



CENTRE FOR
INVASIVE SPECIES SOLUTIONS

NATIONAL FERAL DEER COORDINATOR

FINAL REPORT FOR PROJECT P01-E-003

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We are a not-for-profit, member-based organisation formed to address the impact of invasive plants and animals across Australia.

We acknowledge the Traditional Custodians of the lands on which we meet and work and pay our respects to Elders — past, present and emerging.

We acknowledge all Aboriginal and Torres Strait Islander peoples and their continuing connection to country, culture and community.

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South Australian Department of Primary Industries and Regions (PIRSA)

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INTRODUCTION

BACKGROUND

Deer were brought to Australia for hunting and farming in the 1800s. Feral populations became established and grew over time, but until recent decades their impacts were not widely recognised. Feral deer populations are now large and well established, and their impacts on the environment, primary production and communities are getting worse.

Deer are in all states and territories of Australia, but they are in largest numbers in the eastern parts of Victoria and New South Wales, where they are spreading quickly. For example, in New South Wales, the six species of feral deer now inhabit 22% of the state, where their distribution has spread by 35% since 2016. In Victoria, the distribution of deer has now spread to about 40% of the state. Populations are smaller and more isolated in the west of New South Wales and Victoria and in other states and territories, but even some of these populations number in the tens of thousands (Figure 1).

