

DESERT KNOWLEDGE CRC

The Working Paper Series

Outcomes and recommendations
of the Feral Camel Action Plan
Workshop 13–14 April 2005

Glenn Edwards

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25

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of the Feral Camel Action Plan
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1. Background

In 2004, the Northern Territory Department of Infrastructure, Planning and Environment applied for funding through the National Feral Animal Control Programme to conduct a workshop focussing on developing a coordinated and strategic program to manage the impacts of feral camels. The application was supported by the South Australian Department of Environment and Heritage, the Queensland Department of Natural Resources and Mines and the Western Australian Department of Agriculture. The application was successful.

The workshop was scheduled for April 2005 and a small but representative group of stakeholders with an interest in the management of feral camels (including government land management agencies, relevant non-government organisations and land managers) was invited to attend. Financial assistance was offered to some private individuals to help meet their transport and accommodation expenses.

The workshop was held on 13–14 April 2005. The workshop was facilitated by Roger Standen and Simon McGuinness of Rendell McGuckian Consultants Group. The workshop agenda (Appendix 1) was developed by the proponents and the facilitators. A list of those who attended the workshop and their affiliations is in Appendix 2. The workshop included three formal presentations, the key points of which are in Appendix 3.

2. Outcomes and outputs from the workshop

There was general consensus among the workshop participants that the key to successfully managing the impacts of feral camels lay in the implementation of the following recommendations:

Recommendation 1: Development of an integrated national approach to feral camel management involving collaboration and promoting attitudinal changes. This would require coordination across various jurisdictions and stakeholder groups.

Recommendation 2: Identification and protection of key assets currently or likely to be affected by feral camels (species/sites/infrastructure).

Recommendation 3: Clarification of environmentally ‘acceptable’ camel population levels across a range of situations.

Recommendation 4: Clarification of how and where the camel ‘industry’ can contribute to feral camel management.

3. Actions needed to implement recommendations

There was general consensus among the workshop participants that the following actions would be needed in order to implement the recommendations.

Recommendation 1

- Identify and remove legislative impediments to development and implementation of coordinated and integrated national approach.
- Develop a public education strategy to address perceptions about feral camels and their place in the landscape.
- Prepare a business case to justify investment in feral camel management.

Recommendation 2

- Identify and prioritise assets at risk.
- Develop and implement management programs to protect priority assets.

Recommendation 3

- Identify methods and associated costs (i.e. a scoping paper) for determining acceptable population densities for different situations.
- Assess the feasibility (including cost) of achieving these acceptable densities.

Recommendation 4

- Encourage national collaboration within the camel industry to support its development.

4. Research needed to support actions and address key knowledge gaps

There was general consensus among the workshop participants that the following research was needed to address key knowledge gaps in respect of the recommendations.

Recommendation 1

- Review legislation and policies of WA, SA, NT and Qld to identify impediments to a coordinated and integrated national approach.
- Describe the investment value (i.e. perform cost/utility analysis).
- Identify potential funding sources.

Recommendation 2

- Identify assets at risk.
- Identify factors limiting the spread of camels.
- Identify the best management options.
- Review rainfall and fire situation leading into the 2001 survey to clarify population growth model.
- Clarify dietary selectivity across the whole distributional range of the feral camel.

Recommendation 3

- Quantify impacts in relation to camel density for different situations.
- Identify the positive benefits of camels in the environment.

Recommendation 4

- Review industry approaches and quantify likely harvest levels of feral camels.

5. Factors which might facilitate or impede implementation of recommendations

A number of factors which might either facilitate or impede implementation of the recommendations were identified at the workshop.

Recommendation 1

Facilitate

- There is consensus between most stakeholder groups that some level of control is needed.
- There is some ownership of the issues.
- Camels are a national issue.
- Problem is large scale.
- Adoption of National Pest Animal Strategy.
- Number of stakeholders relatively small.
- Culling and commercial use of wild camels not mutually exclusive activities.
- Existing projects through Desert Knowledge CRC which link stakeholder groups.
- Ability of camels to co-graze with cattle.
- Positive health values of camel meat.
- Control methods exist.
- National welfare bodies exist.

