pl>.

⁹ *Convention on Biological Diversity*, opened for signature 5 June 1992, 1760 UNTS 79 (entered into force 29 December 1993). The convention had 193 Parties as of June 2013.

¹⁰ *CBD Guiding Principles* 247 n 57 [i].

homogenisation of biodiversity and species' extinctions.¹¹ In Australia, the *Report on the Review of the Caring for our Country Initiative* has reached comparable conclusions, citing invasive species as one of the biggest threats to 'biodiversity, agriculture and a range of ecosystem services'.¹² The *CBD* has likewise concluded that:

Invasive alien species have invaded and affected native biota in almost every ecosystem type on Earth, and have affected all major taxonomic groups. In economic terms, the costs of invasive alien species are significant. Total annual costs, including losses to crops, pastures and forests, as well as environmental damages and control costs, have been conservatively estimated to be in the hundreds of billions of dollars and possibly more than one trillion. This does not include valuation of species' extinctions, losses in biodiversity, ecosystem services and aesthetics.¹³

This quotation not only highlights the environmental damage attributable to IAS, but also draws attention to the cross-sectoral nature of the impacts of IAS, especially in the context of primary production. Accordingly, treaty regimes relevant to the agricultural product sector, such as the 1997 *International Plant Protection Convention* ('*IPPC*'),¹⁴ also deal with various types of harmful species. In the *IPPC*, these are categorised as forms of 'pests', including 'regulated pests'.¹⁵ As with the definition of an IAS, the emphasis centres on the harm attributable to these species,¹⁶ affording members wide latitude to prevent or restrict entry of organisms and pathogenic agents injurious to plants or plant products.¹⁷

Alien species can also influence or modify biocultural diversity, a concept that refers to the close linkages between biodiversity and culture, as occurs with Indigenous peoples.¹⁸ In some cases, where the presence of alien species is

¹¹ World Resources Institute, *Millennium Ecosystem Assessment 2005 Ecosystems and Human Well-being: Biodiversity Synthesis* (World Resources Institute, 2005) 2, 10, 56.

¹² Australian Government Land and Coasts, *Report on the Review of the Caring for our Country Initiative* (Australian Government, 2012) 22.

¹³ Convention on Biological Diversity, *Why Does it Matter* <<http://www.cbd.int/invasive/matter.shtml>>.

¹⁴ *International Plant Protection Convention* [revised text with annex], opened for signature 17 November 1997 (2006) 2365 UNTS 292 (entered into force 2 October 2005) ('*IPCC*'). As at June 2013, the Convention had 178 signatories.

¹⁵ *IPPC* art II.

¹⁶ *Ibid.*

¹⁷ *Ibid.* This definition, however, does not include either a plant that may become an IAS or a plant that is injurious to animals or other non-plant species.

¹⁸ Jeanine M Pfeiffer and Robert A Voeks, 'Biological Invasions and Biocultural Diversity: Linking Ecological and Cultural Systems' (2008) 35(4) *Environmental Conservation* 281, 282. Cultural diversity, itself, ought to be protected. UNESCO *Universal Declaration on Cultural Diversity*, GC Res 25, 31st sess, UNESCO Doc No 31C/res25 (2 November 2001), annex II

assimilated into cultural traditions and norms, the species may be regarded as ‘culturally enriching’ or ‘culturally facilitating’.¹⁹ In Australia in 1911, for example, Spencer noted that movements executed by the Tiwi during a corroboree depicted a buffalo hunt.²⁰ In other cases, however, the presence of alien species can have negative consequences, when, for example the species becomes invasive by outcompeting native species, altering sacred sites or reducing populations of culturally important organisms.²¹ By way of illustration, in response to changes attributed to cane toads, Indigenous communities have adjusted narratives, ceremonies and rituals by requesting ‘the spirits for the return of their totem species’.²² For Indigenous communities the relationship between culture and nature takes into account ‘intangible values’, such as those articulated by custom, ceremony and ways of living.²³ When alien species threaten that relationship, it presents yet another facet of the problem of regulating IAS.

As used in this article, the term ‘invasive alien species’ (IAS) is given a broad meaning. It refers to species that threaten biodiversity, impact on biocultural diversity and interfere with human activities. This expanded concept of an IAS is necessary in order to draw together a range of viewpoints regarding IAS and to provide a more comprehensive overview of how these species relate to humans.

Against this backdrop, IAS regimes have increasingly generated a rich, though sometimes conflicting, dialogue, ranging from the works of scientists, ecologists and lawyers,²⁴ to commentary from the social sciences.²⁵ While

[Main Lines of an Action Plan for the Implementation of the UNESCO Universal Declaration on Cultural Diversity], Objectives 13 and 14. Note: the Declaration was adopted unanimously by 185 member states. <<http://unesdoc.unesco.org/images/0012/001246/124687e.pdf>>

¹⁹ Pfeiffer and Voeks, above n 18, 282.

²⁰ David S Trigger, ‘Indigeneity, Fertility and What “Belongs” in the Australian Bush: Aboriginal Responses to “Introduced” Animals and Plants in a Settler-Descendant Society’ (2008) 14 *Journal of the Royal Anthropological Institute* 628, 634.

²¹ Pfeiffer and Voeks, above n 18, 282, 284.

²² *Ibid* 284.

²³ Ken Taylor and Jane Lennon, ‘Cultural Landscapes: A Bridge between Culture and Nature?’ (2011) 17(6) *International Journal of Heritage Studies* 537, 552.

²⁴ Ted Center, J Howard Frank and Allen F Dray, ‘Biological Invasions: Stemming the Tide in Florida’ (1995) 78(1) *Florida Entomologist* 45; McNeely, ‘The Great Reshuffling’, above n 5; Lyle Glowka and Cyrille de Klemm, ‘International Instrument, Processes and Non-indigenous Species Introductions – Is a Protocol Necessary?’ (1996) *Environmental Policy and Law* 247; Todd E McDowell, ‘Slow-Motion Explosion: The Global Threat of Exotic Species and the International Response to the Problem in the South Pacific’ (1998) 9 *Colorado Journal of Environmental Law and Policy* 187; Lyle Glowka, ‘Bioprospecting, Alien Invasive Species, and Hydrothermal Vents: Three Emerging Legal Issues in the Conservation and Sustainable Use of Biodiversity’ (2000) 13 *Tulane Environmental Law Journal* 329; Steve L Coles and Lucius G Eldredge, ‘Nonindigenous Species Introductions on Coral Reefs: A Need for Information’ (2002) 56 *Pacific Science* 191; Peter Jenkins, ‘Paying for Protection from Invasive Species’ 2002 (Fall) *Issues in Science and Technology* 67; Jeffrey A McNeely, ‘Invasive Species: A Costly Catastrophe for Native Biodiversity’ (2002) 1(2) *Land Use And Water Resources Research* 1; Anne M Perrault and William Carroll Muffett, ‘Turning off the

scientists and ecologists have focused on studying and evaluating the environmental impacts of IAS, the social sciences have explored the values and philosophical contours that shape the relationship of humans towards alien and invasive alien species. This literature overtly acknowledges that society's exploitation of species is overlaid with social and cultural mores leading to the relationship among humans, species and nature being described as 'paradoxical' and 'inconsistent'.²⁶ In their extreme version, the analyses conclude that regimes are driven by subjective motives of nativism and xenophobia, terms that are discussed in section II of this article. The arguments further contend that humans devalue alien species simply because they are not native.²⁷ Since nativism (ethnocentric frame of reference) and xenophobia (fear of the foreign or 'other') are both deemed objectionable traits, critiques have extended to the eradication and control efforts that social scientists link with notions of 'not belonging' and a human-centred desire to preserve nature in a state of pristine wilderness.²⁸ The following extract is typical of the extreme version of the genre:

The natural scientists who worry about the penetration of alien species often appear to be unaware of the parallels between their discourse and that of racists and national chauvinists. Few of these scientists would presumably wish to be classified as such. Yet racists and nationalists have been known to legitimate their arguments by drawing parallels between the arguments of scientists concerning ecological imperialism and the supposed threat of foreign species, on the one hand, and, on the other, the

Tap: A Strategy to Address International Aspects of Invasive Alien Species' (2002) 11(2) *Review of European Community & International Environmental Law* 211; Marc L Miller, 'Biological and Cultural Camouflage: The Challenges of Seeing the Harmful Invasive Species Problem and Doing Something about It' in Marc L Miller and Robert M Fabian (eds), *Harmful Invasive Species: Legal Responses* (Environmental Law Institute, 2004).

²⁵ See, eg, Gert Gröning and Joachim Wolschke-Bulmahn, 'The Native Plant Enthusiasm: Ecological Panacea or Xenophobia?' (2003) 28(1) *Landscape Research* 75; Marcus Hall, 'The Native, Naturalized and Exotic – Plants and Animals in Human History' [Editorial] (2003) 28(1) *Landscape Research* 5, 8; Kenneth R Olwig, 'Natives and Aliens in the National Landscape' (2003) 28(1) *Landscape Research* 61; Adrian Franklin, *Animal Nation: The True Story of Animals and Australia* (UNSW Press, 2006).

²⁶ Franklin, above n 25, 3–4.

²⁷ Gröning and Wolschke-Bulmahn, above n 25; Hall, above n 25, 8; Olwig, above n 25; Franklin, above n 25. Daniel Simberloff, 'Confronting Introduced Species: A Form of Xenophobia?' (2003) 5(2) *Biological Invasions* 179.

²⁸ David Trigger et al, 'Ecological Restoration, Cultural Preferences and the Negotiation of "Nativeness"' (2008) 39 *Geoforum* 1273, 1275; Lesley M Head and Pat Muir, 'Nativeness, Invasiveness and Nation in Australian Plants' (2004) 94(2) *Geographical Review* 199, 201; Katarina Saltzman, Lesley Head and Marie Stenseke, 'Do Cows Belong in Nature? The Cultural Basis of Agriculture in Sweden and Australia' (2011) 27 *Journal of Rural Studies* 54, 57.

perceived threat of foreign races and cultures to the native populations of their countries.²⁹

This viewpoint differs markedly from the tenor of obligations advanced in international law by treaty systems, such as the *CBD* and *IPPC*, that explicitly acknowledge the harm that IAS and ‘pests’ can cause to biodiversity and primary production. Both approaches are anthropocentric in the sense that they spring from human-centred views regarding society’s relationship to nature. However, at the heart of the differing approaches lie divergent attitudes and social norms that drive the law and policy of IAS regimes. The importance of the social science literature stems from the fact that it challenges the legitimacy of current approaches by questioning the morality of regulation where it is based on dubious values and motives.

The purpose of this article is to explore perspectives on alien species in Australia, particularly from Indigenous points of view, in order to respond to that section of the social science discourse that alleges IAS regulation is based on nativism and xenophobia. While it is not disputed that society’s perception of alien species can be value-laden,³⁰ this article argues that regulation is predominantly based on the usefulness of the species and/or the perceived threats that the species pose. As already noted, these threats can relate to biodiversity, culture or human activities, and in the last instance largely centre on damage to primary production.³¹ Indeed, in this case, a native ‘pest’ species that interferes with human activities is regulated in the same way as an IAS.³² The article further argues that evaluating regimes from the point of view of nativism and xenophobia overlooks a burgeoning awareness that questions whether different values should underpin the regulation of animal IAS compared to non-animal IAS.³³ This questioning has occurred because the literature on nativism and xenophobia starts from a point that tacitly suggests regulators should have equivalent regard for native and non-native species. Yet, regarding species as equivalent does not address how the species should be regulated. Moreover,

²⁹ Olwig, above n 25, 61.

³⁰ See, eg, Marte Qvenild, ‘Wanted and Unwanted Nature: Landscape Development at Fornebu, Norway’ (2013) *Journal of Environmental Policy and Planning* 5.

³¹ With respect to Australia, see Roger Beale et al, *One Biosecurity: A Working Partnership*, The Independent Review of Australia’s Quarantine and Biosecurity Arrangements, Report to the Australian Government (Commonwealth of Australia, 2008) (*‘Beale Review’*) [5.4.11]–[7.2.3].

³² See generally Keely Boom and Dror Ben-Ami ‘Kangaroos at a Crossroads: Environmental Law and the Kangaroo Industry’ (2013) 30(2) *Environment and Planning Law Journal* 162.

³³ P Cowan, B Warburton and P Fisher, ‘Welfare and Ethical Issues in Invasive Species Management’ (Paper presented at the 8th European Vertebrate Pest Management Conference, Berlin, Germany, 26–30 September 2011); B Warburton and B G Norton, ‘Towards a Knowledge-based Ethic for Lethal Control of Nuisance Wildlife’ (2009) 73 *Journal of Wildlife Management* 158, 159.

where the species is an animal, it does not consider whether lethal measures, such as culling, ought to be a first point response.