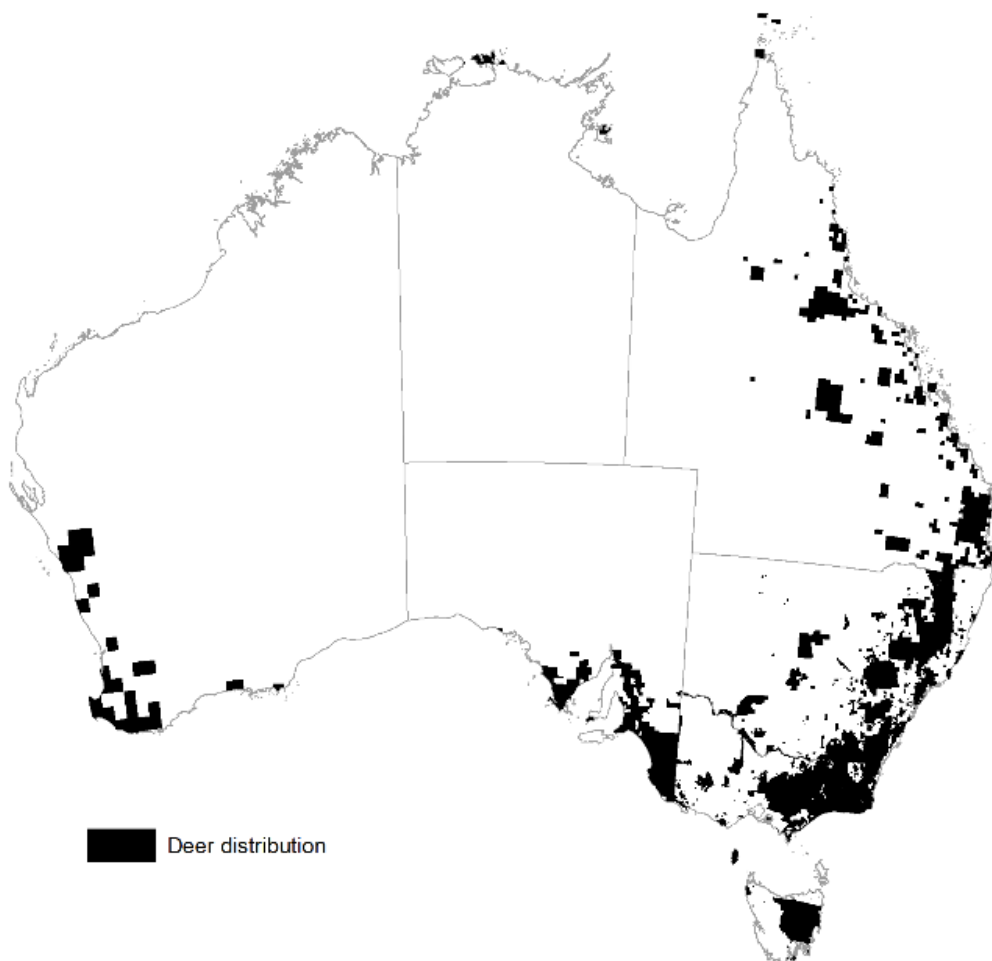


Figure 1. Distribution of feral deer in Australia in 2022

The number of feral deer in Australia is not exactly known but could be between one and two million, with this number projected to grow rapidly in the near future.

Current controls are not enough to manage the impacts of these populations – we need to adopt new tools and coordinate our approaches to protect our environment, people and economy from the impacts of feral deer.

Australia's feral deer problem costs land managers and governments tens of millions of dollars every year. Land managers are forced to pay for costly measures to protect the land, through activities such as deer culling or exclusion fences to protect pastures, crops, plantations, biosecurity and natural vegetation, particularly in areas recovering from bushfires. Transport departments are investing in culling and exclusion fencing along highways and railways to reduce vehicle collisions with feral deer. Local government councils are struggling to cull feral deer in urban and peri-urban areas, gardens and ovals.

Across Australia, people are starting to recognise the problem and are taking action.

The Australian Government and state and territory governments are investing more than \$40 million on feral deer research and management between 2018 and 2024.

Communities are forming feral deer control groups to network and share ideas and successes. Agencies, local government councils, corporate organisations and state and territory governments are supporting these groups in partnerships. To make sure the actions developed by the community groups and agencies are effective and coordinated across the country, and to motivate more groups into action, a National Feral Deer Coordinator Project (hereafter 'the project') was developed by the Centre for Invasive Species Solutions, funded by the Department for Agriculture, Environment and Water and led by the Department for Primary Industries and Regions South Australia.

The coordinator model was adapted from the foundational work of the National Wild Dog Facilitator and the Victorian Rabbit Action Network, both of which have successfully encouraged best practice coordinated action over many years.

The project was also developed to raise the profile of feral deer issues, which have appeared relatively recently in comparison to other established pest animals, and also to prepare communities that have not yet been impacted by feral deer but are likely to be affected in the near future.

AIMS OF THE PROJECT (JULY 2020 – JUNE 2022)

In July 2020, the project sought to engage groups of farmers to increase their awareness of feral deer impacts and their capacity to control deer, and to help farmers coordinate their efforts. To support better coordination and motivate more control activity, the project also aimed to develop a National Feral Deer Action Plan, led by a steering committee, and to raise awareness and capacity through workshops, training and online material (including an Action Plan website). A National Deer Management Coordinator was engaged in October 2020 to deliver these aims.

Feral deer will only be controlled through comprehensive and coordinated containment and impact reduction programs, including new control tools. The Action Plan aimed to combine these approaches to outline a multifaceted management solution for Australia's feral deer problem.

Between July 2021 and June 2022, the project also engaged a Feral Deer Support Officer, who sought to increase awareness of environmental impacts of feral deer (through collation of information, workshops and production of materials), coordinate community-led control efforts in bushfire-affected areas and develop metrics of environmental impacts. This component was funded by the Department for Agriculture, Environment and Water under the bushfire recovery program.

METHODS

Coordinated feral deer control programs need all stakeholders to understand the issues and to support change through active participation. The project used formal, informal, face-to-face and remote engagement to develop this social licence with a range of stakeholders from impacted communities, the broader public, agencies, organisations, governments, researchers and pest controllers. The project also co-funded activities with agencies and community groups to demonstrate best practice feral deer control and deliver training for feral deer control.

