



## Camel country: Assemblage, belonging and scale in invasive species geographies



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### ABSTRACT

Invasive species and their impacts have become a focus of global environmental management. Invasive, alien and feral species are understood to represent destructive categories of organisms. However, in the context of contemporary environmental change and uncertainty, the native/alien dichotomy is no longer tenable as the basis for decision-making, and the focus on impacts presents an impasse in environmental management. The differential status of camels (*Camelus dromedarius*) over time and space illustrates the complexity of species management. In this paper we seek to move beyond the native/alien dichotomy, and disrupt the discourse of impacts, through an analysis of camel assemblages in Australia. We draw on assemblage thinking to critique the circumstances under which camels are deemed to belong, or not, and to reveal aspects of the camel story often ignored in its contemporary telling. We present three case studies: first, an historical case of the introduction of camels to Australia; second, camel management through a national-scale culling program; and third, relations between camels and 'weeds' in which camels are deemed simultaneously to belong and not belong. We argue that assemblage thinking disrupts fixed categories, and reveals agency beyond that of individual species, thus contributing to multi-scalar considerations. We find that camel belonging does not emerge from the animal or species itself, but is contingent. Finally, we argue that camel management is currently firmly imagined and enacted at the national scale, but in the context of contemporary environmental change invasive species management must take into account processes and relations across multiple scales.

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### Introduction

Invasive species have emerged as a focus for global environmental management over the past decade and a half. Fortified by extensive scientific effort, the International Union for the Conservation of Nature (IUCN) and Convention on Biological Diversity (CBD) describe 'invasive alien species' as major threats and direct drivers of biodiversity loss at the global level (IUCN, 2000; CBD, n.d.). The paradigm envisioning invasive species as 'threats', or 'drivers of change', is now entrenched in international and national environmental governance and discourse; it is inscribed in legislation, in public education campaigns, and now plays a part in the public imaginary. Invasive, alien, and in Australia, 'feral' species have come to represent unwanted, even dangerous biodiversity. The term 'feral' has come to signify classes of organisms that are destructive and do not belong, frequently pitted against 'native' species, which are ecologically valuable and do belong. In this

paper we use an assemblage approach to illustrate that this apparent binary contains far more complex elements, and argue that the current logic of managing contentious species should be interrogated with reference to objects, processes, relations and discourses across multiple scales.

An illustration of this complexity is the differential status of camels. Globally, dromedaries (*Camelus dromedarius*) exist as a domesticated species, described as 'extinct in the wild' (Wilson and Mittermeier, 2011). They are valued for their labour, meat, milk, wool, and their role in tourism, local economies and social relations, with demand leading to an international market in live animals and meat products (Abbas and Agab, 2002; Kadim et al., 2013). In Australia, with an estimated wild herd in 2008 of one million animals (Saalfeld and Edwards, 2010) (Fig. 1), camels are categorised as 'feral' and identified as 'causing significant damage to the natural environment as well as to social, cultural and economic values across their extensive range' (NRMCC, 2010, p. 1). This differential status demands that greater attention be paid to the circumstances of camels' existence, impacts and categories of belonging.