The discussion draws together three bodies of literature: that part of the social sciences that argues regulation of alien species is based on nativism and xenophobia; Indigenous perspectives on alien species in Australia; and material on changing attitudes towards alien species in Australia. The second and third areas have been selected because Australia has a comparatively recent history of intense and well-studied introductions, spanning just over two hundred years. In addition, Australia enjoys the benefit of Indigenous populations whose viewpoints acknowledge the threats that some alien species pose, but who also bring an additional perspective to the debate, especially with regard to the ethics of killing or culling as a primary regulatory choice.³⁴

The article commences with an examination of what is meant by ‘nativism’, ‘xenophobia’ and ‘belonging’, before moving to a more in-depth account of Indigenous standpoints. The latter emphasises the respect accorded to ‘country’, including those social and cultural dimensions that support acceptance of alien species. The discussion then moves to an examination of whether the social science discourse sufficiently engages with the differences between alien species and IAS, and also whether the discourse sufficiently engages with the Australian community’s changing perspectives towards IAS.

In common with other societies, Australia has been accepting of alien species during the early phases of introductions, but not the latter phases. An examination of why these changes in attitudes occurred is important. It helps to shed light on whether regulation is driven by aesthetic reasons connected to the purity of nature, which would support the views of the social sciences; or whether regulation is driven by alternative reasons, such as the damage the species cause. If it is the latter, then this would point to more pragmatic, reasons for regulation. In addition, if regulation is indeed driven by ‘harm’ or ‘damage’, further research may be needed on how to deal with some harmful species. It is argued that this is indeed the case with respect to the effectiveness of culling and hunting animal IAS. The conclusion identifies areas of synergy where Indigenous perspectives potentially afford a ‘road map’ for drawing together commonalities that can lead to better planned regulation, for animal IAS.

³⁴ See part 2.2 of this paper and the discussion surrounding Pfeiffer and Voeks in text above n 86.

II NATIVISM, XENOPHOBIA AND BELONGING

A *Nativism and Xenophobia*

Concepts of ‘nativism’ and ‘xenophobia’ are crucial to arguments from the social sciences that regulation of alien species is motivated by attitudes that lack validity. Nativism is defined as a clear preference for those considered native;³⁵ while xenophobia is ‘the fear of foreigners or “others” considered to be outsiders based on racial, ethnic or national origin [that]...translates into prejudice against specific groups.’³⁶ The words were initially used against humans who were not native-born. However, the expressions have also been used allegorically to censure regulators and environmentalists who engage in species and habitat restoration by removing non-native species and/or introducing native ones.³⁷ The underlying premise is that xenophobia and nativism are inherently flawed traits; thus regimes based on these concepts are tainted by questionable legitimacy. Although not expressly articulated, the rationale that underpins this discourse is that native and alien species should be treated equivalently. Hence, alien species should not be subject to eradication and control measures merely on the grounds that they are not native.

Consistent with this line of thought is the view that measures to control IAS are routinely linked to society’s views of nationhood. Accordingly, humans are inclined to devalue alien species and place them in an unjustifiably inferior category. Critiques range from laments that ‘natives are almost universally praised while exotics are condemned’;³⁸ and extend to reprimands for unwarranted and biased viewpoints that depict alien species as ‘aggressive intruders’.³⁹ Specifically in the context of Australia, Franklin observes that humans have a tendency to vilify animals ‘to preserve the notion or theoretical possibility of a pure Australianness’.⁴⁰ Indeed, for some commentators, the problem stems not so much from the content of regulation, but with the use of language.

The latter has been criticised for articulating ‘discrimination, derision and exclusion’ of foreign species, in a manner akin to racial prejudice against humans.⁴¹ Writers have noted that the pathways between language and regulation

³⁵ Lilia Fernandez, *The Encyclopaedia of Global Human Migration* (Blackwell Publishing, 2013). See entries on ‘nativism’ and ‘xenophobia’.

³⁶ *Ibid.*

³⁷ See, eg Olwig, above n 25, 61.

³⁸ Hall, above n 25, 8.

³⁹ Gröning and Wolschke-Bulmahn, above n 25, 76.

⁴⁰ Franklin, above n 25, 146.

⁴¹ William O’Brien, ‘Exotic Invasions, Nativism, and Ecological Restoration: On the Persistence of a Contentious Debate’ (2006) 9(1) *Ethics Place and Environment* 63, 64–5.

are so significant that they have been able to draw parallels with the use of native plants in landscape design and ideologies of racism and nativism extrapolated from Nazi Germany.⁴² Simberloff, who is critical of many aspects of this part of the social science discourse, is less concerned with the niceties of language and focusses more on the reality of species' invasions and the links between that and regulation.⁴³ His approach is consistent with Head and Muir, who argue that 'analysing attitudes towards broad categories such as nativeness can tend to be rather abstract and mask the details of people's engagement'.⁴⁴ However, in answer to these arguments, O'Brien notes that while there is 'compelling evidence' of the deleterious impacts of some alien species, critiques of the use of language are still important.⁴⁵ His main concern does not centre on the motives that underpin conservation efforts, but rather that

The long and deep history of racism and xenophobia particularly in the US provides a conveniently supportive framework for expression that helps perpetuate denigrating views of foreigners.⁴⁶

At the same time, when advancing the cause of non-native species, commentators appear to be undaunted in their use of human analogies and emotive language, with one author proclaiming: 'for every pest there are many more unobtrusive immigrants, living quietly in their new haunts or even facilitating the growth and development of native species'.⁴⁷

A further wave of arguments reproaches regulators for shifting the prominence of native restoration work from ecosystem functioning to a consideration of 'belonging'.⁴⁸ This notion is said to be informed by social norms that exclude alien species because they depend on views of 'nativeness'.⁴⁹ In particular, a recurring theme warns against false assumptions regarding the purity of nature.⁵⁰ These arguments are consistent with overarching environmental guidelines, such as the 'Ecosystem Approach', that notes human-induced 'change is inevitable', encouraging regulators to use adaptive management techniques.⁵¹

⁴² Gröning and Wolschke-Bulmahn, above n 25. For a critique of this approach, see Simberloff, above n 27, 181–2.

⁴³ Simberloff, above n 27, 188.

⁴⁴ Head and Muir, above n 28, 200.

⁴⁵ O'Brien, above n 41, 66.

⁴⁶ Ibid.

⁴⁷ Emma Marris, *Rambunctious Garden: Saving Nature in a Post-Wild World* (Bloomsbury, 2011) 104.

⁴⁸ Trigger et al, above n 28, 1275.

⁴⁹ Ibid 1273.

⁵⁰ Ibid 1275.

⁵¹ Adopted by the Fifth Meeting of the Conference of the Parties to the *Convention on Biological Diversity* in decision V/6 dated 22 June 2000, UNEP/CBD/COP/5/23, Principle 9; refined and elaborated in decision VIII/II dated 13 April 2004, UNEP/CBD/COP/DEC/VII/11.

However, the notion that social norms exclude alien species simply because they are not native overlooks the multifaceted way in which society relates to alien species. Olsen, for example, points out that plans to control rabbits in Centennial Park in Sydney led to public protests by local communities, whereas the same activities regularly occur in pastoral areas without rejoinder.⁵² It is questionable, therefore, that the notion that what ‘belongs’ in nature squarely rests on a determination of whether the species is native or alien.

In an analogous vein, Indigenous perspectives on ‘belonging’ are not inevitably linked with nativism.⁵³ To Indigenous communities the term ‘belonging’ carries rich and culturally-significant connotations of inclusiveness, that are the antithesis of nativism.

B Indigenous Perspectives on Alien Species and Belonging

It is a misnomer to state that there is *an* Indigenous viewpoint towards alien species. Rather, the introduction of alien species in Australia has created complex layers of engagement by Indigenous communities that closely connect to concepts of ‘country’ and ‘the Dreaming’.⁵⁴ According to Jawoyn⁵⁵ traditions, the Dreaming was a time when the world was created and ‘brought ... to life’. It encompasses the living and non-living components of the land where past, present and future co-exist.⁵⁶ ‘Country’ itself derives from the Dreaming and thus includes living and nonliving components as well as narratives, culture and the seasons.⁵⁷ Accordingly, culture and country are intertwined so that ecological management becomes an outcome of the interactions between people and country.⁵⁸ As Mick Dodson has stated:

Our traditional relationship to land is profoundly spiritual. It is also profoundly practical ... For instance, hunting, fishing and harvesting are

⁵² Penny Olsen, *Australia's Pest Animals: New Solutions to Old Problems* (Bureau of Rural Sciences and Kangaroo Press, 1998) 22.

⁵³ Trigger et al, above n 28, 1275.

⁵⁴ Catherine J Robinson, Dermot Smyth and Peter J Whitehead, ‘Bush Tucker, Bush Pets, and Bush Threats: Cooperative Management of Feral Animals in Australia’s Kakadu National Park’ (2005) 19(5) *Conservation Biology* 1385, 1390.

⁵⁵ Jawoyn Association Aboriginal Corporation, *Jawoyn People* <<http://www.jawoyn.org/jawoyn-people>>. The Jawoyn Nation consists of a group of approximately 600 people from 17 clans who live in the Northern Territory, predominantly near Katherine.

⁵⁶ Jawoyn Association Aboriginal Corporation, *Dreaming* <<http://www.jawoyn.org/jawoyn-people/dreaming>>.

⁵⁷ Stanley Breeden and Belinda Wright, *Kakadu: Looking after Country the Gagudju Way* (Simon and Schuster, 1989) chs 2, 7.

⁵⁸ Wayne Barbour and Christine Schlesinger, ‘Who’s the Boss? Post-Colonialism, Ecological Research and Conservation Management on Australian Indigenous Lands’ (2012) 13(1) *Ecological Restoration and Management* 36, 39.

neither merely economic [nor] cultural activities. As older people walk the country they teach the young; they tell the stories and teach the responsibilities.⁵⁹

For these reasons engagement with alien species is shaped by the compatibility of the species with the cultural and spiritual traditions of the Indigenous communities in question.⁶⁰ Where communities regard alien species favourably, they frequently refer to the species in terms of ‘belonging’.⁶¹ This dynamic is essentially predetermined by whether the species has a place in nature, which itself depends on a number of other factors, including the length of time the species has been present in an area, the relationship of the species to the local community, and whether the species has ‘Law’ that affords it a place in country.⁶² While these elements are all broadly important to whether the species belongs, they assume differing degrees of significance in accordance with the community and their view of country.

For some communities, the origin of the species is immaterial because the presence of alien species is a validation of the robustness of country.⁶³ A study conducted by Bruce Rose in the 1990s concluded that in Central Australia, Indigenous communities considered that all animals belong to country, partially because of their existence in Australia for a lengthy period.⁶⁴ This appeared to validate earlier studies conducted in the Kimberley region in the 1920s and the Central Desert region in the 1980s that indicated species such as cats were regarded as native because they pre-dated other alien species such as rabbits, camels and foxes.⁶⁵ This was the case even though cats were otherwise generally acknowledged to be alien species.⁶⁶ The Bruce Rose study, however, also concluded that Indigenous people’s perceptions on alien species were ‘relatively homogenous’ — a view that is not currently accepted, due to up-dated research that has found Indigenous views are complex and shaped by many factors.⁶⁷

The variation of perspectives on buffaloes is a case in point. Gulf Country Aboriginal people⁶⁸ regard buffalo as an introduced animal, yet researchers of the

⁵⁹ Mick Dodson quoted in Heather J Aslin and David H Bennett, ‘Wildlife and World Views: Australian Attitudes toward Wildlife’ (2000) 5 (2) *Human Dimensions of Wildlife* 15, 19.

⁶⁰ Trigger, above n 20, 640.

⁶¹ Aslin and Bennett, above n 59, 17.

⁶² Trigger, above n 20, 636.

⁶³ *Ibid* 632.

⁶⁴ *Ibid*.

⁶⁵ *Ibid*.

⁶⁶ *Ibid*.