Impede

- Lack of coordination between industry bodies at national level.
- Camel issues lack a national profile.
- Lack of state/territory funding to address issues.
- Remoteness of camel populations.
- Diversity of public perceptions.
- Indigenous views not well documented.
- Current market value of product is low.
- Existing low level of market development.
- Variation between states regarding policy and legislation.
- Positive profile of camel in some areas eg. tourism industry.
- Shoot to waste is a problem in some Aboriginal communities.
- National strategy accommodating divergent views may be difficult to develop.
- Economics of implementing control methods unknown.
- What constitutes an acceptable population density is unknown.

Recommendation 2

Facilitate

- There are people with the skills and knowledge to do the job.
- Techniques exist.

Impede

- Need to consider a range of scales.
- Lack of understanding of population dynamics and movements over time and how this relates to impacts.

- Lack of understanding of what level of control is needed to reduce impacts to acceptable levels.
- Current lack of resourcing.
- Time required versus immediate need for action.
- Lack of ecological knowledge on which to base prioritisations.
- Cultural limitations to identification of sites.

Recommendation 3

Facilitate

- We know the maximum rate of population growth and so can implement control measures at appropriate level to reduce populations.
- There is recognition that camels must factor in the calculation of total grazing pressure on pastoral leases.

Impede

- There may be a conflict between industry goals and environmental goals.
- Diversity of public perceptions regarding camels.
- Costly to determine camel densities even at local scale.
- Lack of knowledge regarding environmental impacts.
- Diversity of opinions on what constitutes an “acceptable” level.

Recommendation 4

Facilitate

- There is some collaboration between agencies, stakeholders and industry bodies within jurisdictions.
- Strong market force to establish industry.
- Profit motive a strong driver.

Impede

- Live export harvest is selective.
- Industry currently too small to have an impact.
- Lack of collaboration between industry groups in different jurisdictions.
- Lack of investment in industry.

Appendix 1: Agenda for the workshop

Feral Camel Action Plan Workshop: 13–14 April

The Action Plan will be built up as we move through the agenda. Day 2 will give us the opportunity to reflect on what we produced on Day 1 and modify where needed.

1.	Introductions	
2.	Why are we here?	All participants
3.	Context of the Action Plan	Facilitator
4.	What is the problem? What is missed/wrong?	Glen Edwards All participants
5.	What can be achieved? Realistic outcomes	All participants
6.	What management options do we have? What are: the circumstances they work best in their strengths their weaknesses	Murray McGregor All participants
7.	What can we learn from other harvested pest animals?	Tony Pople
8.	How would we recognise success? environmental economic social	All participants
9.	What don't we know that we need to know? - prioritise R & D needs	All participants
10.	When and how to review the Action Plan	All participants
11.	Where to from here?	All participants