The following figures indicate the scale of engagement and activity conducted:

- 101 meetings and workshops held, attended by 1,619 people (including some repeat attendances at different meetings) to engage community, agencies and stakeholders
- 31 meetings and events held, attended by 357 people (including some repeat attendances at different meetings) for staff and researchers associated with Centre for Invasive Species Solutions projects
- 34 media articles mentioned aspects of the project
- 19 videos: eight stories about [how deer are impacting](#) farmers and Australia's native environment in Tas, SA, Vic, Qld, NSW; eight [control tool videos](#); and community stories about deer in the [Gold Coast hinterland](#), moving from [impact to regeneration](#) and [population growth](#)
- five [newsletters](#)
- a [website](#)
- several [forms and templates](#) to assist community groups and stakeholders with feral deer management.

RESULTS

COMMUNITY-LED DEER CONTROL

The project has facilitated, empowered or supported community groups and land management agencies to begin or increase efforts on their coordinated feral deer control projects. These included new deer management projects in West Tamar/Launceston (Tas); Buckleboo (SA); Gold Coast (Qld) and Gold Coast Hinterland (Qld); Cape Liptrap, Foster and Mount Best (Vic); and south-west Western Australia. Existing programs on the Limestone Coast (SA) were expanded. The project also provided regular expert-panel support to the Northern Rivers Deer Prevention Program (Tweed Shire, NSW), Harrierville Community Group (community education events, Vic), the East Melbourne Peri-Urban Deer Group, and regular support to the [Victorian Deer Control Community Network](#) (consisting of many groups).

The project has also compiled a [list of coordinated programs](#) to help people find more information on nearby programs. The project has supported several community or agency grant applications (in Vic, SA, Qld, NSW); and the two project staff sit on a number of panels, steering committees and working groups. This work has highlighted the diversity among communities and the different resources, capacity, governance, legislation and size of feral deer problems, reinforcing the need for best practice to be flexible and tailored.

SUPPORTING DEVELOPMENT OF NEW TOOLS

The project has also facilitated three trials of new control tools to increase the suite of control options available for land managers. These included a 15-hour trial of [thermal assisted aerial control \(TAAC\)](#) for red and fallow deer (a first for these species in Australia), an environmental DNA dam-water trial (a first for deer in Australia) to inform locations of an aerial cull, and the use of artificial intelligence (AI) modelling and 4G cameras to inform ground culling in the Gold Coast Hinterland. Results of the three trials were presented by the Coordinator to local community group meetings after each trial, and the TAAC trial data was analysed for effectiveness and welfare in a [journal article](#) (submitted for review to *Methods in Ecology and Evolution* journal) . The project also provided oversight of an investigation into a potential bait for feral deer.



Figure 2. (Left) The helicopter (from Heli Surveys), shooter and thermal camera operator used in the trial of thermal-assisted aerial culling for red and fallow deer on the Limestone Coast (September 2021); (Right) A map of the Buckleboo dams sampled for eDNA of red deer (red/yellow dots show presence of deer; blue dots showed absence of deer), to determine the spatial extent of an isolated population to inform an aerial cull in June 2022.

The project developed [simple metrics for community groups](#) to measure the impacts of feral deer on bushland. It has set up community-led monitoring programs to track the effectiveness of feral deer control on environmental assets in Victoria and Queensland. This method was developed in a workshop of bushland ecologists from eight projects around Australia, and the project partnered with the University of Melbourne to trial the method with community members in the field.

RAISING AWARENESS

The project has raised awareness of feral deer impacts and control options through state-level masterclasses in South Australia (November 2021), Victoria (March and June 2022) and Queensland (July and September 2022). It also co-funded a feral deer TAAC training course with the Department of Primary Industries and Regional Development Western Australia for nine accredited shooters from three states (in June 2022) and hosted five education events in Victoria, South Australia and Queensland.

The project also created [a map](#) demonstrating the overlap of the 2019–20 bushfire-affected areas with the feral deer distribution, to promote priority control in habitats recovering from bushfires. A social media campaign was developed as a pilot to inform a future national awareness program.