⁶⁷ Petronella Vaarzon-Morel and Glen Edwards, ‘Incorporating Aboriginal People’s Perceptions of Introduced Animals in Resource Management: Insights from the Feral Camel Project’ (2012) 13(1) *Ecological Restoration and Management* 65, 65

⁶⁸ The Gulf Country extends adjacent to the Gulf of Carpentaria across the Northern Territory and into Queensland.

late 1970s and early 1980s noted that some Indigenous communities had engaged with buffalo by creating ‘traditional songs and dance sequences’.⁶⁹ Similarly, the Jawoyn (of the Katherine area of the Northern Territory) consider that buffaloes belong to country, partly because buffalo have been assimilated into traditional rituals and narratives; and partly because they provide bush tucker.⁷⁰ Even where buffaloes cause environmental damage, this is not necessarily the determining feature of the relationship between the animals, community and country; it is significant for example, that in these cases not all groups favour eradication measures.⁷¹ Some do, however, and other Indigenous peoples in the Northern Territory who are concerned with the adverse ecological effects of buffalo⁷² regard the presence of this species as not being compatible with the spiritual and intrinsic values of country.⁷³

Similar variations in attitudes exist towards horses and camels, even though Indigenous peoples by and large view horses with benign acceptance. In some cases, horses are welcomed because they provide transportation, while in other circumstances horses have facilitated country business.⁷⁴ The connections between horses and Jawoyn are especially strong.⁷⁵ The Jawoyn, not only consider that horses are linked to their traditions, but also regard horses as ‘bush pets’ and thus not appropriate as a source of food.⁷⁶ Notwithstanding this acceptance, Jawoyn elders also concede that some control measures are needed, especially in high-traffic areas.⁷⁷ Nevertheless, and in accordance with Indigenous regard for country, measures to eradicate or cull horses from areas such as Kakadu National Park should respect the horses, specifically taking into account the fact that the presence of horses pre-dates the declaration of the area as a national park.⁷⁸

Viewpoints concerning camels are equally diverse. Some communities have formed close relationships with camels and regard them as analogous to ‘kin’. In

⁶⁹ Trigger, above n 20, 634.

⁷⁰ Vaarzon-Morel and Edwards, above n 67, 68. By the same token, the Jawoyn also acknowledge that some alien species can impact negatively on the natural environment and need to be controlled. Jawoyn Association Aboriginal Corporation, *Feral Animal Control*, <<http://www.jawoyn.org/land-management/feral-animal-control>>.

⁷¹ David Croft, ‘The Relationships between People and Animals: An Australian Perspective’ in David B Croft (ed), *Australian Animals and Peoples in Today’s Dreamtime: The Role of Comparative Psychology in the Management of Natural Resources* (Praeger, 1991) 15.

⁷² Trigger, above n 20, 632, 636.

⁷³ Ibid 632. This includes the Mak Mak.

⁷⁴ Pfeiffer and Voeks, above n 18, 287.

⁷⁵ Robinson, Smythy and Whitehead, above n 54, 1389.

⁷⁶ Ibid 1387.

⁷⁷ Ibid.

⁷⁸ Kakadu Board of Management and the Director of National Parks, *Kakadu National Park Management Plan 2007–2014* (Australian Government, 2007) 72. See also Robinson, Smythy and Whitehead, above n 54, 1387.

such cases, rather than being seen as an outsider, camels have secured a position in country and are considered to belong.⁷⁹ Economic issues are also relevant, with some Indigenous peoples expressing positive views on the possibility of hunting camels, or capturing them for sale.⁸⁰ Yet in other communities, camels are still adjudged as introduced species that differ from native animals, because they did not derive from the Dreaming.⁸¹

Elsewhere, approaches towards alien animals such as feral cats and rabbits also demonstrate a range of standpoints. In the Western Desert region, cats and rabbits are a well-documented food source;⁸² while the Wik peoples from Cape York regard dogs as family, treating them with the esteem normally shown to dingoes by giving them 'patrician dog names'.⁸³ Even the oft-maligned cane toad receives a degree of consideration. In a study conducted by Trigger, researchers observed an Aboriginal elder rebuking youngsters for wantonly killing cane toads.⁸⁴ The elder noted that the toads had a connection to the Dreaming, although this perspective eventually gave way to the argument that the cane toad 'has no Law, it is a stranger to this country.'⁸⁵

Pigs are generally regarded less kindly than buffaloes, horses, camels and other alien animals. The damage pigs cause is often highly visible⁸⁶ leading to their being described as 'cheeky' animals.⁸⁷ The Jawoyn have noted the potential for pigs to harm ecological links between people and country, especially with regard to the provision of bush tucker. Yet, the Jawoyn do not agree with culling pigs, which is regarded as 'killing for waste', preferring instead to consider other avenues, such as hunting.⁸⁸ Nevertheless, even in this case, hunting is not necessarily an optimum choice, as the community notes that pigs are difficult to hunt due to their small size.⁸⁹

The willingness to accept alien species makes it challenging to reconcile with a general proposition that the way society relates to the use of alien species is motivated by nativism and xenophobia. Arguably, this stance does not alter, even in the face of complex and diverse views that make it difficult to identify one Indigenous view on alien species and to conclude, as a whole, whether alien

⁷⁹ Vaarzon-Morel and Edwards, above n 67, 68.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Trigger, above n 20, 632.

⁸³ Ibid.

⁸⁴ Ibid 636.

⁸⁵ Ibid.

⁸⁶ Pfeiffer and Voeks, above n 18, 287.

⁸⁷ Robinson, Smythy and Whitehead, above n 54, 1389.

⁸⁸ Ibid.

⁸⁹ Ibid.

species ‘belong’.⁹⁰ It is equally demanding to attempt to pinpoint benchmarks that might assist with such a classification. For example, while ecological criteria are not conclusive, the fact that a species is causing environmental damage is still influential.⁹¹

The degree of environmental damage is in fact one explanation proffered for the differences between the conclusions drawn by the Bruce Rose study and later studies. At the time of the Bruce Rose study, numbers of some introduced species, such as camels, were relatively low. Hence their impact on the environment was visually unobtrusive and is thought to be reflected in the relatively benign viewpoint towards camels detected by Bruce Rose.⁹² The notion of what amounts to damage can also be highly contextual. In the case of buffalo, some communities recollect the substantial environmental degradation caused by buffalo herds with disapproval; while other communities point to the benefits of buffalo herds, including suppression of thick vegetation and facilitating access to key hunting areas near billabongs.⁹³

The fundamental consideration appears to be whether the species is compatible with Indigenous peoples’ views on country and culture. Against this backdrop, a species that is causing significant damage is unlikely to be viewed as being culturally compatible. The Mak Mak of the Northern Territory, for example, have this to say about *Mimosa pigra*:

Our waterways are all being blocked by *Mimosa pigra*, an invasive weed ... The water is very important to us as part of our Dreaming story and our hunting. Our Rainbow Serpent was creating all of this floodplain area and all these billabongs ... The mimosa is blocking up the billabongs, and ... it is threatening to take over the billabong. The floating grass has banked up because it can’t get washed out, and feral animals are using it as a pad to get across from one side to the other. The mimosa is putting down its roots and grabbing hold of the bottom of the billabong. So mimosa is causing a lot of problems for us.⁹⁴

⁹⁰ Vaarzon-Morel and Edwards, above n 67; Ethel Tobach, ‘Series Foreword’ in David B Croft (ed), *Australian Animals and Peoples in Today’s Dreamtime: The Role of Comparative Psychology in the Management of Natural Resources* (Praeger, 1991) vii, xi.

⁹¹ Robinson, Smythy and Whitehead, above n 54, 1387.

⁹² Franklin, above n 25, 2; Vaarzon-Morel and Edwards, above n 67.

⁹³ Robinson, Smythy and Whitehead, above n 54, 1387.

⁹⁴ As told by Linda Ford Daiyi, the daughter of Nancy Daiyi who is an Aboriginal elder of the Mak clan whose lands are located southwest of Darwin: Linda Ford Daiyi and Deborah Bird Rose, ‘Life in Country: Ecological Restoration on Aboriginal Homelands’ (2010) 26 (2) *Cultural Survival*, online: <<http://www.culturalsurvival.org/ourpublications/csq/article/life-countryecological-restoration-aboriginal-homelands>>.

However, if a species is not causing substantial damage it can more easily be included within ideals of country, as has happened with buffaloes and horses.⁹⁵ Once this occurs the species becomes the subject of a raft of obligations flowing from the community's obligation to country.⁹⁶ In this way, all species that belong are treated with the same degree of respect, whether they are native or alien.⁹⁷ This attitude accords with that part of the social sciences that calls for equivalent regard for species, irrespective of whether they are native or alien. Yet, this point does not mean that damage caused by the species is irrelevant, a point that is discussed further in part IIIB of this article.

Trigger points out that Indigenous Australians 'make intellectual room' for alien species.⁹⁸ In some cases, this can lead to confusion as to whether a species is native or alien⁹⁹ Trigger's study, for example, noted that some introduced plants, such as palm trees that are found in the Millstream Chichester National Park, are highly valued by Indigenous people who appreciate their shade and aesthetic beauty.¹⁰⁰ The trees are said to have a 'place' in country which is considered more important than whether they are native to the ecosystem. In fact, some interviewees were unsure whether the trees were native or introduced, with one participant expressing an aversion to native spinifex grass because it interfered with mustering of sheep and cattle.¹⁰¹ This was the case notwithstanding the fact that resin from spinifex is used to make traditional Indigenous objects.¹⁰²

Consequently, the Trigger study tells us that Indigenous people do not consider differences between native and alien species as the sole consideration, or even necessarily a sound foundation, for land management practices, even where the alien species is causing some harm. According to media reports, this has led to tension between Indigenous and non-Indigenous land managers in co-managed areas, such as Kakadu National Park, where the conflicts have turned on the notion of what amounts to an unacceptable level of damage for the area.¹⁰³ Kakadu National Park is listed under both the *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* ('Ramsar Convention')¹⁰⁴ and the *Convention Concerning the Protection of the World*

⁹⁵ Trigger, above n 20, 633–4.

⁹⁶ Aslin and Bennett, above n 59, 17.

⁹⁷ Olsen, above n 52, 24.

⁹⁸ Trigger, above n 20, 641.

⁹⁹ Ibid.

¹⁰⁰ Ibid 639.

¹⁰¹ Ibid.

¹⁰² Ibid 638.

¹⁰³ Callinan, above n 2; Mary-Lou Considine, 'No Easy Solutions to Kakadu's Feral Animal Problem' (2008) *ECOS Magazine*, Issue No 140. 34; <http://www.ecosmagazine.com/?act=view_file&file_id=EC140p34.pdf>.

¹⁰⁴ *Convention on Wetlands of International Importance Especially as Waterfowl Habitat*, opened for signature 2 February 1971, 996 UNTS 245 (entered into force 21 December 1975) ('Ramsar Convention'). The convention had 167 contracting parties in June 2013.

Cultural and Natural Heritage ('*World Heritage Convention*').¹⁰⁵ These treaties require regulators to protect, conserve and rehabilitate sites and areas;¹⁰⁶ obligations that extend to the eradication and control of IAS. Thus the management plan for Kakadu National Park aims to control alien species that damage the 'cultural and natural values of country'.¹⁰⁷ Yet, the different approach that Indigenous managers have towards 'country' can give these obligations differing perspectives and lead to dissention.¹⁰⁸

Ultimately, these examples do not bear out generalisations that alien species are universally rejected in favour of native species; or that attitudes towards alien species are based on nativism and xenophobia. Rather, measures are based on the threats the species pose to country, even if there is disagreement on the degree of damage that leads to the classification of a species as an IAS. At the same time, awareness that IAS can pose a threat changes and develops over time. Indeed, Indigenous viewpoints tacitly acknowledge the changeability of country and the fact that society's attitudes towards alien species can also alter. For these reasons, an examination of how and why society's attitude towards alien species changes is important, in order to determine whether current regulation is indeed based on nativism and xenophobia.

III CHANGING PERSPECTIVES AND ALIEN SPECIES

Two features relating to shifting viewpoints on alien species stand out: first, that deliberate introductions of alien species are initially greeted with interest, if not enthusiasm; and second that whether this enthusiasm escalates or wanes depends on the utility or aesthetics of the species and/or the damage it causes.

A *Enthusiasm for Early Introductions*

The trend towards introducing species is thought to have started in Neolithic times, when humans introduced plants regarded as useful for cultivation.¹⁰⁹ Animals have also been introduced for a range of human-related reasons. In Australia, for example, it is believed that Indigenous people introduced the dingo

¹⁰⁵ *Convention for the Protection of the World Cultural and Natural Heritage*, opened for signature 23 November 1972, 1037 UNTS 151 (entered into force 17 December 1975) ('*World Heritage Convention*'). The convention had 190 contracting parties in June 2013.

¹⁰⁶ *World Heritage Convention* art 5; *Ramsar Convention* art 3.

¹⁰⁷ Kakadu Board of Management and the Director of National Parks, above n 78, 79–82.

¹⁰⁸ Robinson, Smythy and Whitehead, above n 54, 1386. See also newspaper reports of clashes between Indigenous and Non-indigenous managers on this point, in Callinan, above n 2.

