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**From:** [REDACTED]  
**Sent:** Monday, 30 October 2023 11:01 PM  
**To:** NRC  
**Subject:** NSW Invasive Species Management Review Submission

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To the NSW Natural Resources Commission,

Please accept the following submission to the NSW Invasive Species Management Review to the extent that it falls within your terms of reference. The submission focuses on the impact of feral (unmanaged) goats as an invasive species across western New South Wales rangelands. It summarises some of the available public information as well as including personal observations gained through 15 years engagement in natural resource management within the region.

1. **To what extent are the NSW environment, industries and communities currently impacted by invasive species?**

The impact of unmanaged goats is well documented in the Key Threatening Process “Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758 ” under the NSW Biodiversity Conservation Act 2016. This, however, fails to adequately represent the extent of the impact of unmanaged goats across western NSW rangelands, where both biodiversity and pastoral production are significantly suppressed by total grazing pressure which includes the impact of goats and kangaroos.

Some measure of the impact of total grazing pressure can be obtained from Waters et al (2017)\*. showing that goat and kangaroo management can result in biomass production increases of up to 600% depending on land type and pasture perenniality can be doubled.

Unmanaged goats significantly depress plant species diversity and regeneration, suppress fauna populations through competing for forage resources, reducing cover and degrading drought refugia areas, as well as reducing groundcover below critical erosion thresholds, accelerating soil loss. NSW rangelands are in poor ecological condition due to these often-subtle impacts where they could be a biodiversity reservoir for the state.

The relative proportions of goats considered managed versus unmanaged are a key consideration. The extent of TGP standard fencing (Hingejoint or exclusion fence) capable of containing and managing goats remains limited within the region despite expanding over the past decade. A large percentage of goats remain unmanaged or controlled by opportunistic harvesting only. The latter focuses on male-harvest only which is potentially a contributor to the strong growth of populations.

Goat populations are resilient and increasing. Ballard et al (2011)\*\* identified population trends from less than 1 million in the 1990s to 2.5 million in 2010 (Figure 1). They modelled that the projected maximum rate of increase of feral goats in western NSW would culminate in a population of 7.4 million in 2020 from a base population of 2.5 million (Figure 2). DPI estimates\*\*\* indicate a population of 6.8 million in 2021, nearing the modelled maximum increase, despite the preceding drought conditions.

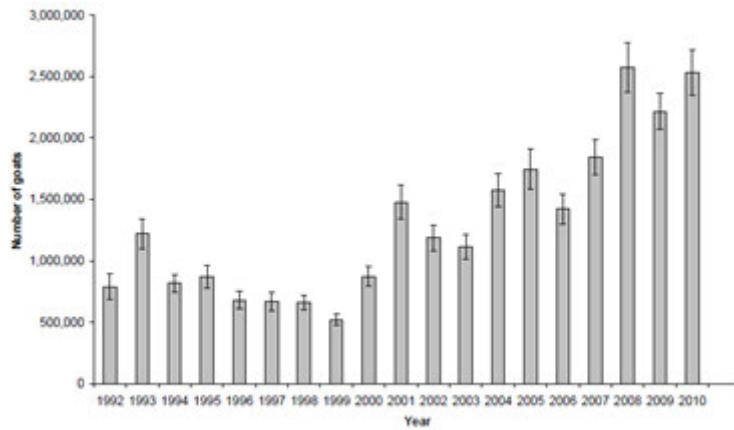


Figure 1 Goat population trend, 1992-2010 (Ballard et al, 2011)

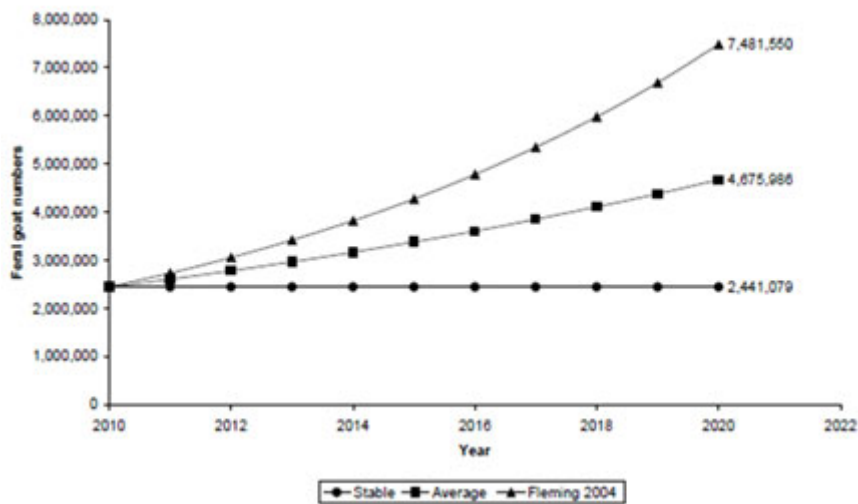


Figure 2 Modelled projections of goat populations given high, medium and neutral indices of increase (Ballard et al, 2011)

