

# Analysis and Interpretation of Long Term Spotlight Monitoring in Relation to Fox (*Vulpes Vulpes*) populations on Eyre Peninsula

Rob Coventry

Eyre Peninsula Natural Resources Management Board, Elliston

**INFORMATION**



## Key messages

- **The Eyre Peninsula Natural Resources Management Board (EPNRM) invests significant funds into fox control and monitoring provides ongoing information to enable an assessment of the effectiveness of control and allocation of resources.**
- **Fox populations in most areas decreased over the survey period 2002-2009.**
- **Fox observations were on average 55% lower in 2009 than in 2002.**
- **Decreases in fox populations are likely attributed to the annual community coordinated baiting programs but further data collection and analysis should provide a conclusive link between baiting and fox population declines.**
- **EPNRM spotlight monitoring program represents one of the best databases of information collected for informing pest management decision making anywhere Australia.**

## Why do the trial?

The implementation of a coordinated spotlight monitoring program was an original component of the West Coast Integrated Pest Management Program (WCIPMP) and later the Eyre Peninsula Pest Management Program (EPPMP) and aimed to determine the influence of control activities (baiting) on the changes in populations of observable fauna (both introduced and native species) with a notable focus on the presence of foxes.

## How was it done?

- 2002 – Six initial spotlight monitoring transects established within the WCIPMP area, with monitoring undertaken on one night every second month. Spotlight monitoring protocol developed to ensure consistency of approach across all survey sites.
- 2003 – Additional survey site added to program.
- 2004 – Initial analysis of data completed and recommendations provided by O'ConnorNRM (consultant) to improve monitoring efficiencies and maximise results.
- 2005 – 2009 – Monitoring program extended to wider Eyre Peninsula region. Change in monitoring methodology to survey sites 3 times within a 2 week period, in both February and August each year.
- 2009 – Further analysis of data completed by O'ConnorNRM with recommendations on

further refinement of survey methodology and report prepared discussing the change in fox presence.

## What happened?

Analysis of the data was undertaken by O'ConnorNRM and concluded that fox populations on Eyre Peninsula (EP) have declined significantly over the survey period and that the use of an adaptive monitoring approach based on species detectability can improve the ability to detect changes in population trends whilst not putting additional pressure on project resources.

A definite causal link between the decline in fox populations and the increase in community coordinated baiting still requires further monitoring and forms part of the recommendations for the future of the program. This is based on the fact that coordinated baiting was underway prior to the start of spotlight monitoring and as such no true baseline data of pre-baited fox populations is available.

Preliminary analysis of additional species data indicates over the survey period no decline in rabbit or kangaroo populations were observed. This leads to the suggestion that the decline in fox populations is not principally linked to environmental factors experienced throughout the survey period such as drought, but could most likely be associated with the increase in coordinated landholder fox baiting across the Eyre Peninsula landscape.

### What does this mean?

- Analysis of long term spotlight monitoring data shows a decline in fox populations on EP between 2002 and 2009.
  - Further research and monitoring is required to conclusively determine the role of community coordinated fox control in the population decline and what effort will be required to sustain this decline.
  - Further research to determine the causal link may require variations in methodology
- and potentially the temporary halting of baiting for a period of time in some districts.
- Further research, including economic analysis, could identify optimal control strategies for managing feral animals for production and conservation outcomes.
  - Further analysis of spotlight data needs to be undertaken for additional species such as rabbits and feral cats to determine the inter-relationship between population dynamics.
  - Anecdotal reports from across

EP suggest an increase in sightings of native fauna such as echidnas, goannas and malleefowl which are vulnerable to predation by foxes. Further research is required to draw conclusive relationships between the decline in fox populations and an increase in these species.

### Acknowledgements

Patrick J. O'Connor (O'ConnorNRM), Scott A. Field, Andrew J. Tyre, David Armstrong (Department for Environment and Natural Resources)