The pilot was designed to be nationally consistent but tailored to build social licence for different communities in four regions (Launceston, South Gippsland, Hunter Valley, Limestone Coast) in four states (Figure 3). Newsletters, stories, web links and useful operational and planning documents have also been added to the project's website (Figure 4) and distributed to community networks to build awareness and capacity.

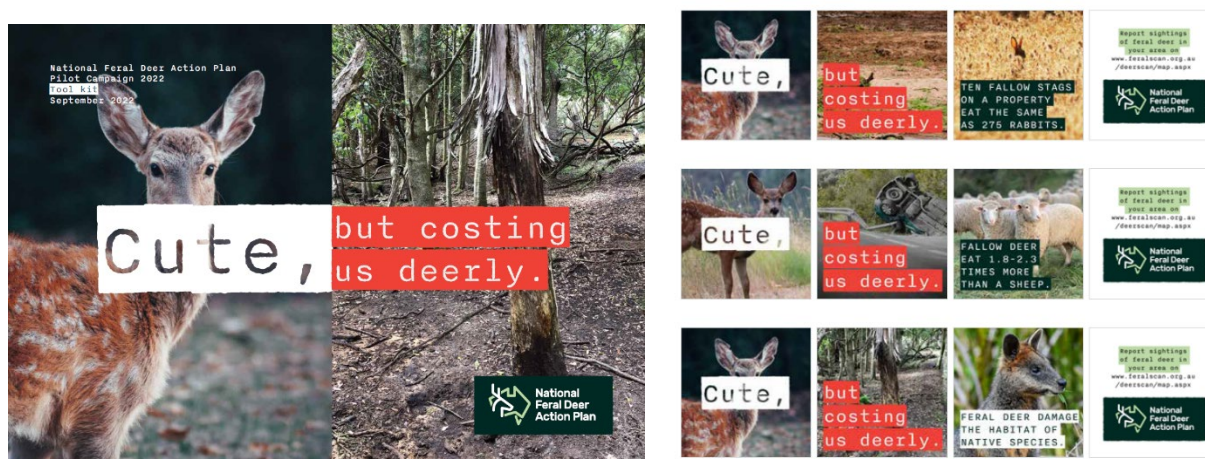


Figure 3. Awareness campaign graphics prepared for brochures, a billboard, print newspapers and Facebook, in four pilot locations.

The project drafted a literature review on the impact of feral deer to threatened species and ecological communities, to contribute to a potential nomination of feral deer as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999*. This literature review has recently informed content for a draft Threat Abatement Plan (in progress).

The project drafted a National Feral Deer Action Plan, under the guidance of an Action Plan Working Group. The group has representatives from governments at regional, state and federal levels; non-government organisations (including Centre for Invasive Species Solutions); environmental and agricultural sectors; research organisations; and volunteer and professional shooting sectors. It is chaired by an independent farmer.

The draft action plan has encouraged priority actions by state agencies, particularly new deer control programs in wilderness and peri-urban areas in Tasmania, eradications of satellite populations in Western Australia (being planned) and Eyre Peninsula (SA). The draft plan has also been used to

support local community plans, develop three new or revised state deer management plans (in Tas, SA and Qld) and progress preliminary plans for national feral deer management zones.

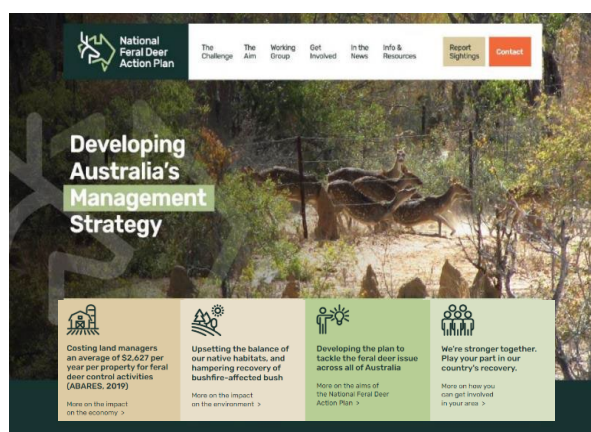


Figure 4. The National Feral Deer Action Plan webpage

CASE STUDIES – BUILDING CAPACITY IN COMMUNITIES

The project has facilitated community groups to plan and begin coordinated deer control programs. These programs are promoted by the project to encourage other groups to follow suit. A few programs are described below.

