Too Good To Spoil
Too Precious To Lose

Delivering biosecurity on Kangaroo Island from 2013–18

Biosecurity is the **protection** of terrestrial and marine environments, agricultural industries and human health from the adverse **impacts of pest, diseases and weeds**.

Why should we care?

Effective biosecurity is crucial to protect Kangaroo Island from the impacts that pests, weeds and diseases may impose on biodiversity, primary production and social amenity values. The financial impact on primary production and tourism could be significant if particular pests were to establish on Kangaroo Island, and the success of niche agricultural enterprises, such as the apiary industry, rely heavily on freedom from pests and disease. Kangaroo Island's biosecurity system supports the export of higher quality primary products, which may provide a competitive advantage in some markets and allow entry into others.

What are we doing about it?

The Too Good To Spoil project operated from 2013–2018 with $911,240 of funding from the Australian Government National Landcare Program. The project aimed to significantly upgrade Kangaroo Island's biosecurity and safeguard its unique standing as a biodiversity refuge and conservation haven of Southern Australia. The project also aimed to minimise the risk of future pest invasions by developing and implementing a comprehensive capacity building and surveillance program that empowered Islanders to build a frontline defence against new pest invasions and existing infestations. Underpinned by a targeted visitor education program and the redevelopment of biosecurity strategies and response plans, it enabled Kangaroo Island to adopt an approach of prevention rather than cure.

Government of South Australia

Natural Resources Kangaroo Island

Australian Government | National Landcare Program

KANGAROO ISLAND TOO GOOD TO SPOIL

What have we achieved?

Biosecurity Strategy for Kangaroo Island

The Biosecurity Strategy for Kangaroo Island 2017–2027 contains a framework to support a robust biosecurity system for Kangaroo Island. It includes guiding principles and foundations, sets high level objectives with supporting strategies, guides governance arrangements, outlines a transparent risk assessment approach, explains the resourcing of operational activities, and identifies roles and responsibilities for all parties (see Figure 1).

The Strategy is grounded in the overarching legislative and governance framework that is in place for biosecurity at the state, national and international levels for Australia. It aims to support state, national and international biosecurity commitments through the implementation of this strategy. The Strategy builds on the policy framework of the *Kangaroo Island Quarantine Policy 2007*, to reduce the risks posed by the introduction and spread of disease and new pest species with invasive potential.

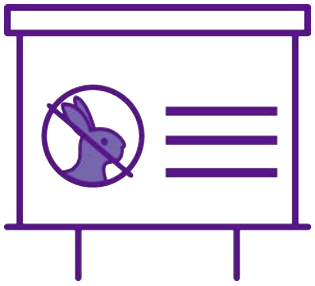
Figure 1. The Biosecurity Strategy at a glance

Working with the community to reduce biosecurity risks

The Too Good to Spoil project focussed on increasing awareness of the importance of biosecurity among the Kangaroo Island community and visitors to the Island. The project tried to encourage behavioural change that would result in informed compliance with biosecurity measures. This was achieved using a range of techniques including direct engagement with key industry groups, the farming community, tourism sector and community groups, participation in field days and shows, and biosecurity inspections at peak visitation times at the Cape Jervis Ferry Terminal.

Feedback from participants has been very positive, with a keen interest from the community and visitors alike in supporting the protection of Kangaroo Island. Over the course of the project there has been a fivefold increase in reports of potential arrivals of terrestrial pests, from two in 2015, to 11 in 2017.

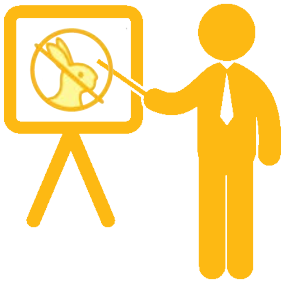
Engagement achievements



New quarantine warning **signs** installed and **old signs upgraded** at Cape Jervis.

5,000 Too Good to Spoil awareness cards printed for use on the ferry and planes, with over **2000** taken.