¹⁰⁹ Cronk and Fuller, above n 4.

about 4,000 years ago as a companion animal and also to assist with hunting.¹¹⁰ In the late eighteenth century, explorer, Captain James Cook, released animals near Cooktown, in Queensland to be used as a future food supply;¹¹¹ while records from 1788 indicate that cattle, sheep, goats, horses, chickens, ducks and turkeys arrived with the First Fleet¹¹² — some of which escaped and were then regarded as feral.¹¹³

These early introductions were undertaken to fulfil specific needs, such as the supply of food in the form of familiar crops and livestock.¹¹⁴ However, as introductions of species continued, homesick settlers were motivated by less pragmatic reasons as they attempted to recreate their homeland in the new world by introducing a variety of non-essential species such as songbirds, which were nevertheless regarded as aesthetically useful.¹¹⁵ Introduced species were initially keenly accepted¹¹⁶ and provided momentum for the establishment and growth of the Acclimatisation Societies. These societies were non-governmental organisations whose primary objectives were to transfer plants and animals between the colonies and the mother country.¹¹⁷ The societies were active from the late nineteenth century in many states with colonial links including Australia. They attained a degree of economic success; however, in some cases this came at the expense of native biodiversity.¹¹⁸

¹¹⁰ The exact date of the introduction is in dispute amongst ecologists. David Smith estimates that the dingo was introduced approximately 8,000 years ago: David Smith, *Continent in Crisis: A Natural History of Australia* (Penguin Books, 1990) 19. Tim Low estimates that the dingo was introduced approximately 4,000 years ago: Tim Low, *Feral Future: The Untold Story of Australia's Exotic Invaders* (Viking, 1999) ('*Feral Future*') 7. The Australian Museum notes that Dingos were probably introduced 'by Asian Seafarers 4,000 years ago': Australian Museum, *Dingo* (13 May 2013) <<http://australianmuseum.net.au/Dingo>>.

¹¹¹ In 1770, Captain Cook recorded that he released pigs at the location of what is now Cooktown. Phillip Toyne, *The Reluctant Nation: Environment Law and Politics in Australia* (ABC Books, 1994) 68.

¹¹² Low, *Feral Future*, above n 110, 24–25; Franklin, above n 25, 96; Thomas R Dunlap, 'Remaking the Land: The Acclimatization Movement and Anglo Ideas of Nature' (1997) 8 *Journal of World History* 303, 304.

¹¹³ David Choquenot, John McIlroy and Terry Korn, *Managing Vertebrate Pests: Feral Pigs* (Australian Government Publishing Service, 1996) paras [1.1]–[1.2]; Low, *Feral Future*, above n 110, 24–25.

¹¹⁴ Franklin, above n 25, 96; Dunlap, above n 112, 304.

¹¹⁵ Dunlap, above n 112, 304, 307.

¹¹⁶ Hall, above n 25, 8.

¹¹⁷ See generally, Michael A Osborne 'A Collaborative Dimension of the European Empires: Australian and French Acclimatization Societies and Intercolonial Scientific Cooperation' in R Home and S Kohstedt (eds), *International Science and National Scientific Identity: Australia Between Britain and America* (Kluwer Academic Publishers, 1991) 97, 98–106.

¹¹⁸ Native Fish Australia (a volunteer organisation concerned with maintaining the ecological health of Australia's freshwater systems) has detailed a number of introduced fish that have become invasive. In particular, the organisation points to the ubiquitous goldfish that has

Notwithstanding the early prominence of the societies, historians agree that their popularity quickly levelled off and within 20 years of their establishment, most were dissolved.¹¹⁹ Social elements were one factor in this decline. By 1880 in Australia, the majority of the population that was of British ancestry was Australian-born¹²⁰ and had begun to value Australian biodiversity for its own sake. In particular, this generation was far less interested than its predecessors in recreating English nature in Australia.¹²¹ These types of developments have led some commentators to conclude that from the late nineteenth century ‘disciplines such as plant geography, plant ecology and plant sociology turned increasingly nationalistic’ and became linked to ecological and cultural belonging.¹²² What is more, in the ensuing backlash alien species were, and continue to be, spurned.¹²³ Such conclusions fuel arguments that regulation of alien species is driven by nativist and xenophobic attitudes.

Yet not all acclimatisation societies were disbanded in the nineteenth century and not all historians agree that social issues and motives of nativism and xenophobia were the main reasons for disbanding the societies.¹²⁴ Osborne has undertaken a detailed study of the Queensland Acclimatisation Society that was formed in 1862 and disbanded in 1956. He notes that from the outset the objectives of the society were focussed on agriculture, especially the sugar industry. Furthermore, the society started waning in 1887, not for social reasons, but due to the fact that the Queensland government established the Department of Agriculture that took over many of the former functions of the society.¹²⁵ Osborne also challenges general assumptions about the disregard that acclimatisation societies had for native biodiversity. He points to the fact that the Queensland Acclimatisation Society was concerned with the protection of Queensland’s forests as a ‘heritage to be wisely used’,¹²⁶ although at the same time, the society introduced rabbits.¹²⁷ Nevertheless, Osborne’s research calls into question the neat juxtaposition of acclimatisation societies as instruments of environmental vandalism and post-society activities as re-bound instruments of nationalistic fervour.

hybridised with carp and has entered the food chain: Native Fish Australia, *Exotic Fish in Australia* <www.nativefish.asn.au/exotics.html>.

¹¹⁹ Dunlap, above n 112, 310–11.

¹²⁰ *Ibid* 311.

¹²¹ *Ibid*.

¹²² Trigger et al, above n 28, 1274.

¹²³ Gröning and Wolschke-Bulmahn, above n 25.

¹²⁴ Peter Osborne, ‘The Queensland Acclimatisation Society: Challenging the Stereotype’ (2008) 20(8) *Royal Historical Society of Queensland Journal* 337.

¹²⁵ *Ibid* 343.

¹²⁶ *Ibid* 340, 346.

¹²⁷ *Ibid* 339.

The impacts of alien species in Australia began to be recognised as a serious issue by the later part of the nineteenth century.¹²⁸ By that time, for example, rabbits, which had initially been introduced as a game animal, had become a major threat to Australia's pastoral industry. In response, the colony of New South Wales set up the 1888 Intercolonial Royal Commission of Inquiry into Schemes for the Extermination of Rabbits in Australasia.¹²⁹ During the inquiry, evidence from Tasmania noted a direct correlation between the presence of rabbits and the sheep-carrying capacity of the land. From a high of 1,500,000, the number of sheep had decreased by an average of 30,000 per year in tandem with the increase of rabbit populations.¹³⁰ The decision to control rabbits was based on the overwhelming evidence given to the Royal Commission that the presence of rabbits was detrimental to the Australian agricultural product sector.¹³¹ It is questionable that this decision was based on nativism or xenophobia. In fact, the Royal Commission squarely focussed on the competition between the rabbit and another introduced species: the sheep. Given the economic importance of the sheep to Australia, the rabbit lost out.

B *Alien or Invasive Alien Species: Threats and Harm*

One of the striking features of some parts of the social science discourse is the way it frequently conflates alien and invasive alien species. One article for example observed that '[e]xotic species especially those that are considered invasive must be eliminated in order to create or maintain space for the natural natives.'¹³² Another commentator, as already noted in the introduction to this article, stated that '[t]oday, natives are almost universally praised while exotics are condemned'.¹³³

These types of comments gloss over the fact that regulators are aware that not all alien species pose a threat to native biodiversity,¹³⁴ and that alien species often serve useful social and economic purposes in gardening, agriculture and

¹²⁸ See, eg *Noxious Thistles Act 1852 (SA)* (which was passed in an attempt to deal with a number of 'Scotch' thistles that had spread in the colony) and the *Thistle and Burr Act 1862 (SA)* (passed by the South Australian parliament to deal with thistles and Bathurst Burr); *Prickly Pear Destruction Act 1886 (NSW)*.

¹²⁹ New South Wales, Royal Commission of Inquiry into Schemes for Extermination of Rabbits in Australasia, *Progress Report* (Minutes of Proceedings) (1890).

¹³⁰ 'The Intercolonial Rabbit Commission' *Maitland Mercury and Hunter River General Advertiser*, (Maitland, NSW) 19 April 1888 <<http://trove.nla.gov.au/ndp/del/article/18952718>>.

¹³¹ New South Wales, Royal Commission of Inquiry into Schemes for Extermination of Rabbits in Australasia, *Progress Report* (Minutes of Proceedings) (1890) 5, 20, 24.

¹³² Trigger et al, above n 28, 1277.

¹³³ Hall, above n 25, 8.

¹³⁴ McNeely, 'The Great Reshuffling', above n 5; CBD, *Development of Guiding Principles for the Prevention of Impacts of Alien Species*.

aquaculture production.¹³⁵ Regulators are, however, also aware that while the majority of alien species provide benefits and may have insignificant impacts on native biodiversity, alien species still have the potential to cause environmental and other types of damage.¹³⁶ It is, in reality, evidence of actual harm, or a clear projection of potential harm, that separates ‘alien’ from ‘invasive alien’ species.

A recent example of regulation that is based on the damage caused by an alien species, but which has been reproached for being nativist and xenophobic, stems from the grazing of cattle in Australian alpine areas. From approximately 1833–34 until 2012 cattle grazed unchallenged in the Australian Alps National Parks region, including in Victoria.¹³⁷ However, reports from the 1950s began to voice concern at the damage cattle grazing was causing to native vegetation.¹³⁸ In 2005, the Victorian government released a report on the impacts of cattle grazing, titled: *Report of the Investigation into the Future of Cattle Grazing in the Alpine National Park* (‘*Alpine Report*’).¹³⁹ The *Alpine Report* found that cattle were damaging the park’s biodiversity¹⁴⁰ and concluded that ‘cattle grazing is inconsistent with the primary objects ... of national parks and wilderness areas [and is also] not compatible with the national and international standards for a national park’.¹⁴¹ The cattle were thus banned from the national park. Consequent to this, on 7 November 2008, the Victorian alpine region was added to the Australian National Heritage List as part of the Australian Alps National Parks and Reserves.¹⁴² Consistent with section 324Y of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), areas on the Australian National Heritage List need to be managed in accordance with National Heritage Management Principles. Those principles include the requirement to ‘identify, protect, conserve, present and transmit, to all generations, their National Heritage

¹³⁵ Department of the Environment Food and Rural Affairs (DEFRA), *Review of Non-Native Species Policy* (Report of the Working Group DEFRA Publications, 2003) 8; Low, *Feral Future*, above n 110, 42.

¹³⁶ CBD SBSTTA, *Invasive Alien Species: Comprehensive Review on the Efficacy of Existing Measures for their Prevention Early Detection Eradication and Control*, UNEP/CBD/SBSTTA/6/7 (20 December 2000) [85]–[93].

¹³⁷ Mountain Cattlemen’s Association of Victoria, *Mountain Cattlemen: Caring for the High Country since 1834* <<http://www.mcav.com.au/>>.

¹³⁸ Saltzman, Head and Stenseke, above n 28, 57.

¹³⁹ Alpine Grazing Taskforce, *Report of the Investigation into the Future of Cattle Grazing in the Alpine National Park* (Department of Sustainability and Environment, Victorian Government, 2005) <<http://www.environment.gov.au/epbc/notices/assessments/victoria-alpine-national-park/pubs/b6-alpine-grazing-taskforce-2005.pdf>>.

¹⁴⁰ *Ibid* 5.

¹⁴¹ *Ibid* 6.

¹⁴² Department of Sustainability, Environment, Water, Population and Communities, *Australian Alps National Parks and Reserves* <<http://www.environment.gov.au/node/19632>>.

values'.¹⁴³ This meant that the ban on cattle grazing was reinforced by Commonwealth legal requirements.

Nevertheless, in 2010, a new Victorian government signalled it would run trials of cattle in the Alps for reasons of bushfire control.¹⁴⁴ This decision drew a swift response from a group of 125 Australian scientists who petitioned the Victorian Government to defer the trials, citing damage to biodiversity.¹⁴⁵ On 31 January 2012, Tony Burke, the Federal Minister for Sustainability, Environment, Water, Population and Communities, issued a press release banning the grazing trials, declaring that they were contrary to national environmental law.¹⁴⁶ Notwithstanding these circumstances, at least one commentator has concluded that environmental damage was irrelevant to the decision to ban cattle, because the ban was based on unsubstantiated 'cultural' reasons grounded in nativism and underpinned by the belief that cattle do not 'belong in Australian nature'.¹⁴⁷

In opposing the ban, the Mountain Cattlemen's Association of Victoria¹⁴⁸ used arguments, which incongruously were based on 'culture', maintaining that cattle should continue to graze in alpine areas¹⁴⁹ because this practice dates back almost two hundred years.¹⁵⁰ It is, consequently, a matter of some irony that in the face of evidence demonstrating the harm that cattle grazing caused, the ban itself has been criticised as being based on 'culture' and nativism. Yet, the opposing stance, that seeks to overturn the ban, is based expressly on culture, and does not engage with the environmental damage that the cattle were said to be causing. In reality, the threats posed by the cattle became the regulatory turning point, leading to the *Alpine Report* and the consequent ban on the cattle.