Appendix 2: List of workshop participants and their affiliations

Organisation	Representative
Anangu Pitjantjatjara Yankunytjatjara Land Management	Rick Hall
Bureau of Rural Sciences	Quentin Hart
Camels Australia	Neil Waters
Cattle Council of Australia	John Stewart
Central Australian Camel Industry Association	Peter Seidel
Central Land Council	Peter Donohoe
Centralian Land Management Association	Andrea Tschirner
Centre for Management of Arid Environments	Clive Willis-Jones
Department of Agriculture, WA	Andrew Woolnough
Department of Agriculture, WA	Andrew Longbottom
Department of Business, Industry and Resource Development, NT	Phil Anning
Department of Business, Industry and Resource Development, NT	Peter Saville
Department of Conservation and Land Management WA	Peter Mawson
Department of Environment and Heritage, SA	Geoff Axford
Department of Environment and Heritage, Uluru-Kata Tjuta National Park	Jim Clayton
Department of Environment and Heritage, Uluru-Kata Tjuta National Park	Luke Guisepppe
Department of Environment and Heritage, Uluru-Kata Tjuta National Park	Craig Woods
Department of Infrastructure, Planning and Environment, NT	Glenn Edwards
Department of Infrastructure, Planning and Environment, NT	Steve Eldridge
Department of Infrastructure, Planning and Environment, NT	Cameron Wallace
Department of Infrastructure, Planning and Environment, NT	Kym Schwartzkopff
Department of Natural Resources and Mines, Qld	Jim Thompson
Department of Primary Industries and Resources, SA	Bill Giles
Department of Water, Land and Biodiversity Conservation, SA	Chris Turner
Desert Knowledge CRC, CSIRO	Craig James
Desert Knowledge CRC, Curtin University	Murray McGregor
Indigenous Land Corporation	Justin Fry
Ngaanyatjarra Land Management Unit (Warburton Community, WA)	Andrew Drenen
Pest Animal Control CRC	Glen Saunders
Queensland Camel Industry Association	Taffy Williams
RSPCA	Sharelle Hart
Rural Industry Research and Development Corporation	Peter McInnes
Rural Solutions, SA	John Pitt
South Australian Outback Research	Phil Gee
University of Queensland	Tony Pople
Warrawagine Station, WA	Robin Mills
Warrawagine Station, WA	Lyle Mills
Wallatina Cattle Operations, Anangu Pitjantjatjara Yankunytjatjara Lands SA	Rose Lester
Western Australian Camel Industry Steering Committee	Chris O'Hora
WWF, Threatened Species Network	Colleen O'Malley
Ngaanyatjarra Corporation (Docker River)	Mark Swindels

Appendix 3: Key points from the workshop presentations

Presentation 1: What is the problem?

Glenn Edwards

Dept of Natural Resources, Environment and the Arts, NT

1. There has been a series of surveys of feral camels in the Northern Territory over the period 1966 to 2001
2. The latest aerial survey in 2001 gave a minimum population estimate of about 80,000 feral camels in the Northern Territory
3. Extrapolation of the Northern Territory data gave a minimum population estimate of about 300,000 feral camels in Australia in 2001
4. The Northern Territory data indicate that the camel population is doubling every 8 years
5. Camels already have demonstrable cultural, economic and environmental impacts
6. Current attempts at management are piecemeal and have little effect on overall impacts or population growth
7. We have the tools to manage camels but there are complex issues to consider before management is undertaken. These include:
 - camels are a pest and a resource
 - there is a wide range of perspectives on feral camels (Aboriginal, pastoral, environmental, tourism etc)
 - camels are very mobile and move over large areas
 - culling is humane but emotive
 - handling camels requires special infrastructure
 - the remoteness of camel populations makes management costly and difficult.

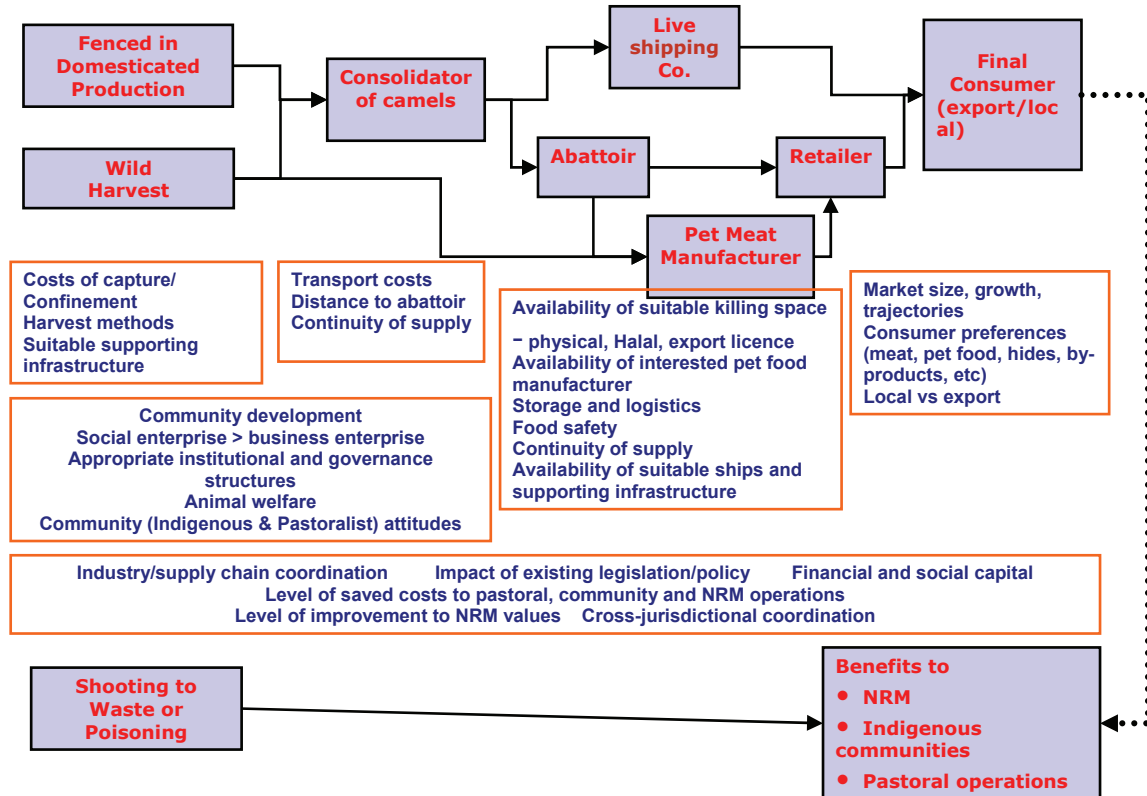
Presentation 2: What management options do we have?