30 talks to community and industry groups about biosecurity



12 biosecurity **displays** presented at annual shows, field days and local events

Biosecurity **pre-arrival messaging** now given on Qantas and REX **flights** to KI

4 new **biosecurity bins** installed at Kingscote Airport, the Cape Jervis Ferry Terminal and Penneshaw visitor centre.

20 media articles published in local media and **4** interviews given to ABC radio about KI biosecurity.

Preventing pests arriving

One of the highest risk pathways for potential biosecurity pests to Kangaroo Island is through visitors, vehicles and freight arriving on the ferry services from Cape Jervis.

In December 2015, biosecurity vehicle checks were trialled at Cape Jervis with Biosecurity SA. The trial proved successful and since then regular checks have been conducted of passengers and vehicles on Kangaroo Island ferries.

The main focus of the checks is to increase awareness, find out how visitors are obtaining information about the Island's biosecurity requirements, and to advise KI residents about how they can assist in protecting the Island.

The biosecurity risks include, honey products, used beekeeping equipment, unwashed potatoes or those for planting, declared animals and plants such as rabbits, foxes, noxious and invasive weeds.

Used agricultural and earthmoving equipment pose biosecurity risks from adhering soil and plant material and used boats for marine pests. Livestock and fodder imports pose risks of animal and plant disease and weeds.

27,304

passengers checked for biosecurity incursions on **261** ferry services

97

recreational **boats** checked for marine **pests**

The community and travelling public have been very receptive to the biosecurity checks and supportive of the opportunity to learn more about the risks and why they are important to Kangaroo Island.

A number of interesting interventions have been experienced including a salvation Jane and blackberry plant in separate pots (both declared weeds), four consignments of dirty potatoes (two of the owners chose to wash them in bathroom so they could take them), 30,000 layer chickens, a consignment of snakes for wildlife park, 145 kg of honey from a commercial producer from KI wanting to return it (not permitted) and ten consignments of new beekeeping equipment.

These vehicle checks, combined with the widely distributed information cards and signs, has seen a major change in biosecurity awareness amongst ferry passengers. People coming to the Island now seem to have a greater understanding of the biosecurity risks.

There has been a great reduction in the amount of honey being brought to Kangaroo Island. Previously about one car in ten would be carrying honey, but that's now decreased to about one car in every 100 (see graph below).

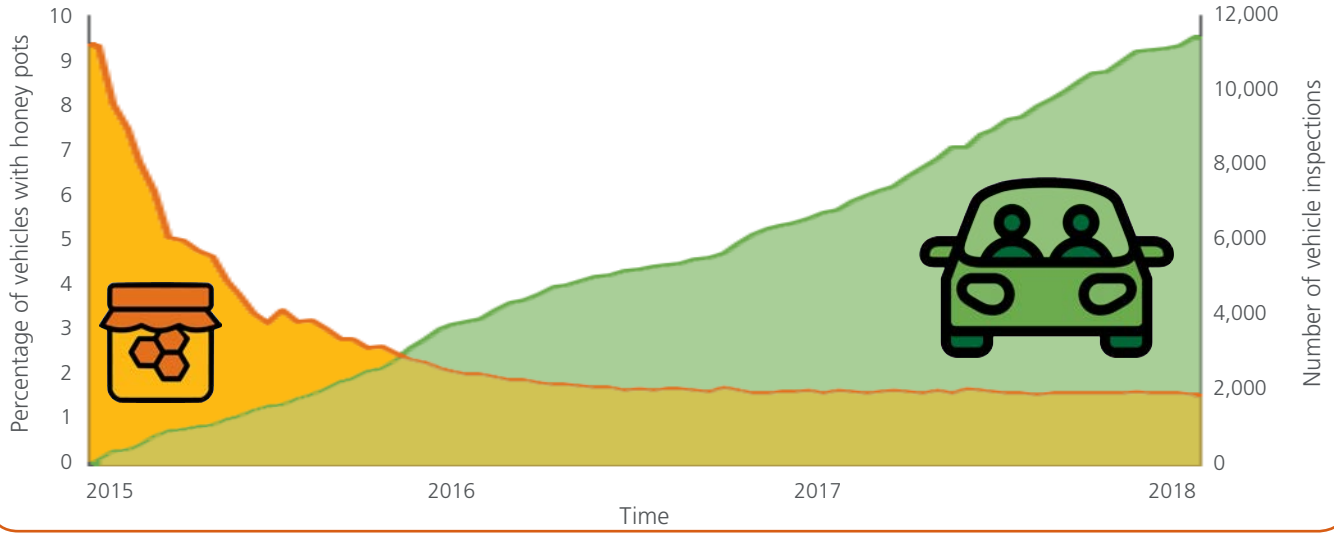
28 consignments of ornamental plants checked with **2** declared weeds found

