

**Newsletter September 2024** 

# **National Feral Deer Update**

From National Deer Management Coordination Project

The NFDAP has been bustling with activity over the past few months. We've participated in the Australasian Vertebrate Pest Conference in Sydney, contributed to a talk at the Australian Biosecurity Symposium on the Gold Coast, and hosted a South Australian Aerial Shooters workshop in July. We're also gearing up for upcoming forums and a workshop in Tasmania.

The 19<sup>th</sup> Australasian Vertebrate Pest Conference took place in Sydney from July 29<sup>th</sup> to August 1<sup>st</sup>. This event gathered practitioners, researchers, wildlife managers, and policy advisors to exchange ideas and discuss the future of vertebrate pest management. With the theme "Translating Science into Effective Management," the conference highlighted exemplary research and successful management strategies while showcasing techniques that bridge research with practical, long-lasting solutions.

The 3<sup>rd</sup> Australian Biosecurity Symposium was held on the Gold Coast from August 27<sup>th</sup> to 29<sup>th</sup>, aligning with National Biosecurity Week (August 26<sup>th</sup>–30<sup>th</sup>). This event was designed to influence the evolution of Australia's biosecurity system to 2030, with a focus on involving all Australians in strengthening our biosecurity framework and fostering a widespread biosecurity movement.

In this newsletter, we spotlight some of the key research from the Australasian Vertebrate Pest Conference, particularly focusing on the management of feral deer across Australia, as well as providing insights from the South Australian Aerial Shooters workshop.





3rd Australian Biosecurity Symposium

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**OPeter Jesser** 

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# **Upcoming events**

<u>The Global Nature Positive</u> <u>Summit</u> 8-10<sup>th</sup> October 2024 Sydney, NSW

<u>Territory Natural Resource</u> <u>Management Conference</u> 19-21<sup>st</sup> November 2024 Darwin, NT

<u>Australasian Wildlife</u> <u>Management Society</u> 3-5<sup>th</sup> December 2024 Fremantle, WA

Read more about feral deer at <u>www.feraldeerplan.com.au</u> Visit the *In The News* page to view past newsletters

# WHAT'S BEEN HAPPENING

# Workshop to align aerial operations in South Australia

The recent South Australian Aerial Shooting Practitioners Workshop attracted over 25 representatives from Government land management agencies across the state. This event facilitated collaboration and discussions on best practices, cross-agency cooperation, and areas for improvement within aerial shooting practices across multiple species, including feral deer. Participants included representatives from the Department for Environment and Water, Forestry SA, Green Adelaide, 10 Landscape Boards, the Department for Primary Industries and Regions, and SA Water.

The morning session highlighted each agency's individual programs, addressing the challenges faced in their aerial culling operations while also sharing innovations and valuable lessons learned. Discussions emphasised the importance of aligning planning between agencies, sharing operational overviews, and ensuring compliance and approval from landholders.



In the afternoon, the focus shifted to enhancing aerial culling of pest species. Topics included standardising auditing processes, integrating mapping tools and programs, firearm types, and the briefing and debriefing of operations. The session concluded with deliberations on creating a collaborative statewide program to improve efficiency and effectiveness.

**OPeter** Jesse

To foster ongoing collaboration and information sharing, the workshop will be held annually in South Australia, aiming to advance best practices and strengthen cross-agency cooperation in the state.



Workshop attendees from across South Australia met to discuss aerial shooting practices.



Government of South Australia Department for Environment and Water



Government of South Australia Department of Primary Industries and Regions



**ForestrySA** 



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# Ecological and economic models for cost effective management of feral deer in South Australia

#### Peter Hamnett – Flinders University

Identifying environmental predictors of deer presence is important for developing strategies and policies for managing deer at a landscape scale.

In some parts of Australia, feral deer are widespread and highly abundant, but in South Australia, the distribution of feral deer is patchy.

PhD student Peter Hamnett and Professor Corey Bradshaw from Flinders University's Global Ecology Lab developed a species distribution model to identify environmental predictors and simulate feral deer habitat-suitability across South Australia.

Peter and Corey compiled records from culling, monitoring and opportunistic sightings to produce a dataset of over 15,000 feral deer records. Explanatory variables were drawn from publicly available datasets and included climatic variables, along with elevation, and distance to historical and current deer farms, roads and public water resources.

Precipitation and proximity to historical and current deer farms were revealed to be the strongest predictors of deer habitat suitability, which corresponded strongly to areas with average annual rainfall above 400 mm and increased steadily with decreasing distance to historical/current deer farms within a threshold distance of ~ 200km.



**OPeter Jesse** 

Predicted feral deer habitat suitability in South Australia.

This finding corroborates work of the South Australian government to prevent the escape of farmed deer and to eradicate feral deer.

The habitat suitability predictions are helping to prioritise management both across the current range of feral deer, and in locations of likely future invasion. The results will support decision-making and implementation of South Australia's Feral Deer Eradication Program.

**OPeter Jesse** 

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# Responses of invasive deer to management actions in Kosciuszko National Park

### **Eliane McCarthy – University of Sydney**

Fallow, red, and sambar deer are present in the Australian Alps, including Kosciuszko National Park (KNP). Their browsing, trampling, and wallowing can inflict lasting damage on this fragile environment. Eliane's PhD research, in collaboration with the NSW National Parks and Wildlife Service - Cross-Tenure Feral Deer Management Project, used GPS tracking to uncover unique risks posed by each species in KNP.