By failing to engage with the threats that alien species pose, discourses can obscure the rationale that differentiates regulation of alien and invasive alien species, a development that Simberloff has criticised by observing:

¹⁴³ *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) reg 10.01E, sch 5B.

¹⁴⁴ Victorian National Parks Association, *Alpine Cattle Grazing – It's a Park Not a Paddock* <<http://vnpa.org.au/page/nature-conservation/parks-protection/alpine-cattle-grazing-%E2%80%93-it%E2%80%99s-a-park,-not-a-paddock>>.

¹⁴⁵ *Ibid.*

¹⁴⁶ Hon Tony Burke, Minister for Sustainability, Environment, Water, Population and Communities, 'Grazing Proposal in Victorian Alpine National Park Clearly Unacceptable' (Media Release, 31 January 2012) <<http://www.environment.gov.au/minister/burke/2012/mr20120131.html>>.

¹⁴⁷ Saltzman, Head and Stenseke, above n 28, 57.

¹⁴⁸ The Mountain Cattlemen's Association of Victoria is an association of cattle owners who graze their cattle in the high country of Eastern Victoria. See: <<http://www.mcaav.com.au/>>.

¹⁴⁹ Saltzman, Head and Stenseke, above n 28, 57.

¹⁵⁰ *Ibid* 58.

Claims that modern introduced species activity targets all introduced species, not just invasive ones, and neglects benefits of certain introduced species have no basis in fact and becloud an urgent, important issue.¹⁵¹

The fact that regimes target invasive, rather than alien species is reinforced by the operation of two environmental management programs in Australia, the Natural Heritage Trust (NHT)¹⁵² and Caring for our Country (CfoC).¹⁵³ The NHT designated the control of animal IAS (feral) animals as one of its objectives;¹⁵⁴ while under the CfoC specific IAS such as cane toads and camels have been singled out for special treatment.¹⁵⁵ Both the NHTA and the CfoC provide funding to deal with environmental and natural resource management and are based on hybrid mechanisms of environmental management involving collaboration between government and community.¹⁵⁶ The CfoC for example, provides 'Community Action Grants' of between \$5,000 and \$20,000 for community-based programs, many of which target IAS.¹⁵⁷ In addition, the CfoC also contains clear links between environmental protection, including for dealing with IAS, and farming profitability.¹⁵⁸ It is questionable that these regimes are based on nativism and xenophobia; rather, they are based on a type of neoliberalism¹⁵⁹ that directs government policies towards market-based

¹⁵¹ Simberloff, above n 27, 179.

¹⁵² The Natural Heritage Trust operated during the years 1997–2008, and was established from funds garnered from the partial privatisation of Telstra Corporation Ltd, *Natural Trust Heritage Act 1997* (Cth) ss 8, 22–29.

¹⁵³ The Caring for Our Country program is a means of the Federal Government providing funds to land managers to protect the environment and maintain 'sustainable agriculture programs': *Natural Resource Management*, Department of Agriculture and Department of the Environment <<http://www.nrm.gov.au/about/nrm/index.html>>.

¹⁵⁴ Kate Crowley, 'Effective Environmental Federalism? Australia's Natural Heritage Trust' (2001) 3(4) *Journal of Environmental Policy and Planning* 255, 259.

¹⁵⁵ The Australian Government acting through the Department of Sustainability, Environment, Water, Population and Communities and the Department of Agriculture, Fisheries and Forestry, *Caring for Our Country Outcomes 2008-2013i* Department of Agriculture and Department of the Environment (2008) 11, 14.

¹⁵⁶ Megan Farrelly, 'Community Engagement in Natural Resource Management: Experiences from the Natural Heritage Trust Phase 2' in Marcus Lane, Cathy Robinson and Bruce Taylor (eds), *Contested Country: Local and Regional Natural Resources Management in Australia* (CSIRO, 2009) 129, 137; Michael Lockwood and Julie Davidson, 'Environment Governance and the Hybrid Regime of Australian Natural Resource Management' (2010) 41 *Geoforum* 388, 390 and 393.

¹⁵⁷ See Caring for Our Country, *Projects Funded by Community Action Grants* <<http://www.nrm.gov.au/projects/cag/>>.

¹⁵⁸ Lockwood and Davidson, above n 156, 392.

¹⁵⁹ An exact definition of neoliberalism remains elusive, see Dage Einar Thorsen, 'The Neoliberal Challenge: What is Neoliberalism?' (2010) 2(2) *Contemporary Readings in Law and Social Justice* 188; see generally Lockwood and Davidson, above n 156, 392.

mechanisms, such as financial incentives and voluntary measures, with the community being seen as a significant actor.¹⁶⁰

Elsewhere, regulation by the Federal government, States and Territories comprises a mix of legislative and policy instruments that largely occurs through listing processes, either where the impacts of the species are classified as a threatening process,¹⁶¹ or the species is otherwise categorised pursuant to regimes dealing with weeds, feral or pest species.¹⁶² It is important to keep in mind that Australia's regime, in common with many others, is largely reactive and predicated on 'black lists' — in other words, a species is listed once evidence is gathered that indicates it is harmful.¹⁶³ This should further clarify whether regimes are motivated by nativism and xenophobia. Yet, some commentators debate whether notions of 'harm' are themselves based on personal preferences that can withstand scrutiny. Robbins, for example, has concluded that species are only classified as invasive because of the way humans categorise the impacts of these species as harmful: '[categorizing a species as invasive] usually depends on the perception of a species as pernicious — an assignment of culturally specific meaning'.¹⁶⁴ In other words, Robbins' argues that the evidence itself is based on cultural perceptions of what constitutes 'harm'. If this is the case, and given that people vary in their attitudes and perceptions of IAS,¹⁶⁵ it could lead to inconsistent decisions. Accordingly, while decisions that at first blush appear to be objective they are nonetheless framed by subjective influences; yet, Robbins takes the argument further by concluding that decisions on how to manage IAS do not provide objective evidence that discounts nativism and xenophobia. At the same time, Robbins also concedes that species can become invasive irrespective of human acknowledgment of the impacts of the species.¹⁶⁶

¹⁶⁰ The Australian Government acting through the Department of Sustainability, Environment, Water, Population and Communities and the Department of Agriculture, Fisheries and Forestry, *Caring for Our Country Outcomes 2008-2013*, above n 155, 13.

¹⁶¹ *Flora and Fauna Guarantee Act (1988)* (Vic) ss 11(3), 19; *Threatened Species Conservation Act 1995* (NSW) ss 8, 13; *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 183.

¹⁶² See, eg, *Land Protection (Pest and Stock Route Management) Act 2002* (Qld) ss 36–38; *Agriculture and Related Resources Protection Act 1976* (WA) ss 35–37; *Pest Plant and Animals Act 2005* (ACT) s 16.

¹⁶³ Sophie Riley, 'Law is Order and Good Law is Good Order: The Role of Governance in the Regulation of Invasive Alien Species' (2012) *Environmental Planning and Assessment Law Journal* 16, 32–4. The use of lists has been criticised for not focussing on ecosystems, see Mark A Burgman et al, 'Designing Regulation for Conservation and Biosecurity' (2009) 13(1) *Australasian Journal of Natural Resources Law and Policy* 93, 97, 99–100.

¹⁶⁴ Paul Robbins, 'Comparing Invasive Networks: Cultural and Political Biographies of Invasive Species' (2004) 94(2) *Geographical Review* 139, 144.

¹⁶⁵ Jennifer Foster and L Anders Sandberg, 'Friends or Foe? Invasive Species and Public Green Spaces in Toronto' (2004) 94(2) *Geographical Review* 178, 181.

¹⁶⁶ Robbins, above n 164, 145.

In focussing on the perception of damage, Robbins draws attention to the significance of attitudes towards alien species in the design of regimes,¹⁶⁷ a theme that was flagged by McNeely in the 1990s.¹⁶⁸ It is not uncommon, for example, for the same species to be considered as an IAS by one part of society and acknowledged as a resource or accepted by another.¹⁶⁹ This can be illustrated by society's mixed attitudes towards introduced animals such as dingoes and horses.¹⁷⁰ In Queensland, sch 2 of the *Land Protection (Pest and Stock Route Management) Regulation 2003* lists the dingo as a declared pest while the website of the Queensland Department of Environment and Heritage Protection notes that the dingo as a recognised native species is protected in Queensland national parks (under the *Nature Conservation Act 1992 (Qld)*).¹⁷¹ In a somewhat analogous manner, 'wild horses', or brumbies as they are otherwise known, are simultaneously regarded with affection as a charismatic species of the outback¹⁷² while also being condemned as 'feral horses' for the harm they cause in reserved areas (as well as pastoral areas) and in some subjected to culling.¹⁷³ The culling of wild horses has also highlighted problematic animal welfare issues that were discussed in a recent ABC Radio National programme.¹⁷⁴ Differences of opinion on these issues have played out in the context of community perceptions on culling and the influence of these perceptions on government policy. For example while Western Australia conducts aerial culls, Parks Victoria is developing a management plan that is expected to focus on other methods, such as, rehoming

¹⁶⁷ Ibid.

¹⁶⁸ See, eg, McNeely, 'The Great Reshuffling', above n 5.

¹⁶⁹ See, eg, Low, *Feral Future*, above n 110, at ch 9 dealing with aquarium pets and ch 11 dealing with pasture grasses; for discussion in the context of biofuels, see Sophie Riley, 'A Weed by Any Other Name: Would the Rose Smell as Sweet if it Were a Threat to Biodiversity' (2009) 22(1) *Georgetown International Environmental Law Review* 157.

¹⁷⁰ Jonaki Bhattacharyya, D Scott Slocombe and Stephen D Murphy, 'The "Wild" or "Feral" Distraction: Effects of Cultural Understandings on Management Controversy over Free-Ranging Horses (*Equus ferus caballus*)' (2011) 39 *Human Ecology* 613, 613; see generally, Karen F Hytten, 'Dingo Dualisms: Exploring the Ambiguous Identity of Australian Dingoes' (2009) 35(1) *Australian Zoologist* 18.

¹⁷¹ Queensland Department of Environment and Heritage Protection, *Dingoes* (1 August 2013) <<http://www.ehp.qld.gov.au/wildlife/livingwith/dingoes/>>. A similar situation of pest/protected species dichotomy occurs in other Australian jurisdictions: see Hytten, above n 170, 21.

¹⁷² Franklin, above n 25, 97.

¹⁷³ A W English, *Report on the Cull of Feral Horses in Guy Fawkes River National Park*, Executive Summary (November 2000) 3 <<http://www.environment.nsw.gov.au/resources/pestsweeds/englishReport.pdf>>; ABC Radio National, '7000 Feral Horses Shot' *Bush Telegraph*, 7 November 2013 (Cameron Wilson) <<http://www.abc.net.au/radionational/programs/bushtelegraph/brumby-cull/5075928>>.

¹⁷⁴ ABC Radio National, '7000 Feral Horses Shot' *Bush Telegraph*, 7 November 2013 (Cameron Wilson) <<http://www.abc.net.au/radionational/programs/bushtelegraph/brumby-cull/5075928>>

and euthanizing in a less stressful environment.¹⁷⁵ The apparent variability of human perceptions is also highlighted by the inclusion of the cane toad, by popular vote, in a list of 150 icons by the state of Queensland,¹⁷⁶ notwithstanding its status as one of Australia's most notorious invasive species.¹⁷⁷ Although the word 'icon' may have been intended to encapsulate behaviours and traditions that characterize the state of Queensland, the inclusion of the cane toad in this list provides yet another example of how society can relate to the one species in different ways.

What is more, to say that society's attitudes towards a particular species can vary is not the same as saying that the variation is based on nativism and xenophobia. Although harm acts as a trigger for regulation, aesthetic values can be inclusive of IAS, rather than exclude them. For example, a survey conducted in Australia to gauge community attitudes and awareness revealed that camphor laurel and lantana were understood to be alien plants; yet they were also considered to 'belong' and were among the most accepted.¹⁷⁸ This was despite the fact that the survey also found that lantana was clearly a weed and that camphor laurels were removed if they were still saplings.¹⁷⁹ Moreover, independently of the survey, the impacts of lantana are listed as a key threatening process in at least one state of Australia, and camphor laurel is acknowledged to be

¹⁷⁵ Ibid; Parks Victoria, *Victorian Alps Wild Horse Management Plan*, <<http://parkweb.vic.gov.au/explore/parks/alpine-national-park/plans-and-projects/victorian-alps-wild-horse-management-plan>>. The draft plan is due to be released in 2014.