26 consignments of livestock National Vendor Declarations reviewed

172 agricultural vehicles and equipment checked

Including shearing plants, tractors, spray units, header combs, mobile pregnancy testing units, log splitters, feed bins, silos and seeders

The amount of honey brought to Kangaroo Island per vehicle



Responding to pest incursions

Rapid response to a potential or identified biosecurity risk is vital. For success the processes for early detection, identification, reporting, assessment and the subsequent allocation of resources to necessary activities must be in place and understood by everyone who needs to be involved. Incursion response plans bring all of this information together and outline clear processes, equipment and personnel required to quickly respond to reports of new pests, improving the chances of swift and successful eradication or containment. A suite of incursion response plans were developed and successfully used for six of the pests posing the greatest risk to KI during the project.

Removing rabbits

Rabbits are a significant biosecurity risk to Kangaroo Island. Wild rabbits can produce up to 12 kittens every year, so any escape by rabbits onto the Island could result in rapid population growth, devastating agriculture, causing erosion and impacting on native vegetation. The movement, sale and ownership of rabbits to Kangaroo Island is prohibited under the *Natural Resources Management Act 2004*. To prepare for a rabbit incursion a KI rabbit response plan was developed and activated when rabbit sightings were reported.

Reports of sightings were investigated through using delimiting surveys to determine the spread of an incursion (if any), searches for rabbit presence (including scratching, burrows, droppings), and surveillance deploying motion activated cameras. In late 2017 a farmer's report prompted an investigation that lead to the discovery of a live domestic rabbit on a property on Kangaroo Island. The Island resident was found guilty of the possession of a live rabbit and was convicted and fined at the Environment, Resources and Development Court in Adelaide. This case was broadly circulated through the media with strong condemnation of the irresponsible actions of the rabbit owner.

Chasing caltrop

In 2017 caltrop seeds, a serious agricultural weed, was found in feed lupins brought to Kangaroo Island. An astute farmer found the declared weed when checking the consignment on its arrival from the mainland.

A response plan was immediately developed to contain the breach through tracing other consignments from the same source, undertaking inspections and providing advice to the five farmers affected. Protocols were developed for the movement of the infested product, the areas where the lupins were handled were surveyed and germination was tested. A process for reducing the risk of spread through processing the contaminated lupins was developed and awareness of caltrop was raised with the general farming community.

8 reports of wild rabbits investigated with

0 wild rabbits found and

1 live, domestic rabbit found and removed from KI.

100 tonnes of lupins infested with caltrop processed and **1,500** ha searched and treated for the weed.

Hunting for European wasps

European wasps have never been found on Kangaroo Island. They cause significant problems on the mainland, including as a social amenity pest around outside eating areas and barbecues, as they are attracted to sweet foods and meats. They also pose a risk to agricultural production, in particular grapes and honey production. Early in the project an incursion response plan was developed based on the experiences of agencies attempting to prevent European wasp establishing in Western Australia. Relationships were made with local freight and transport companies and 20 early warning monitoring traps were set up at high-risk entry points to detect wasps before they become established and to enable a rapid eradication if they were found. An education awareness campaign encouraged the community to report suspicious wasps. Numerous potential sightings and samples of wasps have been provided by community members but fortunately no European wasps have been found.