\*Waters, C. M., Orgill, S. E., Melville, G. J., Toole, I. D., and Smith, W. J. (2017). Management of grazing intensity in the semi-arid rangelands of southern Australia: effects on soil and biodiversity. *Land Degradation & Development* 28, 1363–1375. doi:10.1002/ldr.2602

\*\*Ballard, G., Fleming, P., Melville, G., West, P., Pradhan, U., Payne, N., Russell, B. and Theakston, P. (2011) Feral Goat Population Trends in Western New South Wales Rangelands. Unpublished final report to the Western Catchment Management Authority, May 2011 (NSW Department of Primary Industries: Orange)

\*\*\*<https://www.dpi.nsw.gov.au/about-us/publications/pdi/2021/goatmeat>

## 2. To what extent do you think existing programs in NSW are effectively managing invasive species?

Goat impacts and population increases appear to be largely ignored in natural resource policy, funding and research due to the belief that the feral harvest industry and transition to managed herds adequately manages numbers. There appears to be a political belief that unmanaged goats should not be addressed due to their economic importance in the region. However, population increases and the dynamic fortunes of the goatmeat industry suggest that a laissez-faire approach is inappropriate.

## 3. What, if any, are the key barriers to effective management of invasive species?

Unmanaged goats can be effectively managed by appropriate fencing and the control of watering points by trapyards. The key barriers are:

- The perceived value of feral goats as an economic resource, to be preserved as a backup for when livestock or wool markets decline. There is a resistance to a change to traditional practices amongst landholders who are accustomed to viewing transient goats as a bonus to property incomes.
- There is a ready trade in low-value properties suitable for harvesting goats. Properties in the east of the region are often solely managed for opportunistic harvest, usually associated with the decline of

unnecessary property infrastructure. The development of management infrastructure is considered an impediment for these enterprises enjoying low input costs.

- The perceived cost of appropriate fencing to control goats, especially in far west areas. This undervalues the potential improvements in pasture condition achievable when overgrazing is managed. The fencing of vast rangelands in northern and central Australia as part of the Brucellosis and Tuberculosis Eradication Campaign to control feral stock movement has proven highly economic in the long term.
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#### **4. How has invasive species management changed since the introduction of the NSW Biosecurity Act 2015 launch legislation and associated programs and plans?**

There has been zero impact on feral goat management as a result of the legislation. Goats were ignored in the first draft of the NSW Invasive Animals Strategy and received cursory reference in the final version. Presumably, their limited consideration was due to their economic value and perceptions of adequate control through commercial activities.

#### **5. What are the future risks posed by invasive species to the NSW environment, industries and communities?**

Free-ranging unmanaged goats present a significant risk to the spread of exotic diseases should they be introduced to western NSW. Existing risk assessments downplaying the potential role of goats as a vector have been based on research that suggests goats do not intermingle with domestic stock in the Coolah Tops vicinity based on terrain preferences. This is less so the situation in western NSW where unmanaged goats share water and forage resources in close proximity to other stock.

#### **6. What opportunities do you see to improve the outcomes of invasive species management in the future?**

The control of unmanaged goats across western NSW rangelands opens the opportunity for a managed goat industry. A managed herd offers improved consistency and sustainability for the goatmeat industry, especially for facilities such as the [REDACTED] Goat Abattoir.

The control of overgrazing by unmanaged goats opens opportunities for vastly improved rangeland management by implementing practices such as rotational grazing and pasture rest. Outcomes of the ensuing improved land condition could include better pasture biomass and composition as well as groundcover. Other flow-on implications include:

- Better habitat for native fauna, starting with invertebrates through to raptors and small mammals
- Better pasture production where more productive grass species predominate and biomass increases
- Reduced wind and water erosion, reducing dust loads across eastern NSW in drought as well as the amount of sediment entering the Darling River
- Improved drought resilience. Landholders with control of total grazing pressure have suggested that the onset of drought is deferred by up to nine months
- Improved biosecurity as stock are better contained and disease outbreaks contained by perimeter fencing
- Better management of the total grazing pressure impacts of irruptive kangaroo populations. The movement of macropods is partially constrained by goat-proof fencing.

thank you

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