# Predator Free Rakiura Mouse eDNA Field Work: Q&A

## Who is Predator Free Rakiura?

Our Predator Free Rakiura vision is to grow Rakiura as a taonga by working collaboratively towards a predator-free Rakiura that allows ecosystems and community to thrive and benefit from each other. Only together can our vision become a reality. A predator removal project of this complexity, on an island of this scale, has never been attempted.

The proposal is to remove rats (Norway, Ship and kiore), possums, feral cats, and hedgehogs from Rakiura and its islands, as these predators eat or compete with wildlife and damage the forest. Deer and domestic cats are not target species for our project.

## Why are you looking for mice on Stewart Island?

People who live on Stewart Island don't often see or catch mice around their homes, but there has been the odd report of them being spotted. Predator Free Rakiura needs to know if there are any hidden populations of mice so that we can make sure our future work to eradicate other species doesn't allow them to become a problem, too.

## Why aren't mice already present in big populations?

It's possible that mice are already here in small numbers, but the common belief is that they arrive with boats or travellers and are quickly removed or outcompeted by other predators before they have a chance to breed and establish a population.

## Why are you looking into mice and not the predators?

Mice are a predator species, too! We need to make sure that if we eradicate the other species on our target list, we don't leave room for an explosion in mice, creating a new problem for our taonga species.

## What makes mice a danger to taonga species?

Mice compete with our native birds by eating many of the same foods like seeds and invertebrates. They are also direct predators of insects and other invertebrates. They can even eat bird chicks, especially those in ground nests. When mice eat seeds they destroy them, whereas when birds eat fruits and seeds the seeds normally survive through their digestive tract and are dispersed as a natural way for native trees to colonise new areas. Mice can form huge populations quickly and have significant impacts on the ecosystem.

## What is eDNA?

eDNA, or environmental DNA, refers to small traces of genetic material left behind by living organisms in the environment. A sample of soil or water which is tested for traces of DNA will reveal the species that have lived in or travelled through the area (or nearby areas where water may have run through the soil or downstream).

## Where will you be taking the samples from and why?

We'll be taking samples from streams close to Oban, and some a little bit further out, too. The results will be really helpful for us to understand if mice are present only close to town, which might suggest that they come and go on boats or with visitors. If we find traces of them further out of town, then that might suggest there's a bigger population of mice than just one or two.

## What happens if the results show mice are present?

Predator Free Rakiura will need to consider all results from all areas samples were taken from to decide next steps. This might include more investigation to better understand whether there are lots of mice, or only one or two. This would then impact what further action needs to be taken. We'll keep you up to date on the progress.

## Will it tell us how many mice there are?

eDNA sampling can't tell us how many mice there are, but once we know whether they are present, then we can investigate how big the problem is using other research methods. That will help us to understand if we need to add mice to our target list.

## What happens if the results are negative?

If no traces of mouse DNA are found, that doesn't mean that there are no mice, however, it will be an encouraging sign. Regardless, there will be more investigation!

## How could eDNA testing be used later in the Predator Free Rakiura project?

We might be able to use eDNA testing to help us understand the distribution of some of our target species, which is vital to eradication planning – e.g. are hedgehogs only around Oban or are they in other places too?

eDNA has the potential to reveal unexpected surprises such as a species we weren't expecting to find, but need to know about.

Once Rakiura has been cleared of the target predators we will need to stop them re-establishing. Doing that at a large scale is challenging. We might be able to use eDNA testing of water and soil to reveal whether we've had a predator return to the island. If an eDNA test shows traces of rat DNA, for example, we'll know we need to implement our incursion response.

## Can I get involved? How?

The first steps of this project involve our staff taking small water samples and sending them away to be tested, so there isn't much more for people to get involved with at this stage. Once we have the initial results, and we know what our next steps might be, there could be opportunities for more work! We'll keep you up to date on any opportunities as they arise.

## How can I find out more?

You can contact us at info@predatorfreerakiura.org.nz, on our Facebook or LinkedIn pages, or you might like to browse our website – www.predatorfreerakiura.org.nz