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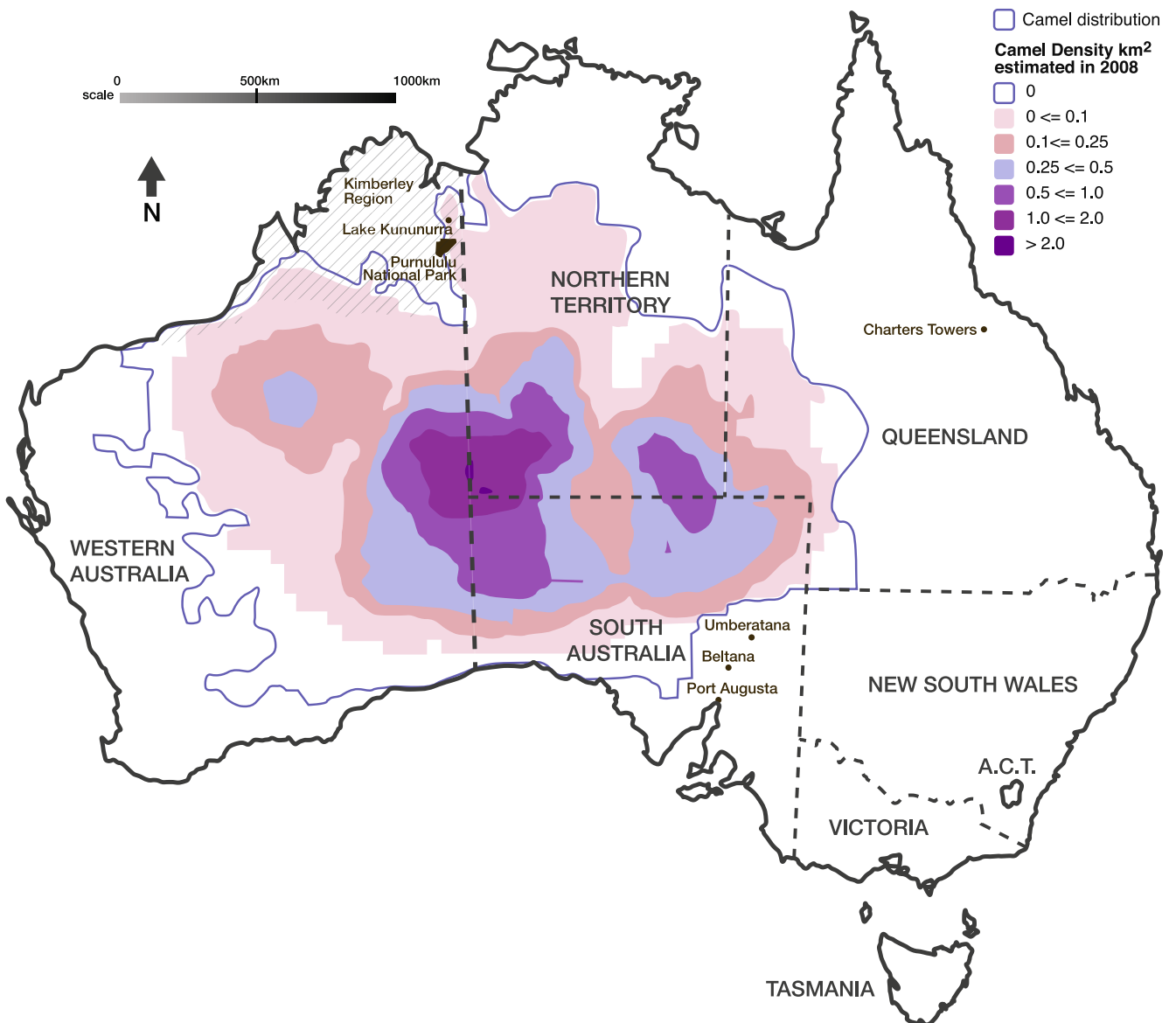
The logic of alien and invasive species classification and management is the subject of extensive debate across the sciences, social sciences and humanities (e.g. Davis, 2009; Head and Muir, 2004; Larson, 2007; Sagoff, 2005; Simberloff, 2005; Warren, 2007). In a recent high profile article, Davis et al. (2011, p. 153) urged:

It is time for scientists, land managers and policy-makers to ditch this preoccupation with the native-alien dichotomy and embrace more dynamic and pragmatic approaches to the conservation and management of species – approaches better suited to our fast-changing planet.

The native/alien binary is the source of polarised debate (Larson, 2007; Shackelford et al., 2013; e.g. Sagoff, 2005; Simberloff, 2005). Seeking a way forward, Shackelford et al. (2013) propose a ‘middle-ground’ based on caution about non-native species and impact assessment. Others argue for a focus on the potential of a species to cause ‘harm’ or ‘damage’. Notwithstanding the fact that categories ‘animal’ and ‘species’ are debated (Lorimer, 2012), and that

the term camel itself subsumes genetic and morphological difference, defining these categories, and implementing appropriate policy, is not straightforward (Larson, 2007; Sagoff, 2005; Warren, 2007). Despite the nuance of these scholarly debates, the native/alien binary ‘not only persists but is being reinforced in national and international conservation policy’ and public discourse (Warren, 2007, p. 440).

In Australia, feral species management is highly political, attracting significant resources in eradication and public education programmes (e.g. NRMCC, 2007, 2010), but the zeal goes beyond this. Feral species management (like acclimatisation before it) is part of a project of nation-building, and has come to be understood as inherently, unquestioned and unquestionably good (see Head, 2012). Scholars have invested considerable effort undoing ideas of a pristine stable nature, and in Australia this has included questioning biotic nativeness (Head, 2012; Trigger et al., 2008). Yet the work of unsettling this paradigm, and moving beyond the limited conceptual tool of a native/non-native binary, has not yet translated into practice.



**Fig. 1.** Locality map, with places mentioned in the text, and the 2008 estimated distribution and density of wild camels based on Edwards et al. (2008). These data provided the basis for the federal government’s Feral Camel Action Plan 2010.

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