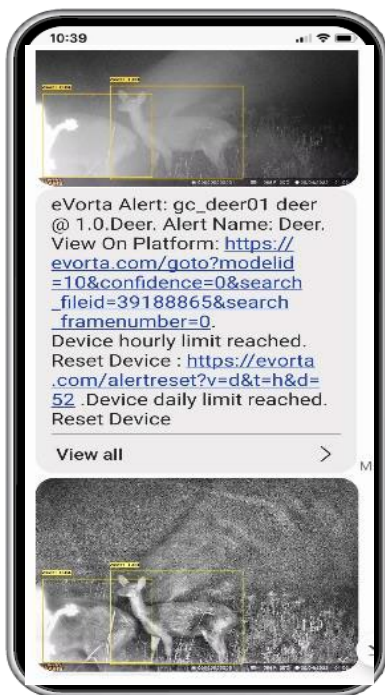
GOLD COAST HINTERLAND AND GOLD COAST COMMUNITY GROUPS (QLD)

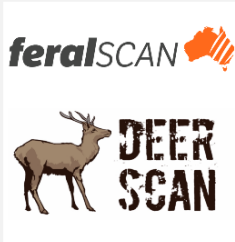
In December 2021, project staff were alerted to a handful of small acreage landholders who were impacted by feral deer in the [Gold Coast Hinterland](#), an area that had been affected by bushfires in 2019–20. The project worked with a few champions to host a community meeting, which was attended by 35 people. No coordinated feral deer management had occurred in the area previously. The local council had been hesitant to take a lead, due to previous community backlash. The project worked with the council, the community and a local non-government environmental education organisation ([Watergum Inc.](#)) to co-design a governance model and a deer management plan. They formed the Gold Coast Hinterland Pest Management Group, which was independent of but supported by the Gold Coast City Council. On-ground activities (reported sightings, education and culling by a professional shooter) were independently managed by Watergum.

A coordinated deer management program began, using one professional shooter across 12 properties. Eight landholders developed a carcass management plan (involving a few communal pits that were dug for the burial of all carcasses). It is anticipated that more properties will participate soon. The project supported a trial of 4G cameras linked to an AI program that could detect feral deer in real time and advise the shooter where and when to focus efforts (Figure 5). Watergum also ran a community-wide education event, a social media campaign, a [DeerScan](#) awareness campaign and opportunities to go on 'deer walks' or volunteer to review footage from non-4G (traditional) motion-sensor cameras that were set up to inform the shooter of deer activity (Figure 6).

The collaborations, community support and strong governance structure lead to commitment of another year of funding by the council to continue the program (July 2022 to March 2023). The project staff have reduced their facilitation role and now offer advice and support as needed.

Nearby, the project also facilitated a separate feral deer control program in peri-urban parts of the Gold Coast City Council area. An awareness evening event attracted 30 residents, with talks from four project partners. There was a 93% increase in monthly reporting of feral deer in the area following the community event, which also resulted in increased funding by local councillors for future deer management.






Report Deer Sightings

Use **Feral Scan** to report sightings of deer and deer damage.

When councils apply for federal funding for invasive species control, they need to provide evidence that there is a problem in their area.

There is lots of community discussion of deer on the Gold Coast but very few sightings are reported, making it very difficult to justify funding being allocated to the area.

You can help to change this by reporting sightings of feral deer and deer damage using **Feral Scan**.