¹⁷⁶ See Hon Anna Bligh, Premier and Minister for the Arts, 'Premier Unveils Queensland's 150 Icons' (Media Statement, 10 June 2009) <<http://statements.qld.gov.au/Statement/Id/64301>>. Category 10 is 'Typically Queensland: What is Queensland all about? Those things, behaviours or traditions that define Queensland and its people' and includes the cane toad.

¹⁷⁷ The impacts of the cane toad have been listed as a 'threatening process' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) after a recommendation by the (Commonwealth) Threatened Species Scientific Committee: Threatened Species Scientific Committee, *Commonwealth Listing Advice for the Biological Effects Including Lethal Toxic Ingestion Caused by Cane Toads (Bufo marinus)* Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (YSSC) on Amendments to the List of Key Threatening Processes under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), 12 April 2005, Australian Government Department of Environment, Water, Heritage and the Arts <<http://www.environment.gov.au/cgi-bin/sprat/public/publicshowkeythreat.pl?id=15>>. In October 2009, the Minister approved the development of a threat abatement plan <<http://www.environment.gov.au/node/14576>>. The Scientific Committee established under the *Threatened Species Conservation Act 1992* (NSW) (NSW Scientific Committee) also recommended that the impacts of the cane toad be listed as a 'key threatening process': (NSW) Scientific Committee, *Cane Toad – Key Threatening Process Listing* (2006), NSW Government Department of Environment and Heritage <<http://www.environment.nsw.gov.au/determinations/BufoMarinusKtp.htm>>. The listing is set out in Schedule 3 of the *Threatened Species Conservation Act 1992* (NSW).

¹⁷⁸ Head and Muir, above n 28, 215.

¹⁷⁹ Ibid, 211, 213.

poisonous.¹⁸⁰ For some respondents, lantana had a number of redeeming qualities, primarily as habitat for native species; while camphor laurel trees as mature specimens evoked childhood memories of swings and tree houses that outweighed its toxicity.¹⁸¹ The same study found that people had greater difficulty recognising that native species could be invasive (that is, in distribution broader than its original habitat) and generally considered native plants as ‘belonging’,¹⁸² even where the plants had become weedy (or invasive).¹⁸³

Society’s conflicting attitudes towards popular IAS make it incumbent upon administrators to adjudicate on those conflicts. Smout argues that evidence of harm or damage becomes the determining factor.¹⁸⁴ His findings are based on a study of perspectives on unwanted species in Britain during the course of the twentieth century, especially from the 1950s.¹⁸⁵ He concludes that early emphasis was placed on classification of species as ‘vermin’, and such categorisation did not turn on whether the species was alien or native. It is a matter of some irony that while regulators tolerated, if not encouraged, the use of alien species such as partridges, native species including pigeons, crows and moles were regarded as pests.¹⁸⁶

¹⁸⁰ The NSW Scientific Committee recommended that the impacts of lantana be listed as a ‘key threatening process’: NSW Scientific Committee, *Lantana camara – Key Threatening Process Listing* (2006), NSW Government Department of Environment and Heritage, Weeds of National Significance <<http://www.environment.nsw.gov.au/determinations/LantanaKtp.htm>>. Lantana is, however, listed as a ‘Weed of National Significance’, one of 32 to be so listed (as at 14 August 2012): Australian Government, Weeds of National Significance (2012) <<http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html>> with respect to camphor laurel, the NSW Scientific Committee accepted that it is a toxic plant, however, at this stage the evidence did not indicate a ‘demonstrable threat to two or more listed species, populations or endangered ecological communities’ as required by the *Threatened Species Conservation Act 1992* (NSW). Accordingly the listing was denied: NSW Scientific Committee, *Camphor Laurel (Cinnamomum camphora) Most Toxic Chemotypes – Rejection of Key Threatening Process Listing* (2004), Department of Environment and Heritage <<http://www.environment.nsw.gov.au/determinations/camphorlaurelkt.htm>>. The equivalent Commonwealth body came to the same conclusion with respect to listing under the *EPBC Act: Threatened Species Scientific Committee, Camphor Laurel (Cinnamomum camphora) Most Toxic Chemotypes*, Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Key Threatening Processes under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (2003), Australian Government Department of Environment <www.environment.gov.au/node/14578+&cd=3&hl=en&ct=clnk&gl=au>.

¹⁸¹ Head and Muir, above n 28, 215.

¹⁸² Ibid.

¹⁸³ Ibid 203, 215–16.

¹⁸⁴ T Chris Smout, ‘The Alien Species in 20th-Century Britain: Constructing a New Vermin’ (2003) 28(1) *Landscape Research* 11, 16.

¹⁸⁵ Ibid 13.

¹⁸⁶ Ibid 11, 14.

In Australia threats or harm posed by IAS are frequently used as a trigger for regulation. Section 183 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (*EPBC Act*), for example stipulates that the deleterious impacts of IAS may be listed as a ‘key threatening process’ under the *EPBC Act*,¹⁸⁷ after which the Minister must prepare a threat abatement plan to alleviate the threat; but only if the Minister considers that such a plan is a ‘feasible, effective and efficient way to abate the process’.¹⁸⁸ A number of key threatening processes directly related to IAS have already been accepted for listing including: predation, competition and land degradation by rabbits, unmanaged goats, feral pigs, red foxes, feral cats, rats, as well as loss of biodiversity caused by the yellow crazy ant, cane toads and the red fire ant.¹⁸⁹ Likewise, under various pieces of State legislation species can be declared ‘noxious’ or ‘pests’,¹⁹⁰ a categorisation that largely tends to focus on economically important alien species such as feral goats, rabbits, and foxes.¹⁹¹ The issue of damage is thus an important element for regulatory regimes, because this separates ‘invasive’ and ‘invasive alien’ species from ‘alien’ species.

IV REGULATION

In examining the impact of the social science discourse on regulation, at least two areas are significant: first, the differences between regulating alien species compared to IAS; and, second, how regulators contend with a range of viewpoints, including bio-cultural ones that are important for Indigenous communities.

¹⁸⁷ A ‘key threatening process’ is a threatening process that further endangers a listed threatened species, or ecological community, or adversely affects two or more listed threatened species, or ecological communities: *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 528 ‘Definitions’, s 188(4) (*EPBC Act*). A ‘threatening process’ is defined as one that threatens the survival, abundance, or evolutionary development of a native species or ecological community *EPBC Act* s 528 ‘Definitions’, s 188(3).

¹⁸⁸ *EPBC Act 1999* (Cth) s270A.

¹⁸⁹ (Commonwealth) Department of the Environment, *Listed Key Threatening Processes* (25 November 2009) <<http://www.environment.gov.au/cgi-bin/sprat/public/publicgetkeythreats.pl>>

¹⁹⁰ For example: *Noxious Weeds Act 1993* (NSW) ss 7, 33; *Rural Lands Protection Act 1998* (NSW) s 143; *Land Protection (Pest and Stock Route Management) Act 2002* (Qld) ss 36–38; *Agriculture and Related Resources Protection Act 1976* (WA) ss 35–37; *Pest Plant and Animals Act 2005* (ACT) s 16.

¹⁹¹ Natural Resource Management Ministerial Council, *Australian Pest Animal Strategy – A National Strategy for the Management of Vertebrate Pest Animals in Australia* (Australian Government, Department of the Environment and Water Resources, Commonwealth of Australia, 2007) I.

A *Alien v Invasive*

The social sciences favour a forgiving attitude towards alien species. For example, Marris argues that:

[W]e must temper our romantic notion of untrammelled wilderness and find room next to it for the more nuanced notion of a global, half-wild rambunctious garden, tended by us.¹⁹²

These remarks appear to be made in the context of alien species; however elsewhere, Foster and Sandberg argue in favour of extending this viewpoint to IAS. They observe that rather than declaring ‘all-out war’ on IAS, regulators should ‘concede defeat’, accept those species and implement control strategies.¹⁹³ In a similar vein, based on notions of harm and damage that were discussed above, Smout suggests that instead of banning all introductions of species:

A more defensible approach might be to revive the notion of some species as pests, but to hesitate before involving conservation in anything analogous to ethnic cleansing for other species.¹⁹⁴

Hall likewise urges caution in taking action against alien species. He acknowledges that species can become invasive, but also points out that regulators should examine their motives for controlling alien species, noting that:

[While there may be] real and justifiable reasons for favouring natives or controlling exotics ... these reasons were not always true in the past, nor need they be so in the future.¹⁹⁵

To the extent that the statements of Marris, Smout, and Hall imply that not all alien species are invasive, and that regimes need to be carefully thought through, their viewpoints are consistent with the regulatory, ecological and Indigenous literature on IAS.¹⁹⁶ Indeed, in some respects, commentators who call for more tolerant approaches towards IAS echo the third level of regulation proposed by the *CBD Guiding Principles*. The principles proffer a hierarchical approach to

¹⁹² Marris, above n 47, 2.

¹⁹³ Foster and Sandberg, above n 165, 178, referring to Eric Higgs, *Nature by Design: People Natural Process and Ecological Restoration* (MIT Press, 2003).

¹⁹⁴ Smout, above n 184, 11.

¹⁹⁵ Hall, above n 25, 9.

¹⁹⁶ *CBD Guiding Principles*, Guiding Principle 5; A Robley et al, *Interactions between Feral Cats, Foxes, Native Carnivores and Rabbits in Australia*, Arthur Rylah Institute for Environmental Research (Department of Sustainability and Environment, Melbourne, 2004) 26–29; Robinson, Smyth and Whitehead, above n 54, 1387.

IAS, commencing with preventing entry, followed by eradication and then containment and control measures.¹⁹⁷ The inclusion of the latter two types of measures evinces a pragmatic acknowledgment that once established, many IAS are difficult if not impossible to eradicate.¹⁹⁸

Low, who has written extensively on the problem of IAS in Australia,¹⁹⁹ has considered this point, especially in the case of long-established IAS. Although he fundamentally favours a strict approach, he also squarely places humans at the centre of the IAS dilemma, noting that populations of flora and fauna ebb and flow in accordance with the way society alters the landscape, including by introducing species.²⁰⁰ Low acknowledges that attitudes towards alien and invasive alien species are shaped by society's views on whether these species form part of nature. Then again, he also points out that humans have long altered habitats and ecosystems, highlighting that Indigenous peoples in Australia altered the landscape long before 1788.²⁰¹

Low meaningfully observes that humans need to live with the nature they have created.²⁰² Moreover, 'nature' should not be considered as a detached realm characterised by its unspoiled features; but rather, should embrace the human influence in a new and altered vision of the environment. Significantly, this includes acknowledging that there is a place for alien species.²⁰³ Other writers, such as Muir and Head, also note that society fails to recognise that humans too are an alien species, and in common with other alien species need needs to find its equilibrium in nature.²⁰⁴ At the same time, Low also emphasises that species can cause damage and if society's aim is conservation of nature, '[c]onservation is intervention, and intervention isn't easy.'²⁰⁵

This comment spotlights a weakness in those parts of the discourse that confuse alien species with IAS. The inference appears to be that alien species should be accepted as if they were native; followed by a further assumption that native species are regulated in a fair and even-handed manner, which is acceptable to stakeholders. Yet, this is not necessarily the case. Native species are also eradicated for similar reasons that IAS are, namely because they threaten other species, or because they interfere with human activities.²⁰⁶ Moreover,

¹⁹⁷ *CBD Guiding Principles* Guiding Principle 2.

¹⁹⁸ *CBD 'Priority Questions for Consideration by SBSTTA 3'* UNEP/CBD/SBSTTA/3/Inf.18 (September 1997) 3.

¹⁹⁹ This includes two books: Low, *Feral Future*, above n 110 and Tim Low, *The New Nature: Winners and Losers in Wild Australia* (Penguin, 2003) ('*The New Nature*') 21.

²⁰⁰ Low, *The New Nature*, 21.

²⁰¹ *Ibid.*

²⁰² *Ibid.*

²⁰³ *Ibid.*; see also ch 8.

²⁰⁴ Head and Muir, above n 28, 203.

²⁰⁵ *Ibid.* 30.

²⁰⁶ See Jamie Walker, 'Queensland Cull Hopes Look Shot as Farmers Go Batty', *The Australian*, 7 April 2012 <<http://www.theaustralian.com.au/national-affairs/queensland-cull-hopes-look>

advocating tolerant attitudes towards alien species does not address how regulators should identify IAS; nor does it provide guidance as to how government should grapple with some of the wider implications of IAS regulation, as occurs for example, in a bio-cultural context in the case of Indigenous communities.²⁰⁷

With regard to the first issue, the last two hundred years in Australia are littered with examples of introduced species that have created regulatory impasses: from cane toads to pasture grasses, prickly pear, rabbits and foxes.²⁰⁸ In these cases, it is not apparent how far the idea of a ‘rambunctious garden’ or the notion of ‘conceding defeat’ should be taken. Does this mean that occupiers of agricultural areas would have no responsibility to control weeds that could spread to neighbouring properties? It is not clear how this reasoning would impact on existing legislation such as the *Noxious Weeds Act 1993* (NSW) that imposes obligations on private and public occupiers to control weeds on their land.²⁰⁹ No doubt, the stance taken in the social sciences is influenced by the fact that eradication of IAS is difficult, expensive and in some cases ‘unlikely to succeed anyway’.²¹⁰ In particular, acceptance may be seen as a realistic approach in urban settings where the landscape has been irrevocably altered by humans.

