

To what extent do different management regimes affect environmental impacts along the Ningaloo Coastline, Western Australia?

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Background

This paper compares the type and extent of environmental impacts created by visitors who camp under different management regimes in the Ningaloo Marine Park region. The Ningaloo Marine Park in Western Australia is a popular coastal camping destination, and has been nominated for World Heritage listing. Visitors are attracted to this remote location for its warm winters, white sand beaches, prime snorkelling and fishing opportunities. Multiple management regimes exist under several different government departments and pastoral stations. Camping areas within the 260km Ningaloo coastal strip (Fig. 1) therefore differ in road quality for access, amenities, price, and most controversially, regulation. Campers often stay in less regulated camp areas for up to five months at a time, within one hundred meters of the coast. In 2015 the Western Australian state Government is considering to relinquish the Ningaloo coastal strip, in a bid to regulate management and prevent further environmental degradation (WAPC 2004). In response to this plan the research question for this PhD study is:

‘Given the remote landscape, likely visitor increases and visitor preferences, what is the most appropriate development strategy for coastal camping areas at Ningaloo?’

Despite a growing commercial interest in the region, relatively few visitor impact studies have been undertaken. Those conducted include Hugues-Dit-Ciles et al (2004) who undertook a qualitative impact study at Three Mile surf camp, Gnaraloo. It was found that access, extent of area, direct impact of visitors and landscape changes were key impacts and called for quantitative impact studies. Further qualitative surveys by DPI (2003) and Davies et al. (2009) found that many camping activities appeared unsustainable with growing visitor numbers, but that impacts were few in the lesser-used campsites. Management is crucial to provide a sustainable tourism industry (Newsome et al. 2002). The study this paper draws from compares the environmental impacts of different management regimes and their degree of acceptance to current user groups, in order to assist visitor planning and management in the Ningaloo Region.

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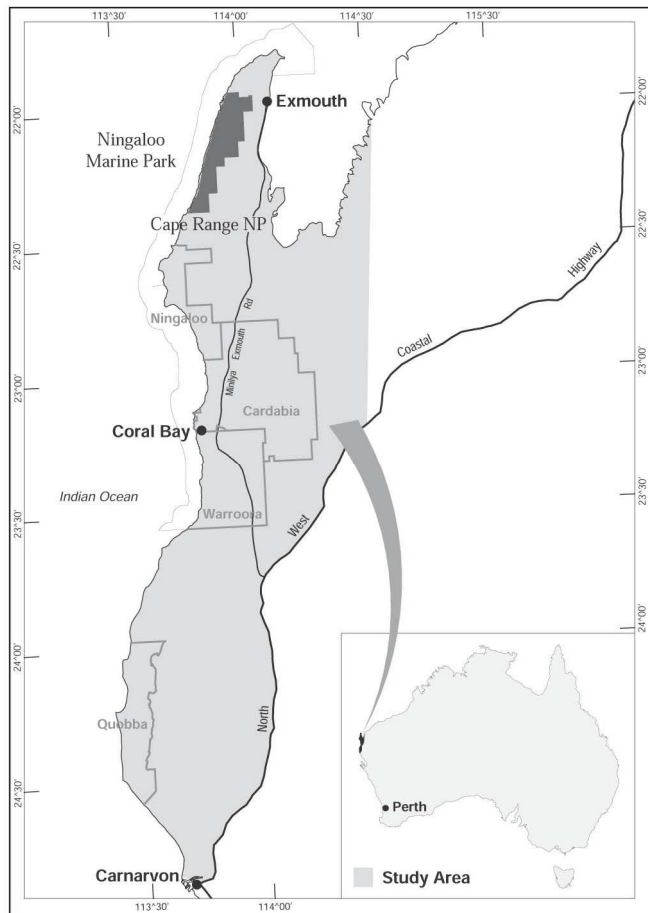


Figure 1: Map of research area

Methods

Initial impact surveys were conducted between March and April 2009. One hundred sample campsites and twelve control sites were surveyed. Both multiple indicator ratings (qualitative) and multiple indicator measurements (quantitative) were used in a combined survey approach. Indicators were derived from a combination of studies (Marion 1991, Monz 1998, Smith & Newsome 2002) and then adjusted to suit the semi-arid coastal environment.

Eight different types of campgrounds were identified, which varied in management style, road access quality, amenities, price, and regulation. Indicators selected for analysis per campsite included: campsite area, barren core area, vegetation health, litter, toilet paper, social trail number and social trail size. Control sites were located north and south of each camp area. Finding control sites both undisturbed by humans and in close proximity to camp area perimeters proved challenging. Potential control sites were either undergoing rehabilitation, were previously used for sheep and goat grazing, or contained introduced plant species. It was also unknown whether these areas had been used for camping in the past.

Preliminary Results

Preliminary results indicate that impacts at areas with different management regimes vary in both type and extent of impact. The results, however, suggest that higher regulation does not necessarily equate to smaller impacts. Most camp areas can be considered 'moderately impacted' overall, yet each indicator for each campsite was rarely 'moderate'. It was more common that a camp area had weak points and strong points e.g. a lot of litter (meaning more environmental impact), but also few social trails (meaning less environmental impact). Because of this, once impacts are identified and appropriately managed, overall impact scores for a camp area should decrease considerably. Results from the control sites indicated that feral goats (introduced pests) created more social trails and caused greater vegetation depletion than visitors in some areas. Control sites were not free from small amounts of litter, toilet paper and root exposure. It is not yet known whether this root exposure is a natural occurrence or a result of goat

presence. To increase the sample size of both initial surveys and controls within all eight camp groups, a second field trip in the Ningaloo Marine Park region will be undertaken in March 2010.

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