Catching khapra beetles

In 2016 an exotic insect pest of stored grain, the khapra beetle (*Trogoderma granarium*), was detected in imported goods at a transport warehouse on Kangaroo Island. This incursion was a significant risk to biodiversity and the grain production industry. The insect is found throughout Asia, Africa, the Middle East and Europe and feeds on dried plant and animal products, with a preference for grain and stored products. It is considered one of the 100 worst invasive species in the world.

A coordinated response involving the Australian Government, Government of SA and Natural Resources Kangaroo Island immediately began. Project staff helped coordinate local activities, including managing infected properties, identifying local resources available and assisting to arrange incident control. The warehouse was fumigated and movement of all goods traced and their destinations searched and extensive monitoring, surveillance and trapping conducted. No khapra beetles have been found in goods delivered from the infected warehouse, or their destinations following the extensive response actions, averting a major risk.

0 wasps found after **25** sites monitored for European wasps each year and **35** community reports investigated.

7,315 consignment records assessed for risk of khapra beetle contamination

13,986 potential insect samples analysed with **0** khapra beetles found between 2016–17

211 properties searched and monitored for khapra beetle

Managing marine pests

Kangaroo Island has no known established colonies of marine pests, however, marine pests such as European fan worms and European sea squirts are well established in marinas on the mainland. These pests threaten Kangaroo Island marine biodiversity and the fishing, aquaculture and tourism industries here. Once established, they spread rapidly, out-competing native marine organisms and altering marine ecosystems. They attach to both natural and artificial surfaces, such as vessel hulls, and can be easily moved with the vessel to new pest-free waters, where they establish new colonies.

To prevent the devastating impacts of marine pests to Kangaroo Island, this project developed a marine pest surveillance program which, combined with rapid response capabilities, stopped marine pests from establishing at key entry points into KI. As part of the program five high risk vessel entry points were identified and surveyed annually with underwater surveillance dives to investigate infrastructure and vessel hulls there. All marine pest incursions found were eradicated. Innovative tools, such as the introduced marine pest protector and the Venturi marine pest vacuum pump, were trialled and successfully operated to eradicate large, complex marine pest incursions detected on hulls.

A *Marine Pest Incursion Response Plan for KI* was developed and tested to provide an emergency response framework to guide decision-making and coordinate rapid response actions and communication strategies for the region. Strong collaborative relationships were developed with local industries, key stakeholders, marina managers and yachting clubs which resulted in marine pests being reported. An education and awareness campaign encouraged the recreational boating sector to adopt national biofouling management guidelines to prevent the translocation of marine pests to KI. On KI, boat users, visiting yachts, recreational snorkellers and divers are made aware of these unwanted species through signage, presentation at field days, and engagement with groups such as 'Friends of the Sea'.

354

marine pests removed during **67** underwater surveillance dives inspecting marine infrastructure and **237** vessel hulls

1,467 ha surveyed for marine pests at **15** high risk sites

Restricting the spread of diseases

Phytophthora cinnamomi or Pc, is a soil-borne water mould that produces an infection which causes a condition in plants called 'root rot' or 'dieback'. It is known to be present on Kangaroo Island, although all the locations where it is present are not currently mapped due to the time and cost of such an exercise.

A number of activities have been undertaken during the project to manage the disease and to hopefully reduce its spread.

Good hygiene practices have been promoted to prevent Pc being carried from one area to another on vehicles and on feet. Hygiene cleaning stations have been fitted to all Department for Environment, Water and Natural Resources cars on KI. Awareness of good Pc hygiene practises has also been raised with utility providers and contractors to KI to ensure they have procedures and equipment to treat equipment and tools to prevent spreading Pc as they go about their work. These groups have readily accepted their responsibility to assist in reducing the risk and quickly engaged with the project officer to ensure Pc and biosecurity management are part of their operations.

The project has also worked closely with developers to ensure Pc and biosecurity are considered during the planning and construction of major developments on KI, such as KI Wilderness Trail.