However, even in these cases, care should be exercised in accepting this approach as an all-encompassing strategy. It does not take into account that ‘urban’ locations may be situated adjacent to non-urban areas and that the impact of IAS may have deleterious consequences for remnant native biodiversity. This type of problem has been identified in the greater Sydney district. Approximately 30 of the 400–500 garden escapees, that colonise the surrounding remnants of bushland, endanger the contiguous bushland.²¹¹ Although this area is theoretically protected, it is still subject to a constant onslaught of IAS from nearby suburban gardens.²¹²

If, as a more general proposition, the social science discourse is urging regulators to limit eradication and control to those species that have already caused damage and which are vulnerable to eradication and control measures,

shot-as-farmers-go-batty/story-fn59niix-1226320770162>; see generally, Boom and Ben-Ami, above n 32.

²⁰⁷ Olwig, above n 25, 61.

²⁰⁸ Low, *Feral Future*, above n 110. Details the threats posed to Australia’s environment by introduced species, see particularly chs 7, 10, 11.

²⁰⁹ *Noxious Weeds Act 1993* (NSW) ss 7, 12, 13, 14; other Australian jurisdictions have similarly enacted weeds laws. See, eg, *Catchment and Land Protection Act 1994* (Vic); *Pest Plants and Animal Act 2005* (ACT); *Natural Resources Management Act 2004* (SA).

²¹⁰ Franklin, above n 25, 145; *CBD* ‘Priority Questions for Consideration by SBSTTA 3’ UNEP/CBD/SBSTTA/3/Inf.18 (September 1997) 3.

²¹¹ M D Fox and D Adamson, ‘The Ecology of Invasions’ in Harry F Recher, Daniel Lunney and Irina Dunn (eds), *A Natural Legacy: Ecology in Australia* (Pergamon Press, 2nd ed, 1986) 235, 250.

²¹² *Ibid.*

then this call is consistent with the policy that presently underpins IAS regimes. In practice, resource constraints mean that regulators only deal with those IAS issues they consider the most pressing and where they have a chance of success.²¹³ The Weeds of National Significance program, for example, focuses on those weeds that require urgent attention and where eradication and control measures represent the ‘most cost-effective use of limited “national coordination” resources available from public funds.’²¹⁴

In addition, by their very nature IAS are species that have been introduced across jurisdictional boundaries. Accordingly, this often means that one level of government authorises entry of the species; and a different level of government carries out much of the containment and eradication work should the species become invasive. Accordingly, it is not clear what a more forgiving attitude means for measures such as border controls in biosecurity. Australia’s biosecurity system is administered in accordance with the *Quarantine Act 1908* (Cth), which is informed by Australia’s international obligations. The system is based on a managed risk approach that does not aim at preventing entry of all alien species.²¹⁵ Relevant treaty systems, to which Australia is a party, include the CBD, the IPPC and the World Organisation for Animal Health (OIE).²¹⁶ Provisions in these instruments relating to IAS, are designed to prevent the introduction and spread of invasive species, as well as pests and diseases of plants and animals, across international boundaries. These responsibilities also need to be read in conjunction with the rules of the World Trade Organization

²¹³ The Fourth national reports filed with the *CBD* indicate that many countries find resourcing constraints limit their environmental management, including for IAS. See, eg, *Fourth National Report to the Convention on Biodiversity: Belgium* (15 October 2009) 24; *Fourth National Report to the Convention on Biodiversity: China* (24 March 2009) 29; *Fourth National Report to the Convention on Biodiversity: Hungary* (8 June 2009) 47; *Fourth National Report to the Convention on Biodiversity: Israel* (1 December 2009) 86; *Fourth National Report to the Convention on Biodiversity: South Africa Fourth National Report* (24 April 2009) (x). These reports are available at Convention on Biodiversity, National Reports, <<http://www.cbd.int/reports/>>. This also means that regimes tend to concentrate on pests of primary production. See discussion: Agtrans Research and Noel Dawson, *Review of Progress on Invasive Species*, Final Report to Department of Environment and Heritage (Agtrans Research / Department of Environment and Heritage, 2005) 130.

²¹⁴ Weeds of National Significance Program <<http://www.weeds.org.au/WoNS/>>. [Note: Part of Weeds Australia: An Australian Weeds Committee National Initiative (of the States and Territories of Australia)].

²¹⁵ Explanatory Memorandum, Quarantine Amendment Bill 1998 (Cth) 2.

²¹⁶ *International Agreement for the Creation at Paris of an International Office for Dealing with Contagious Diseases of Animals and Annex*, opened for signature 25 January 1924, 57 LNTS 135 (entered into force 12 January 1925). As at December 2013 the organisation had 178 members.

(WTO)²¹⁷ and in particular, the *Agreement on the Application of Sanitary and Phytosanitary Measures (SPSA)*.²¹⁸ In accordance with the *SPSA*, members need to ensure that their biosecurity measures adhere either to international standards,²¹⁹ or are based on a risk assessment.²²⁰ Consequently, regimes still need to have means of differentiating between alien species that pose a threat to the environment or human pursuits, and alien species that do not pose such threats.

In making these types of decisions, governments need to balance a range of community views and expectations. Yet, if some parts of the community are not in favour of proposed introductions, this does not necessarily mean that regulators channel those views towards regulation. This is the case even where those views emanate from industry. For example, in determining a quarantine policy that allowed the importation of bananas into Australia from the Philippines²²¹ both Banana NSW and the Department of Primary Industries and Fisheries Qld²²² made submissions that they regarded the risks of entry of pests and diseases too high and these risks had not been adequately investigated. Although regulators took both submissions into account, the views expressed in the submissions did not unduly affect the outcome of the risk analysis, or indeed, the perceptions of the regulators. Given Australia's status as an exporter of agricultural products and a strong proponent of neoliberal ideologies of free trade, it arguably had to be seen as working towards international competitiveness and efficiency in the international arena.²²³

²¹⁷ *Marrakesh Agreement Establishing the World Trade Organization*, opened for signature 15 April 1994) 1867 UNTS 3, (entered into force 1 January 1995) 1. As of March 2013 the WTO has 159 members.

²¹⁸ *Agreement on the Application of Sanitary and Phytosanitary Measures*, opened for signature 15 April 1867 UNTS 493 (entered into force 1 January 1995) Annex A, art 3(c) ('*SPS Agreement*').

²¹⁹ *Ibid* art 3.2.

²²⁰ *Ibid* arts 2.2, 5.1.

²²¹ Biosecurity Australia, *Final Import Analysis Report for the Importation of Cavendish Bananas from the Philippines* (2008), released in parts A, B and C <http://www.daff.gov.au/__data/assets/pdf_file/0005/886406/PART_A_-_FINAL_-_COLOUR_COVER_AND_B-W_REST_-_PLEASE_DONT_TOU.pdf>; <http://www.daff.gov.au/__data/assets/pdf_file/0007/886408/PART_B_-_FINAL_-_COLOUR_COVER_AND_B-W_REST_-_John_081106.pdf>; <http://www.daff.gov.au/__data/assets/pdf_file/0008/886409/PART_C_-_FINAL_-_COLOUR_COVER_AND_B-W_REST_-_John_081106.pdf>.

²²² Department of Primary Industries and Fisheries, Qld, Submission to Revised Draft Import Risk Analysis Report for the Importation of Cavendish Bananas from the Philippines, Department of Agriculture (27 June 2007) <http://www.daff.gov.au/__data/assets/pdf_file/0019/319321/VARGESE_Jim_DPL_QLD.pdf>.

²²³ Damian Maye et al, 'Governing Biosecurity in a Neoliberal World: Comparative Perspectives from Australia and the United Kingdom' (2012) 44 *Environment and Planning* 150, 152; Valeria Guarneros-Meza and Mike Geddes, 'Local Governance and Participation under Neoliberalism: Comparative Perspectives' (2010) 34(1) *International Journal of Urban and Regional Research* 115, 117.

This evinces what Mave et al note as the inherent tension between policies based on neoliberalism that promote freer markets and the ‘increasingly settled view amongst scientists — that the risks posed by invasive species, pests and diseases need to be better managed...’.²²⁴ Moreover, if a species does become invasive, these policies shift the costs and management of IAS to landholders and the wider community.²²⁵

B Indigenous Perspectives and Animal IAS

The second weakness from over-tolerant attitudes towards IAS stems from the impact of these species on Indigenous peoples and their culture. As already discussed, early studies indicated extensive acceptance of alien species; yet these results have not been replicated in later research. Concern at the damage caused by plants such as mimosa, and animals such as camels and buffaloes have led to Indigenous peoples’ re-evaluating the place of alien species in country. Indigenous approaches, in fact, provide a clear example that in some cases, benign attitudes need to give way to the realities of damage attributable to alien species. Yet, acknowledging that animals can become IAS does not automatically provide guidance on how they should be regulated.

In the case of animal IAS this spotlights schisms between land management objectives that call for killing of invasive animals for the greater good, concepts of animal rights/animal welfare that focus on individual animals,²²⁶ and Indigenous perspectives on animal IAS. The conflicts with regard to first two viewpoints have already led to court action where animal activists have litigated to stop the killing of animal IAS. The most recent incidence in Australia occurred in 2007, when Animal Liberation²²⁷ argued that aerial shooting of goats and pigs in nature reserves breached the *Prevention of Cruelty to Animals Act 1979* (NSW).²²⁸ This would have been a significant opportunity for judicial guidance on the relationship between environmental protection and animal welfare/animal rights. However, the court did not address this issue; instead it disposed of the case by holding that the applicant lacked standing to bring the matter to court.²²⁹

Animal Liberation is not the only community group to be concerned at culling of species. As already noted, the majority of Indigenous communities regard

²²⁴ Mave et al, above n 224, 154, 163.

²²⁵ See, eg, Paul Martin and Elode Le Gal, Submission on the Issues Paper for the Review of Weed Management in New South Wales (2013) <<http://www.nrc.nsw.gov.au/content/documents/Submission%20-%20Prof%20Paul%20Martin%20-%20Weed%20Management%20Review.pdf>>.

²²⁶ Cowan, Warburton and Foster, above n 33; Warburton and Norton, above n 33, 159.

²²⁷ Animal Liberation is an animal rights charity <<http://animal-lib.org.au/about>>.

²²⁸ *Animal Liberation Ltd v Department of Environment and Conservation New South Wales* [2007] NSWSC 221 (1 March 2006).

²²⁹ *Ibid* [5] (Hamilton J).

culling as a cavalier and unwarranted form of management, describing it as ‘killing for nothing’.²³⁰ This is the case even where communities concur that the detrimental impacts of species such as camels and pigs need to be controlled.²³¹ This attitude contrasts sharply with non-Indigenous management practices that turn to culling as a primary means of eradicating animal IAS. The divergence in approaches is said to stem from ‘the meeting of one culture that defined itself as absolutely different from animals with another that defined itself as indistinguishable from animals’.²³² For Indigenous peoples, the variances crystallise in the key concept of totemism, where respect for a totem can manifest as beliefs that people descended from their animal forbears and that humans and animals, including alien species, belong on the same level.²³³ To traditional Western thinking, this line of thought is inconceivable, given the tiered structure of human-animal relations²³⁴ and the notion of animals as personal property.²³⁵

At a more fundamental level, the attitude of Aboriginal peoples to environmental protection starts from a markedly different philosophical foundation compared with management practices based on Western European philosophies. Aboriginal peoples regard environmental management as a shared and mutual process between community and country; hence they are not managers who initiate measures “to” the environment.²³⁶

The following extract is indicative of this approach:

Ecological restoration in its classic mode does not appear to envision people in landscapes except as managers, planners, organizers, and facilitators; it envisions human presence either in the form of scientific management or as a set of impacts to be monitored and contained. Because it excludes humans from the biotic community, ecological restoration offers no perspective on cultural diversity.²³⁷

²³⁰ Robinson, Smythy and Whitehead, above n 54, 1389.

²³¹ Vaarzon-Morel and Edwards, above n 67, 68.

²³² Franklin, above n 25, 48.