Go on 'Deer Walks'

The Gold Coast is vast and we need help from the community to monitor more areas for deer activity. You can help to look for deer by going for regular walks on your properties or in your local area.

Take the opportunity to get out into nature for a walk with your friends and family and look for evidence of deer as you go.

If you have a smart phone you can track your walk using **AllTrails** and then forward the files to us. This lets us see which parts of the Gold Coast are being monitored for deer activity and helps us accrue data.



Review our Footage

Watergum has motion sensor cameras scattered around the Gold Coast.

Although they are looking for deer, they are triggered by any motion, meaning that there are often thousands of images that need to be checked.

Wildlife cameras offer unique insight into the nature and you will likely spot many different species in addition to deer.

This can be a fun activity that you can do from home that will help us better support native species. More details coming soon

Figure 5 (left). Images of feral deer detected by 4G cameras with AI, sent to a mobile phone in real time.

Figure 6 (right). Examples of community awareness-raising activities by Watergum (posted on Watergum's website and promoted via social media) to boost reporting and social licence to better manage deer in the area.

CAPE LIPTRAP AND MOUNT BEST COMMUNITY GROUPS (VIC)

In January 2021, an agronomist from [South Gippsland Landcare Network](#) contacted the Coordinator seeking advice on starting a deer control action group. The project worked with a small team of community champions from the community, Landcare and Parks Victoria to co-develop a community communication plan, a coordinated control plan and a community event. The first community event attracted 35 local residents (plus 31 apologies from interested people), who heard from the project's Support Officer and impacted residents. The community agreed to form a network of properties that used volunteer (and some paid) shooters to coordinate efforts to reduce deer numbers across all their properties. A private (registered) DeerScan group enabled safe communication and control efforts between group members.

In the two months following the community event, 70 feral deer were reported to DeerScan (previously none were reported), and 19 were culled. With the support of the project the group has raised awareness through a widely-shared [radio interview](#), and the Support Officer developed one short [video](#) about the impacts felt by the Cape Liptrap residents, and another [on reporting](#) to encourage more participation. Several property owners have collaborated to erect deer exclusion fences on four properties to protect remnant bushland, and they are undertaking regular bushland [vegetation monitoring](#), which was designed by the project (Figure 7).

The project has also helped the Cape Liptrap group to write a successful grant application to support their deer control efforts, supported further [events](#) and encouraged them to engage with the [Victorian Deer Control Community Network](#) and the implementation of Victoria's Deer Control Strategy through the Department of Environment, Land, Water and Planning Victoria.

The Cape Liptrap deer action group has recently motivated neighbouring community champions to commence their own deer control groups. For example, Mount Best group began its campaign with a meeting that attracted 30 residents in June 2022, and it is now also supported by the project.



Figure 7. The Cape Liptrap deer action group area (top left), community group leaders (top centre), erecting exclusion fences (top right), installing motion-sensor cameras (lower left) and a community meeting to design a coordinated feral deer control plan (lower right).

PROJECT BENEFITS

The project has facilitated, empowered or supported several community groups and land management agencies to begin or increase efforts in their coordinated feral deer control projects. The project now has a suite of case studies to promote to new groups to show them a range of control and engagement strategies and motivate them into more action.

Some of the barriers to collaborative control were unexpected, including poor governance (between councils, agencies, NGOs and community groups), unrealistic expectations of local agencies by communities or lack of a dedicated champion. The project worked with each community to overcome specific barriers and set up ongoing systems (e.g. fit-for-purpose sustainable governance systems, or committees or community plans) to ensure collaborative deer control will grow without the help of the project. Overcoming these barriers has armed the project with a more diverse toolbox of engagement strategies to help different communities in the future.

The project found particular value and influence by co-investing small operational funds with community groups to demonstrate control options. Small investments included contributing to a professional shooter in the Gold Coast Hinterland, to work across many properties strategically, and using new 4G AI real-time cameras, which resulted in ongoing funding from the council to continue and grow the program.