Proactive activities, such inoculating native vegetation with phosphite at Yacca Flat in Flinders Chase National Park by the Green Army, and assisting non-government organisations and community conservation groups to treat vulnerable areas with phosphite, has been a positive development.

The implementation of a local policy that requires all revegetation supported by the KI NRM Board to use only plants of KI provenance in the plantings further supports the prevention of the spread of the disease.

Working with local industry groups

From the project's inception the Biosecurity Liaison Officer worked closely with industry groups to raise awareness of potential risks to their industries, and to support them to improve their biosecurity practises to reduce the risk of a biosecurity incursion impacting on their businesses.

Agriculture

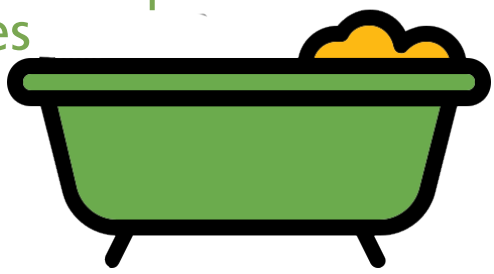
By engaging collaboratively with the Island's farming community, the Biosecurity Liaison Officer helped to create biosecurity actions as a 'social norm' amongst the sector. From working with key members of the agricultural industry, attending events, performing demonstrations and encouraging willing participants, there has been a shift in the overall support for biosecurity, as evidenced by the preparedness to report biosecurity risks, and the increase of biosecurity signs on farm gates.

When the project began, ram sales were targeted as opportunities to promote biosecurity, in particular the use of biosecurity footbaths. Initially some farmers were hesitant to be involved, but once footbaths were seen at a number of events they realised their potential benefits and farmers and stock agents became keen to install them. As the project progressed farm biosecurity kits were also developed and promoted and sold at ram sales and local field days.

To protect the agricultural industry on KI, the Biosecurity Liaison Officer regularly inspected farm machinery being imported and advised of the best ways to clean and sterilise any contaminated machinery before arriving on KI. As the project progressed the increased incidence of clean machinery being imported to Kangaroo Island was a sign of the acceptance of biosecurity by the farming community.

Local industry group AgKI has been very supportive of the project and recently expressed that they considered biosecurity to be high priority for the Kangaroo Island NRM Board. Ongoing work with Biosecurity SA / PIRSA will further support the increase acceptance of the importance of biosecurity to agricultural production.

22 biosecurity **footbaths** sold to **farmers** and stock agents to **prevent diseases** being spread onto farms



4 displays at AgKI events to demonstrate biosecurity methods, tools and activities to farmers

Beekeeping

Kangaroo Island is a bee sanctuary and biosecurity requirements are in place prohibiting the movement of bees, used bee equipment and honey onto the Island, as KI is free from several diseases that are found on the mainland. Early work with the KI Beekeeping Association saw them place biosecurity at the forefront of their terms of reference. The Biosecurity Liaison Officer worked closely with the Association, encouraging beekeepers to register their hives, investigating potential biosecurity breaches, such as bee keeping equipment and honey and propolis products being brought to KI, and conducting risk assessments of potential goods for import such as bees wax wraps, chopping boards and bulk mead for distillation.

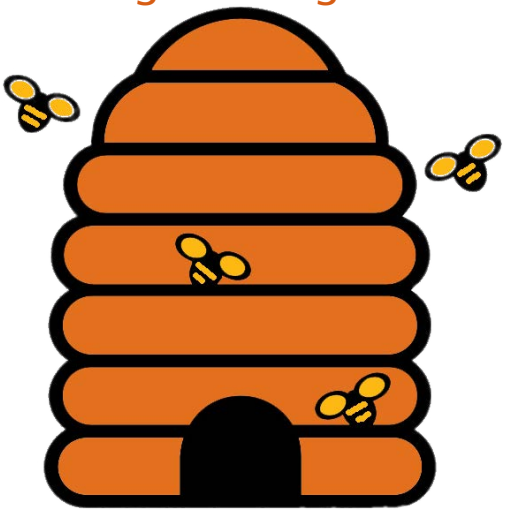
Plant nurseries

The Biosecurity Liaison Officer worked with the local nurseries on the Island, visiting each one at least every six months to inspect stock, and gauge their awareness of the restrictions on declared plants and the prohibition of seed potatoes. No non-compliance was detected and awareness levels of the requirements was always high, with staff readily able to advise of the restrictions and identify declared weeds. In addition, heavy promotion of the Kangaroo Island Native Plant Nursery complemented these efforts by supplying plants of KI provenance suitable for growing in local conditions.