²³³ Ibid 49; Peter H O’Brien, ‘The Introduced Wild and Feral Mammals of Australia: Past and Present Relationships with Humans as Determinants of their Status’ in David B Croft (ed), *Australian Animals and Peoples in Today’s Dreamtime: The Role of Comparative Psychology in the Management of Natural Resources* (Praeger, 1991) 71, 85.

²³⁴ Franklin, above n 25, 49.

²³⁵ See discussion: Alex Bruce, *Animal Law in Australia: An Integrated Approach* (LexisNexis Butterworths, 2012) 76–7.

²³⁶ Emile J Ens et al, ‘Australian Approaches for Managing “Country” Using Indigenous and Non-Indigenous Knowledge’ (2012) 13(1) *Ecological Restoration and Management* 100, 102; Marcus B Lane and Liana J Williams, ‘The Natural Heritage Trust and Indigenous Lands: The Trials and Tribulations of “New Technologies of Governance”’ (2009) 40(1) *Australian Geographer* 85, 99.

²³⁷ Daiyi and Rose, above n 94.

Aboriginal peoples focus on the interactions and affinity between humans, culture and the environment, emphasising the significance of community ties to the wellbeing of country.²³⁸ Accordingly, this standpoint is one that more readily expands the notion of 'environment' to take in the human-animal relationship including those animals that humans have introduced.²³⁹ It is consistent with the perspective advocated by Low that society needs to live with the environment it has created.²⁴⁰ Yet it is also a standpoint that is at odds with current regulation that has generated conflict between Indigenous and non-Indigenous land managers, and which most noticeably plays out in the way that animals are regulated. The conflicts stemming from management of horses and buffalo in Kakadu National Park have already been discussed and are similar to the problems involved in the control of camels. Both Aboriginal and pastoralist land managers concur that camels cause damage and need to be managed. However pastoralists focus on the economic aspects of environmental degradation such as damage to pasture grasses; while Aboriginal land managers concentrate on environmental and cultural threats without necessarily accounting for economic damage.²⁴¹

This is not to say that Indigenous peoples are against killing or hunting of animals, *per se*; indeed as already discussed Aboriginal people agree that in some circumstances alien animals should be hunted for gain.²⁴² Moreover, Aboriginal managers will also approve slaughter of animals where it is considered to be a humane response to dealing with large numbers of animals that would otherwise die a slow death from starvation.²⁴³ However, Indigenous perspectives can be instructive because of the 'deontic' nature of the relationship Indigenous peoples have with country and animals.²⁴⁴ The sense of duty and obligation inherent in such an association does not stop animal IAS being killed, but it is incumbent on humans to consider their relationship to other living beings, not regard culling as a first resort and instead devise alternatives. It is also a viewpoint that forms part of the Aboriginal concept of 'respect for country':

²³⁸ Vaarzon-Morel and Edwards, above n 67, 68.

²³⁹ O'Brien, above n 234, 85.

²⁴⁰ Low, *The New Nature*, above n 200, 21.

²⁴¹ Vaarzon-Morel and Edwards, above n 67, 66.

²⁴² O'Brien, above n 234, 86.

²⁴³ AAP, '10,000 Wild Horses to be Killed in NT' *The Australian* 22 May 2013 <<http://www.theaustralian.com.au/news/latest-news/wild-horses-to-be-culled-in-nt/story-fn3dxiwe-1226648548218>>.

²⁴⁴ David H Bennett, 'Animal Rights and Aboriginal Concepts' in David B Croft (ed), *Australian Animals and Peoples in Today's Dreamtime: The Role of Comparative Psychology in the Management of Natural Resources* (Praeger, 1991) 53, 63.

[W]hen you visit someone else's country you have to have respect for them and how they manage their country – how they hunt. You're breaking traditional culture if you just go in and do what you want.²⁴⁵

As noted several times, Aboriginal people do not lightly turn to culling and this is a stance that warrants further consideration. Taking Indigenous views into account should require regulators to evaluate whether it is necessary to kill animals, how many animals need to be killed and to determine appropriate frameworks, including monitoring that reveals whether measures are successful. Decisions to eradicate IAS, including animals should also be clearly linked to, and be proportional to the damage; otherwise, as a Jawoyn elder noted: 'Buffalo belong here, as long as he doesn't do too much damage, he can stay'.²⁴⁶

This more measured way of dealing with animal IAS is gaining greater traction.²⁴⁷ Olsen, for example, highlights the fact that more research is needed to determine whether lethal control methods are effective in the long-term. She cites instances where culling has resulted in re-bounce increases in populations due to enhanced availability of food and resources for the remaining population.²⁴⁸

Zeng and Gerritsen have researched the eradication of camels in Northern Australia and question the effectiveness of commercial harvesting and culling as regulatory tools.²⁴⁹ The authors note that camels are regarded as both a pest and resource and that camel densities vary.²⁵⁰ In order to reduce populations, harvesting 'would need to increase dramatically'.²⁵¹ Even taking into account those zones where camel densities are high, or camels are otherwise more available for harvesting, it would take an increase in commercial harvesting in the order of 30 per cent per annum until 2022 to reduce camels to a level that regulators consider acceptable.²⁵² The authors also express a similar concern with respect to culling:

²⁴⁵ Goldie Blyth, Minaga clan, in Kakadu Board of Management and the Director of National Parks, above n 78, 38.

²⁴⁶ Robinson, Smythy and Whitehead, above n 54, 1387.

²⁴⁷ See generally, Olsen, above n 52; Kate Thorn, Robert Coventry and David Jarmyn, 'The West Coast Integrated Pest Management Program: A Coordinated Community Approach to Pest Management on the Eyre Peninsula, South Australia' (Proceedings of the 13th Australasian Vertebrate Pest Conference, Te Papa Wellington, New Zealand, May 2005); Peter West et al, *National Weeds and Invasive Animals Information Workshop: A Report on Workshop Outcomes* (National Land & Water Resources Audit, 2006); Benxiang Zeng and Rolf Gerritsen, 'Inadequate Contribution of Commercial Harvest to the Management of Feral Camels in Australia' (2013) 56(8) *Journal of Environmental Planning and Management* 1212.

²⁴⁸ Olsen, above n 52, 31, 41, 53.

²⁴⁹ Zeng and Gerritsen, above n 248, 1212–13.

²⁵⁰ Ibid 1213, 1216.

²⁵¹ Ibid 1216.

²⁵² Ibid.

The political (i.e. short term) imperative is for culling. However, this does not necessarily mean that culling by shooting to waste will succeed in controlling camel numbers in the long term. Previous large-scale culls of feral herbivores, such as the feral buffalo of northern Australia in the 1980s, produced dramatic reductions of numbers in the short term, but with a long-term population bounce back.²⁵³

If culling/killing is being undertaken for conservation purposes, and the numbers ‘bounce back’, this arguably indicates that it is a strategy that is not working. Accordingly, this point casts doubt on whether culling/killing should be carried out continuously; it also casts doubt on whether culling/killing should be increased, modified or turned into a harvesting program. At this stage, more studies are needed to provide regulators with additional knowledge regarding the long-term effect of lethal methods as a conservation tool.

However, in some localised cases involving islands, culling might be an effective regulatory response. The removal of rabbits from Macquarie Island, for example, resulted in a quick re-growth of native vegetation.²⁵⁴ However, even in this situation further monitoring and evaluation are needed to appraise whether culling is meeting long-term objectives.²⁵⁵ In other instances, monitoring can reveal whether IAS are a greater problem than originally anticipated. Thorn, Coventry and Jarmyn discuss fox predation on lambs on the Eyre Peninsula that was initially thought to be minimal, but after monitoring was recognised as ‘a significant factor in lamb fatalities.’²⁵⁶ The need to monitor long-term effectiveness of lethal measures is also highlighted in the *Report on the Review of the Caring for our Country Initiative*.²⁵⁷ It is particularly important given that in many cases information on the impacts of IAS on native species needs to be quantified even though sufficient ‘baseline information’ may not be available.²⁵⁸ In reality, without this basic information it is difficult to validate the necessity of lethal measures.

V CONCLUSION

Although the regulation of IAS was once the purview of biologists and environmentalists, the discourse has expanded to include commentary from further afield, including the social sciences and the literature on Indigenous perspectives. The richness of the discourse has attracted a variety of viewpoints

²⁵³ Ibid 1222.

²⁵⁴ Australian Government Land and Coasts, above n 12, 58–9.

²⁵⁵ Ibid.

²⁵⁶ Thorn, Coventry and Jarmyn, above n 248–4, 302, 304–5.

²⁵⁷ Australian Government Land and Coasts, above n 12, 58–9.

²⁵⁸ West et al, above n 248, iv and 15.

that appraise the IAS dilemma through different lenses. While ecologists and biologists have focussed on the damage attributable to IAS, other disciplines centre on the motives and ethics of regulation. In the latter cases, one genre from the social sciences draws parallels between the regulation of alien species and xenophobic and racist attacks against humans.

This article has argued that using racism and nativism as allegories for the regulation of alien species is not helpful, as it conflates alien species with IAS. Moreover, such approaches ignore the fact that regimes do not target the eradication and control of all alien species, rather they centre on those species that pose a threat to biodiversity and/or human pursuits. At the same time, the question of what amounts to a threat does not necessarily receive a uniform answer, nor is it an answer that is unchangeable. As society's opinions alter, so do views towards IAS. As a general proposition alien species are regarded with acceptance up to the point where their damage becomes obvious, at which stage control and eradication measures commence. Yet, even in these cases, species that are aesthetically pleasing or considered a resource evoke mixed responses.²⁵⁹ This not only calls into question the accuracy of generalisations that alien species are vilified simply because they are not native, but also weakens arguments that draw parallels between IAS regimes and racism against humans. At a more pragmatic level, these arguments do not address broader issues such as the costs of dealing with IAS; nor do these views necessarily take into account a range of community outlooks towards IAS.

The social sciences do, however, highlight the fact that society needs to re-define its relationship with nature, including with species that humans have introduced. This viewpoint is gaining increasing attention from commentators who point out that humans need to find a way of living with the environments they have created. Yet, discourses that focus on nativism and xenophobia do not address to a sufficient extent the shift in attitudes towards alien species; or as just stated, the diversity of perspectives towards these species. In particular, the discourses overlook Indigenous viewpoints on the emerging issue of how animal IAS are regulated.

Indigenous outlooks do not proscribe the killing of animal IAS, but they demonstrate that culling is not regarded as an appropriate first response. The comment that 'Buffalo belong here, as long as he doesn't do too much damage, he can stay', is instructive on a number of levels. First, it clearly reveals that attitudes towards alien species are not necessarily based on xenophobia or nativism, rather as emphasised in the next point such attitudes are based on the

²⁵⁹ Environmental degradation attributable to introduced species such as pasture grasses, sheep and cattle that have significant economic benefits are also likely to be viewed more leniently. See discussion on pasture grasses in Low, *Feral Future*, above n 110, ch 11. Although, as the discussion in part 3.2 of this article that refers to grazing by cattle in alpine areas evinces, this is not always the case.

harm that the species can cause. Thus, the second point to draw from the comment is the fact that the threat or damage attributable to buffalo is an important point in the decision-making process. This leads to a further issue concerning how that damage is appraised. This article has argued that invasive species (whether native or alien) are evaluated according to an anthropocentric construct of damage. Indigenous perspectives draw another element into the debate, namely the fact that alien species are still part of nature and this fact should be relevant to how they are managed and treated. Third, in order to understand whether the buffalo is causing damage and whether removal of the buffalo would alleviate the damage, regulators need sufficient information. Thus appropriate research and monitoring activities are essential to long-term decision-making processes. Fourth, the fact that an alien species can stay as long as the threats are acceptable, channels towards identification of the level of damage society and communities can live with. It also signals a re-working of the human-nature relationship, including society's relationship to introduced animals. Finally, the comment also calls for Indigenous perspectives to be given a voice. Policies with respect to Indigenous land managers under the NHT were criticised for failing to recognise the legitimacy of Indigenous viewpoints and marginalising Indigenous land managers.²⁶⁰ Consequently, one objective of CfoC was to employ more Indigenous rangers to work in protected areas.²⁶¹ Yet, employing more Indigenous land managers is the starting point; Indigenous views need to be given weight.

Indeed, in considering whether alien species should be introduced and whether resources should be expended on eradicating and controlling IAS, regulators could do worse than heed Indigenous perspectives. The holistic outlook that these views advocate provides a broader base for regulation that takes into account society's relationship with alien species as part of nature, as well as considering the threats posed by alien species to environmental and human values.

²⁶⁰ Lane and Williams, above n 237, 87.

²⁶¹ The Australian Government acting through the Department of Sustainability, Environment, Water, Population and Communities and the Department of Agriculture, Fisheries and Forestry *Caring for Our Country Outcomes 2008-2013*, above n 155, 8.

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