The project also contributed to awareness campaigns in five regions, which supported local investment into ground control. The project co-funded camera monitoring and eDNA analyses in Buckleboo (SA), which resulted in the local agency funding a follow-up aerial cull. Some community groups have also been successful in grant applications that the project has co-written, co-designed or provided support letters for, which has prompted new deer control programs.

Some of the recurring online forums and collaborative initiatives in the project have nurtured relationships between regular attendees. This has led to the formation of larger regional networks. The Cross-Border Northern NSW/Southern Qld deer group is one of these, which aims to share data, knowledge and collaborations.

Three new tools may not have been developed, trialled or promoted for some years without this project. The TAAC trial in late 2021 demonstrated new possibilities for agency programs seeking to remove feral deer from densely vegetated areas. Following the trial, agencies have funded plans to use TAAC in Tasmania (Walls of Jerusalem National Park); Queensland (Wild Duck Island); and Western Australia, where feral deer have not historically been a priority for the state. It is the main tool being used in the statewide eradication of 40,000 feral deer in South Australia (2022–32).

The project provided oversight of another Centre for Invasive Species Solutions project (and led the advisory panel) that investigated potential baits for feral deer. Over the past 12 months of this work, the dialogue, social licence and appetite for a future bait has increased considerably among agencies in Australia. The project recognises that a well-planned public consultation on potential baits will be needed.

Successes in the use of AI with 4G cameras, and the potential of eDNA, have also prompted new interest in deer program managers in New South Wales, Tasmania, Queensland and Western Australia who wish to use this new technology.

The project's combined focus on awareness, capacity building, national strategy and engagement has likely contributed to a recent interest by conservation stakeholders in exploring options for a Threat Abatement Plan, which will help protect Australia's environmental assets into the future.

One of the most enduring benefits of the project is the successful promotion of the need to eradicate small isolated feral deer populations before they grow and begin impacting communities. Established pests are rarely culled where they are in small numbers, but this is a particularly effective strategy for feral deer that have not yet reached their potential distribution. Prevention, eradication and containment has been a strong focus of presentations, videos and media articles in the project. The

number of groups or agencies seeking to tackle their small peripheral or isolated local populations has increased over the duration of the project. These include Louth (NSW), several patches on Eyre Peninsula (SA), Tasmania, south-western Western Australia and Northern Rivers (NSW).

NEXT STEPS

This project has set up networks, programs, trials and plans that will continue to be delivered by stakeholders in future years. The project will continue to work closely with the Centre for Invasive Species Solutions to promote outcomes of feral deer research, collaborate with other coordinators working on other pest species to improve integrated management, seek efficiencies in reporting and awareness and develop engagement material.

The National Feral Deer Action Plan will be finalised in coming months, and options for a Threat Abatement Plan for feral deer will be progressed through the Threatened Species Scientific Committee. The 18 actions in the draft action plan also provide a clear work plan for a Coordinator (and Action Plan Implementation Committee) to facilitate or support the following actions over the next five years:

- support registration of a bait for feral deer (and associated delivery mechanisms)
- develop a national awareness program (including expansion of the social media pilot)
- increase development and distribution of targeted extension material
- support collation of maps (and data collection) to track the spread and impacts of feral deer
- promote regulated use of firearm suppressors for feral deer control (through state laws)
- support research, demonstration sites and training to improve best practice (particularly in peri-urban areas)
- identify options for accreditation of volunteer shooters
- support and coordinate a network of local feral deer coordinators
- establish a cross-regional (national) containment zone of focused surveillance and response, to slow the spread of feral deer
- support systems, tools, approaches and initiatives to eradicate and prevent isolated feral deer incursions
- investigate options to include farmed deer on the National Livestock Identification System
- assess that site management plans prioritise nationally and internationally significant places of high conservation
- support feral deer control programs to protect priority threatened species and ecological communities.

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