



Chapter 10:
Economics of feral camel control in the
central region of the Northern Territory
(summary)

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List of shortened forms

INRM	Integrated Natural Resources Management
NRM	Natural Resource Management

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Chapter 10: Economics of feral camel control in the central region of the Northern Territory (summary)

1. Summary

A cost-benefit analysis based on a bio-economic model was carried out to evaluate specific feral camel control strategies in the central region of the Northern Territory (NT). Based on expert opinion obtained through a series of workshops and meetings, and with a view to achieving the NT Integrated Natural Resources Management (INRM) Plan goal by 2020, specific control strategies for feral camels in the central region of the NT were identified (Drucker 2008).

Two different aerial control strategies were modelled. Strategy 1 involved annual removals, while strategy 2 involved periodic removals only when a specific feral camel density was reached. The direct economic benefits of feral camel control for the pastoral industry were also modelled in terms of reduced grazing competition together with reduced infrastructure damage. A single environmental service related to reduced methane emissions was further considered. Although cultural values and other environmental services are also likely to be important, their modelling was beyond the scope of this study. Consequently, the analysis carried out in this report does not account for these values.

The total present value of costs of the feral camel control strategies ranged from \$5.39 million (strategy 2) to \$6.00 million (strategy 1) over a 12-year time horizon (at a 5% discount rate), equivalent to an annualised present cost of \$608 000–\$676 000, respectively. Depending on how such a control program were implemented, these costs could be both public and private in their incidence (i.e. incurred by government and/or landholders).

Of the \$6.00 million strategy 1 costs, \$3.74 million (62.3% of total) would be spent in year 1; \$913,000 (15.2% of total) in year 2; and \$107 000–166 000 in each year thereafter. It is therefore apparent that the vast majority of the control costs are spent in the first two years of the control program, making the cost-effectiveness of a go-stop policy low (strategy 2).

Although control costs are large, they are far outweighed by the direct economic benefits to the livestock industry from reduced competition between livestock and feral camels (\$50.68 million under strategy 1 or 57.9% of total present benefits). The value of reduced methane emissions is also large (\$35.24 million or 40.3% of total present benefits), while reduced infrastructure damages make a relatively small contribution to total present benefits (\$1.62 million or 1.8%). Total present benefits under strategy 1 are thus \$87.54 million over 12 years or \$9.88 million per annum and were larger than those found under strategy 2 (\$83.98 million).

The difference between the economic benefits under the different strategies suggests that a control strategy based on annual removals is almost always likely to be preferred. We can therefore conclude that the magnitude of the benefits arising from a given control strategy should play a key role in control strategy choice. We also note that approximately 60% of the benefits (i.e. from reduced grazing competition and infrastructure damage) will accrue privately to pastoralists, while the remaining 40% (methane emissions avoided) will accrue publicly.

The net present value of control (i.e. total present benefits minus total present costs) is \$81.54 million under strategy 1. Delays in implementation of a control program could, however, reduce this value significantly. For example, a one-year delay could reduce this value by \$7.7m, largely because of benefits forgone during the delay.

Given the large positive net present value of control and the robustness of the overall findings, there would appear to be a very strong argument for considering the implementation of a full-scale, long-term feral camel control program in the near future.

1.1 Recommendations

- The difference between the present value of the economic benefits under the different strategies suggests that a control strategy based on annual removals should be preferred over a strategy of periodic removals.
- Given the large positive net present value of control and the robustness of the overall findings, there would appear to be a very strong argument for considering the immediate implementation of a full-scale long-term feral camel control program.

2. Reference

Drucker AG. 2008. *Economics of camel control in the central region of the Northern Territory*, DKCRC Research Report 52. Desert Knowledge CRC, Alice Springs.