Fallow deer occur in the highest numbers and select for and pose the highest threat to lower-elevation agricultural land. Red deer prefer the high elevations of the national park, while sambar deer occupy both agricultural areas and park areas, and damage watercourses and burnt areas.

Since February 2022, thermal-assisted aerial control has been used extensively to manage these populations, but deer densities remain relatively constant. Her research combining movement data and remote camera arrays identified several factors that may have prevented further population declines:

- Deer movements in and out of the control area suggested that the control scale may be too small (collared fallow deer moved up to 80 km out of the area), with new deer likely repopulating the area after control efforts. This prompted an expansion of the control area.
- Fallow deer may be shifting towards nocturnality during aerial shooting, reducing activity during the day, and increasing activity at dusk, making them harder to target.
- Higher concentrations of female deer were found in lower-lying agricultural areas, and focusing control efforts on areas with higher female densities might more effectively curb population growth and lead to longer-term population declines.

Ongoing population monitoring, and the continuous refinement of monitoring technology and methods are essential, not only to track numbers but also to understand the demography, movement, and behaviour of target species, as these factors are key to the success of control measures.



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# Sambar Deer Control Program in Namadgi National Park

#### **Heather Burns – ACT Government**

In alpine areas of Australia, sambar deer (*Rusa unicolor*) are becoming an increasing threat to endangered ecosystems such as alpine bogs and fens. Previously, lethal control methods were limited to ground-based shooting which can be restricted by terrain and scale of the management unit.

Heather's study aimed to compare two shooting methods, ground shooting and thermallyassisted aerial culling, for controlling sambar at low densities in Namadgi National Park, ACT. This program was the first to use this specific thermal technique for deer in mountainous, alpine areas of Australia. They also used four camera arrays to monitor sambar activity in areas within and outside the control area. These camera arrays were established before the control programs commenced, and allowed for a before/after control/impact design to determine the effect of the control program on sambar activity.



**OPeter Jesse** 

In summary, there are four key takeaways for land managers:

- Thermally-assisted aerial culling was the most effective method for controlling Sambar Deer at low densities in a mountainous area.
- Ground shooting may be beneficial where deer populations are highly concentrated in key areas or as a complementary method.
- Thermally-assisted aerial culling removed more sambar deer, covered a larger area, was cheaper per area covered, removed more animals per hour, and allowed for the concurrent removal of other pest species.
- Initial analysis of the camera array data indicates that sambar activity decreased significantly after the control operations.

# **OPeter Jesser**

# Predicting local chital deer distribution and abundance in Northern Queensland

#### **Cameron Wilson – Department of Agriculture and Fisheries Queensland**

Understanding species abundance is essential for successful control programs. Without measuring pre-control abundance, records of culled numbers lack context. Transect counts are commonly used to estimate abundance, but non-random transect placement can bias data towards certain environmental features (e.g. roads). This bias complicates extrapolating abundance estimates to broader areas with different environmental conditions. Density surface models address this by linking species sightings with environmental variables, enabling more reliable extrapolations.

In this study, they combined 11 years of vehicle spotlight counts of chital deer (Axis axis) with environmental data on two properties northwest of Charters Towers, Queensland. At Spyglass, density estimates fluctuated but showed a slight increase over time (see Figure 1). Densities at Niall were initially high but declined until transect counts ceased in 2020. These density changes can be attributed to environmental factors, such as rainfall or drought, and human interventions, like control measures. (Continued on page 7)



Figure 1: Chital deer density estimates according to density surface models on two study sites in northern Queensland. Accurate depictions of density allow for more definite measures of control program success

## STAY INFORMED

# **OPeter Jesser**

The strength of density surface models lies not only in estimating past species abundance but also in predicting future abundance based on potential environmental changes. These models can forecast how abundance and its spatial distribution might respond to factors like increased rainfall, drought, or landscape clearing.

This predictive capability can enhance the precision of control timing, leading to longerlasting effects. By providing more accurate abundance estimates, these models can also improve estimates of the population proportion that should be removed to suppress growth. Additionally, visualising the spatial distribution of density offers a strategic blueprint for more precise placement of control measures in the environment (see Figure 2).



Figure 2: Graphical display of a density surface model indicating the distribution of chital deer density at Spyglass in December 2023. The ability to predict the change in spatial distribution of density is important for improving the placement of control programs.

# In the News

#### South Australia:

Deer gather at Adelaide's doorstep as hunters try to curb growth

#### New South Whales:

Local Land Services call on landholders to report feral deer sightings

Feral deer targeted in Port Stephens area

Discovery on suburban road exposes 'worst emerging' problem in Australia

#### Victoria:

Deer are 'protected wildlife' in Victoria. These hunters want it to stay that way

#### Western Australia:

National Biosecurity Week 2024: Aerial surveys to assess feral deer populations

Preliminary NSW Invasive Species Management Report Invasive Species Review



Snare your feral deer community engagement success story for our upcoming newsletter!