

Guidelines for assessing “Kea Safe” pest control tools

This document outlines Kea Recovery Group guidelines for groups aiming to assess if a pest control tool is safe to be deployed in kea habitat.

A strategic priority of the [Kea Recovery Strategy](#) is to Encourage the development of kea-safe predator control tools.

Kea are killed by invasive pests (primarily stoats and cats) in devastating numbers. In what is a ‘wicked problem’, our pest control tools can also impact on kea populations, through the loss of breeding adults. Kea are intelligent and curious, and remarkably good at finding creative solutions to gain access to novel items in their habitat.

Link: [Ground-based pest control in kea habitat](#)

The Kea Conservation Trust maintain this Best Practice document for using ground-based pest control in kea habitat. This is the go-to for advice and guidance on knowledge of current tools – it identifies the modifications and tools that are considered safe to use in kea habitat. You should start your journey here, to check what knowledge is already included on current tools. DOC maintains pesticide and trap status lists (see internal [link here](#)), which lists pesticide uses and trap systems approved (and restricted) for use on Public Conservation Land. Trials to test kea safe pest control options will inform both documents and help prevent kea deaths. Newly available (or otherwise unlisted) trap systems will need to be added to the status list to be assessed and approved for use on Public Conservation Land.



We outline some common pitfalls of working with kea, highlight behavioural quirks to watch for, and describe how to structure a trial to make sure your local knowledge feeds into the above national dataset, and helps us all learn how to keep kea safe

The aim of this document is to provide guidance to groups wanting to run further trials of new or existing tools to evaluate risk to kea.

DOC keeps a record of all instances of where kea have been adversely affected by pest control tools. If your query is how to log an incident of a kea injured by pest control (rather than a designed trial) you can email non-target@doc.govt.nz

Kea problem solving abilities

Kea have a powerful bill capable of strong grip, twist and puncture moves. Their zygodactyl feet (2 toes forward, 2 back) gives kea excellent manual dexterity – helping with climbing and grasping objects. They are also smart; kea are shown to solve complex puzzles, use tools, and learn from their mistakes. They can also work in teams to figure things out and help each other shift heavy objects. These abilities are comparable to intelligence measures of a 3-year-old human.

If you wouldn't trust your 3-year-old around the trap or toxin, you should think twice if it's kea safe!

Additionally, anecdotes suggest social learning within kea populations has led to novel behaviours being socially transmitted through a population. In [some instances](#), kea 'learned' to access trap baits across a network, leading to a spate of kea deaths – despite the trap network existing for many years without issue.

The lesson is: assume nothing, act early, remove rewards.

It's much easier to modify human behaviour than kea behaviour, particularly once kea have learned to associate the tool with stimulus or reward.

Examples of kea interference

- At various sites kea learned to open the screw of DOC 200 traps by digging out the wood around the thread to swing the lid open (see “Kea Safe DOC 200” specs here). Kea have begun ‘worrying’ re-bar stakes to tumble DOC 200 boxes and access egg baits, and commonly snip out the older style wire mesh fronts to DOC 200 traps
- Kea have been shown opening ‘flip lid’ style bait stations – in fact, they can open full sized wheelie bins to access contents, and can shift object of several kilograms with apparent ease.
- Kea love cables and moveable parts – they will open trail camera housings, snip cable ties, pull wiring, and thoroughly investigate any part that moves.



Trialing kea safe tools

The Kea Recovery Group should be informed by any group wishing to test kea safe pest control tools; this helps us line up similar projects, provide useful input based on past experience and gives us best chance to get you the right advice. Contact the Kea Recovery Group Leader Kerry Weston Kweston@doc.govt.nz.

Getting data back, and in the right format will also help the Recovery Group assess risk profiles to kea across the board, and help us all keep kea safe.

Some general principles:

- Captive kea are different to wild kea. Trialling tools on captive birds is often helpful and appropriate but should be paired with wild trials.
- Kea behaviour changes through time – including seasonal variations and possible shared learning pathways. A spread of time is always preferred.
- Individual kea and local populations are different – testing at more than one site is often necessary to maximise the chance you've covered a range of kea motivations
- For local groups interested in trialling a tool at their specific site, we can sometimes match your work up with others to make your results more generally applicable (and therefore, useful elsewhere). Standardising data collection is needed to make this work - a data template is provided. Please work with the Kea Recovery Group for advice.