Murray McGregor

Murdoch University WA and Desert Knowledge Cooperative Research Centre



Camel Value Chain Issues



Presentation 3: Commercial harvesting in pest management

Tony Pople

Queensland Department of Natural Resources, Mines and Water

1. As expected from their large body size and compared with other mammals, camels have a particularly slow maximum population rate of increase of 7-8% *p.a.* The actual rate is highly sensitive to the estimate of adult survival (e.g. 93% survival = 4% growth; 98% survival = 10% growth), highlighting the value of control methods targeting adult survival.
2. Historical survey data support a population trajectory for camels in the NT at close to this maximum rate, although the actual rate is sensitive to the initial, rough estimate in the 1960s. Theory and some empirical evidence predicts that a large mammal population will increase almost exponentially from low density up until close to carrying capacity, following a density-dependent reduction in firstly juvenile survival, then reproductive output and eventually adult survival. For large mammals, it is only when adult mortality is affected that there is a relatively substantial reduction in the population's growth rate.
3. The recent history of commercial harvesting of feral goats in eastern Australia suggests that, even with substantial price rises, commercial harvesting may not drive populations to relatively low densities. This is likely to be a result of a combination of high rates of increase in good seasons and refuges from harvesting. However, camels have a much lower maximum rate of increase and a greater potential value per head.
4. To maintain a zero growth rate for the 2001 NT camel population would require an annual harvest of ~6,100 animals. However, this ignores spatial variation in both camel density and any potential harvest. Regardless, the emphasis should be on reducing impact and, to that end, target densities (=sustainable stocking rates in dry times) of 0.2-1 camels km² have been suggested.
5. To reduce population size it must obviously be harvested at a rate higher than it increases. The life history of camels suggests that the maximum sustained yield will be at a density close to carrying capacity, rather than about half carrying capacity when logistic growth is assumed. The sustained harvest offtake required to hold rate of increase at zero will therefore increase almost linearly with increasing camel density until close to carrying capacity. However, at least initially, there will be an upper limit to the number of animals that can be harvested, which will be set by market demand and available infrastructure.
6. There will be a low density below which harvesting is not commercially viable. This threshold can be reduced by increasing the value of the harvested product, reducing harvesting costs and having alternative species (e.g. cattle, donkeys and horses) that can be harvested when the primary species (i.e. camels) is at low density. Spatial variation in camel density will preclude harvesting in many areas, particularly where access is difficult. Large-scale movement of camels will also reduce the effectiveness of reductions by harvesting.
7. Given a map of camel density and their market value, bioeconomic modelling of the cost of harvesting feral camels (e.g. costs of searching, handling and transport) across their feral range should be able to identify where harvesting is feasible and where it will have the greatest impact.

DKCRC Partners