Aquaculture

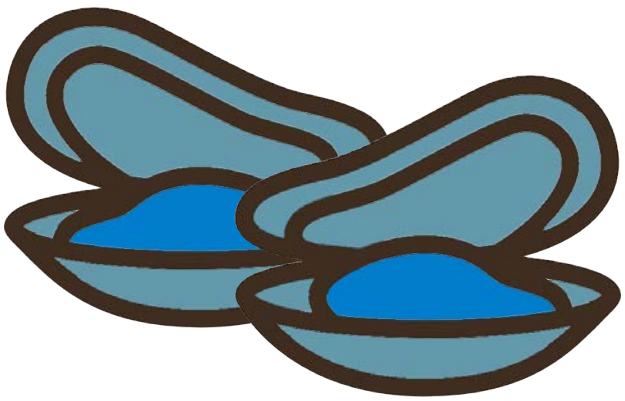
Marine pests and disease pose a grave risk to vibrant aquaculture industries on Kangaroo Island. Biosecurity staff worked closely with the industry raising their awareness of the risk of Pacific Oyster Mortality Syndrome (POMS). They assisted these industries to inspect their marine infrastructure for marine pests and no pests were found.

1 contaminated **honey extractor seized** before arriving on Kangaroo Island



5 **nurseries** regularly displayed supportive **activities** to reduce biosecurity risk on KI

3 **aquaculture** businesses assisted to **detect** marine **pests**



Lessons learned

1. Biosecurity requires commitment, co-operation and understanding from all stakeholders. Biosecurity can only work effectively if the community, industry, stakeholders and government agencies collaboratively contribute and commit to the effort required. The adage that is currently being used as part of the National Biosecurity Statement is 'We all share the risks, we all share the benefits and therefore we must all share the responsibility in protecting our unique natural environment' and this applies to Kangaroo Island. In the case of the caltrop incursion, the combined effort of the transport industry, farmers, Rural Solutions SA, Primary Industries and Regions SA and a private feed milling company, ensured that the biosecurity risk was managed such that no caltrop plants have yet been detected.

2. There will never be a fool-proof biosecurity system because anything imported to Kangaroo Island poses some level of risk. Even with comprehensive systems in place and a concerted effort to reduce the risk, biosecurity incidents can still occur. The discovery of one of the world's most destructive storage pests, khapra beetle (*Trogoderma granarium*), demonstrated that in the current global trade environment, biosecurity risks are ever present.

3. Without legislative backing some biosecurity risks will be difficult to avoid or manage. This is particularly relevant to marine biosecurity risks to Kangaroo Island. Marine pests, such as Sabella and Ciona, have become established in many marinas and ports on the coastline of Adelaide and the Fleurieu Peninsula. As recreational craft, like yachts and motor cruisers, frequently cross from the mainland to KI, the risk is on-going. Surveys of mainland marinas found that whilst there was a general awareness of the issue, and a genuine desire to reduce the risk to KI, the lack of legislative control resulted in the continued arrival of infested vessels on KI.

4. Ongoing awareness and financial support will assist in maintaining the gains made over the last five years. There is no doubt that due to this project a foundation for a good biosecurity system is now in place on Kangaroo Island and biosecurity is recognised as a key priority for Islanders. There needs to be an ongoing focus on biosecurity and reliance purely on volunteers and voluntary measures will not provide appropriate protection. An authoritative agency to facilitate, coordinate and lead response activities is required to maintain this focus on protecting Kangaroo Island's biodiversity, environment and agriculture through sound biosecurity management.