

## Activity Title:

# Introduced dune animals – rabbit case study

## Focusing questions

What is the difference between native and introduced animals?

What impact do rabbits have on the dune system?

How can rabbits be controlled?

## Resources Required

- PowerPoint presentation – 2h Introduced animals – rabbit case study
- Rabbit picnic game teacher instruction sheet – page 99

## Prior learning

2g Animals and insects – who lives in the dunes?

2e Plants of the local sand dune community

## Method

- 1 The objective of these activities is to explore what the difference is between native and introduced animals, what impact introduced animals such as rabbits can have on the dune system and how introduced animals such as rabbits can be controlled.
- 2 View the PowerPoint presentation **2h Introduced animals – rabbit case study** before using it with the class. Identify good places to stop for discussion. Have some questions already identified. For example: What introduced animals have you seen in the sand dunes? How might these animals impact on the dunes? Have you ever seen rabbits in the dunes? Why do rabbits like to live on the dunes?
- 3 View the PowerPoint presentation as a class and create a mind map of new learning.
- 4 Play the Rabbit picnic game using the teacher instruction sheet as a guide.
- 5 Discuss and collate the views of the class on the control of rabbit populations. Create a continuum line with “rabbit populations should be controlled” at one end and “rabbit populations shouldn’t be controlled” at the other. Get students to present their view by standing somewhere along the continuum line.

## Possible next steps

- 2i Interrelationships – dune animals and plants – an investigation into some of the special relationships that exist between animals and plants on the dunes.
- 2j Species lost from the beach – exploring species that have been lost from our beach and the possible reasons.

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### Environmental Education Aspect:

About the environment

### Environmental Education Concept:

- Biodiversity
- Sustainability
- Interdependence

### Curriculum Links:

- Science
- Social Science

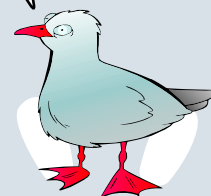
### Suggested Curriculum Level:

Any

### SUSTAINABILITY TIPS!

Laminate fact cards for future re-use.

Instead of photocopying one for each student, project a digital image of the fact sheet and save paper.



## Teacher notes:

# Rabbit picnic game

Source: Originally developed by Barry Law and Bert McConnell of the Christchurch College of Education

**Time: 40 minutes**

## Overall objective:

This activity is about the threat of an introduced species and the effect it has on an ecosystem where there are no controls.

## Part one – rabbit impact on the dune plants

- The facilitator marks out an area using boundary markers, or uses an already established clearing with an identified boundary (approx. 15m x 15m).
- Two people are designated as rabbits.
- The rest of the group are all pīngao plants. They are allowed to walk within the boundaries.
- Start a stopwatch when the two rabbits are let loose among the pīngao plants. The rabbits hold hands and start running around tagging pīngao plants with their free out-stretched hands.
- The tagged pīngao plants then die and join the line of rabbits. Still holding hands in one big line the rabbit group moves forward trying to catch the remaining pīngao plants with the two people on each end of the line being the only rabbits able to tag the pīngao plants.
- As the line gets bigger and bigger and covers a large area the pīngao plants decrease until none are left.

At this point STOP the game and the stopwatch and facilitate a discussion:

### Processing

- Record the time taken to compare with later results .....
- Why are the rabbits so destructive? They eat the new growth stopping the plants from growing and kill the plants.
- Why are the dune plants so important? Answers may include: they hold the dunes together by trapping sand (no dune plants = no dunes = no protection for houses/land from the sea e.g. West End in Ōhope), they provide a habitat for the creatures that live there, etc.
- What will happen if rabbits are not controlled? Eventually there will be no dune plants left and no dunes.
- What are some things that humans do to damage the dune plants? Some negative activities of humans may include: sand boarding on the dunes, bulldozing tracks through the dunes, walking on the plants, motor-biking on the plants, building homes on the dunes, dumping garden rubbish on the dunes (introduces weeds that out compete the dune plants), etc.

**Now...** Play the game again!

## Part two – combined impact of humans and rabbits

- This time when you play the game, as well as the two rabbits add two human impacts on the dune plants, perhaps a sand boarder and a motorbiker.
- These human impacts two join hands together and can tag plants as well, eventually creating two chains.
- After all of the plants are gone STOP the game and the stopwatch and facilitate a discussion.

### Processing

- Record the time compared with the first result .....
- How long did it take compared to the first time? Should be less time.
- What happens if human activities damage the pīngao plants as well as the rabbits? The pīngao plants will be reduced quicker than before.
- How can we protect the dunes? Sand ladders, replanting dune plants, designated walkways, controlling weeds, controlling rabbits.
- How can we control rabbits? Possible options: Trapper, poison bait, shooter or plant protection (rabbit proof fences etc).

**Now...** Play the game again this time the plants get a little help!

## Part three – rabbit control and dune protection

- Revert to just the two rabbits tagging the pīngao plants, (it will be a bit of a shambles if you have the human impacts and the rabbits tagging at this stage). This time introduce one of the rabbit control measures below. The person who is designated to carry out the control measures runs around the boundary markers and at a predetermined point enters the playing area and tries to reduce the rabbit numbers in the following ways;
  - Trapper – tags a rabbit who then becomes a pīngao plant.
  - Poison – places a small white disk on the ground in the playing area. If a rabbit stands or runs over the disks they die of Pindone poisoning and rejoin the game as a pīngao plant.
  - Shooter – enters the playing area and throws a small foam ball at a rabbit who then rejoins the game as a pīngao plant.
  - Protecting plants – person enters the playing area and places a small band on the pīngao plant's arm that protects them from being 'eaten'.
- Stop the game after five minutes to see what effect the measure has had. Start again introducing a second measure. Stop, process, and introduce a third and so on until the plants are obviously on top. The overall effect is that the plants will be more likely to survive.

### Processing questions

- What role do the trapper, shooter, poisoner and plant protectors play? They make the population sustainable.
- How much energy do they expend running around the boundary? More than the rabbits.
- Is the rabbit control a necessary role?
- What are some of the problems we face with introduced species? No natural predators. There are some introduced predators such as dogs, ferrets, cats and stoats that kill the rabbits, particularly the young.
- Do we want the introduced predators in the dunes? No, as these predators are a threat to the native animals as well.

### Finish