Captive institutions

Kea are held in a variety of captive institutions around the country, as well as zoos around the world. Generally, these institutions are very to the animals being used in research and trials which can benefit the species, and it can even have positive 'enrichment' value for captive

birds. There are some considerations to keep in mind when planning captive trials:

Wildlife act permits and animal ethics.

Trials need to be in keeping with the permit(s) the holder has – you may need to factor in how this, and Wildlife Act conditions will be considered. For trials that manipulate the animal's behaviour or pose a risk to captive birds, animal ethics approval may be required. For trials that simply involve a trap or bait station which is not lethally set – the animal ethics considerations are usually covered as part of the institutions existing permits. You will need to discuss animal ethics considerations with the captive institution, and within your organisation (where applicable).

Captive kea do not behave the same as wild kea.

Some captive kea may be overly eager to explore novel items in their enclosures and spend unrealistic amounts of time investigating the novel item. Conversely some captive kea show little interest in obtaining novel foods (as they are provisioned daily).

Social dynamics – who rules the roost

Kea are sexually dimorphic with males significantly larger and more dominant than females (and juveniles). In a captive setting this can have a significant effect on trials – for example one adult male may exclude five others from interacting with a new 'toy'. This could be mis-interpreted as only 15% of kea would interact with the device! Care is needed to account for these social dynamics.

History of trials

Some populations of captive birds have been involved in many captive trials, which may further skew behaviours and confound results. For example, bait repellent trials showed a repellent effect on baits 6 months after the initial repellent was offered. Consideration will be required as to the history of those specific birds and which trials they've been exposed to previously. The Recovery Group aims to gather a record of which trials different captive individuals have been involved with.



Variable responses from different captive populations

Because of the above factors – the Kea Recovery Group does not generally endorse trials which test tool safety using a single captive population. Pairing captive trials with testing using wild birds is strongly preferred.

Wild trials

Kea behaviours can be strongly variable between different sites, and at the same site across different times. Somehow reword to reflect better that new behaviours can crop up in new sites where previously not observed. Places that had strong numbers of kea interactions can drop off entirely – either in visitation or interest. This makes testing tools tricky! The Recovery Group generally has a good idea of kea interaction hotspots at given times and are able to provide advice.

Until tools are shown as “kea safe”, trials should be run with lethal functions disabled. Either triggers set but kill-bar’s locked/immobilised, or using non-toxic bait mimics. Mostly it is appropriate to add lures for wild trials, as this best reflects the real-life scenario, but this may depend on your local context. The Recovery Group can provide specific advice on your case

As in captive populations, complex social dynamics occur within wild kea. The Kea Recovery Group can give you advice on:

- The number of sites appropriate for your trial
- The target number of unique individuals for your trial
- The target number of interactions, and ‘critical interactions’ you should aim to record in your trial

The Kea Recovery Group can help steer you to sites with good numbers of banded kea, to help achieve a good sample size.

Groups testing tools on wild kea are subject to Wildlife Act considerations regarding impacts on native species. Animal ethics considerations may come into play for any wild trials that significantly modify an animal’s behaviour, make it sick (e.g. vomit) or otherwise risks harm to the bird.

Reporting

Reporting results enables DOC and others to improve standards and advice around predator control in kea habitat. Data should be provided to the Kea Recovery Group along with any managers of captive facility you have been working at.

Collaboration benefits kea

Lack of collaboration between projects and people will impact on our ability to learn how to keep kea safe. We invite you to talk to us, and work with us, to protect kea.

Contact

Kea Recovery Group Lead

Kerry Weston

Kweston@doc.govt.nz

For enquiries about other non-target impacts

Non-target@doc.govt.nz

Appendix one – project form

Group name	
Group email	
Name of tool to be trialed	
Description of tool - including model and make, specifics of firmware, concentrations, bait formulations etc. Include as much information as possible about the tool being trialed	
Kea proofing measure that is to be trialed	
Details of kea proofing measure - as much detail as possible. Links provided to designs, details, sketches or other content.	
How many devices will be used in the trial?	
What lure or attractants will be used (if any)?	
How long will the trial be conducted for?	
How will kea interactions/encounters be monitored?	
Will every device be monitored?	
Target number of kea individuals to observe interacting with the device in this trial?	
Target total number of encounters of kea with the device in this trial?	
Proposed locations trial will be conducted? Include context of other pest control in place for wild trials	
Why these sites have been selected?	
How will we ensure that kea are kept safe during this trial?	