**ACTIVITY: Making a tracking tunnel**

**Activity idea**

In this activity, students make a tracking tunnel to monitor the presence of pest species in a neighbouring gully or their school grounds.

By the end of this activity, students should be able to:

* understand the uses of tracking tunnels in conservation
* create a functional tracking tunnel
* identify any tracks present in their tracking tunnel
* decide on a plan of action if any tracks are present.

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**Introduction/background**

***Mammalian pests are a threat***

Predation by mammalian predators is the major cause of decline of New Zealand’s native bird species. Rats, hedgehogs and mustelids (weasels, stoats and ferrets) eat chicks and eggs. They also prey on insect life and cause damage to surrounding flora. This results in birds having to compete for food sources.

***The use of tracking tunnels***

Tracking tunnels are used by conservationists to check for the presence of pest species in a target area. They may be used before and after pest control occurs to give comparative data on the effectiveness of eradication.

Tracking tunnels are used to constantly monitor predator-free environments such as offshore islands and mainland islands to check whether mammalian predators are present.

Because predators are often nocturnal and are not readily seen during daylight, tracking tunnels give an indication of the presence of predators overnight in a certain area.

By creating tracking tunnels to use in a local gully or the school grounds, students can check for the presence of mammalian pests. If any tracks are found, students are then encouraged to decide on an action project to reduce numbers of predators in their local environment.

**What you need**

* [Make a tracking tunnel](#make) – student instructions
* Clean empty 1 or 2 litre milk cartons or plastic milk bottles (or similar)
* A craft knife or scissors
* Black polythene
* Electrical tape
* Food colouring or dye
* Thin sponges
* Small plastic trays that can fit inside the milk carton/bottle
* Glue
* Milk bottle tops
* Peanut butter
* White paper
* Thin wire (optional)

**What to do**

1. Hand out copies of [Make a tracking tunnel](#make) and discuss.
2. Organise the students into small groups and assist them to gather the equipment and materials and construct and position the tunnels.
3. Encourage students to visit the [Pest dectives website](http://www.pestdetective.org.nz) to check the types of prints that different animals make so that they can identify any animals that have visited the tracking tunnel.
4. This process can be repeated over a short time period to give an indication of the types of animals present in the local area. Fresh dye and peanut butter may be added to the tunnel.
5. If animal prints are present, encourage your students to decide on an action plan to remove the pests from their local area. The [Department of Conservation website](http://www.doc.govt.nz) is a good place to get ideas for pest management.

**Discussion questions**

* How are tracking tunnels used to inform pest management techniques?
* In what ways can we modify the tracking tunnel or the use of the tracking tunnel to give more accurate results?
* If predators are found in the neighbouring area, what can we do to address this problem?
* If we do nothing, what might result?
* If footprints are found, how could we tell how many pests might be in the area?

**E****xtension ideas**

Challenge your students to design their own tracking tunnel. They might like to investigate different variables in the creation of their tracking tunnels. Some examples are:

* types of ink (natural dyes, classroom dye, food colouring, paint, ink or others)
* types of materials used in the construction of the tracking tunnel
* types of baits (instead of using just peanut butter) to see if this affects the results.

Students can investigate methods to reduce the presence of pest species in their local area. A visit from a Department of Conservation officer could be organised to speak to the students about pest control methods.

**Make a tracking tunnel**

1. Carefully open up the ends of the milk carton (or bottle) to create a tube. You may need to use a craft knife to help you.
2. Slide the end of one milk carton tube into the other so you end up with the two containers overlapping. This will form a longer tunnel.
3. Cover the outside of the tunnel with black polythene and fasten using electrical tape. This will darken the tunnel, as most of these predators prefer dark spaces. Ensure the ends are left open.
4. Cut the white paper to fit the bottom of the tunnel and place inside.
5. Place a sponge into a plastic tray and wet the sponge using food colouring or dye.
6. Place a dollop of peanut butter into a clean milk bottle lid. Put this in the middle of the dye-soaked sponge and slide into the middle of the tunnel. You might like to add a little glue to the base of the tray to keep it in place.
7. Leave the tracking tunnel overnight in a nearby gully or the school grounds. The tunnel can be held in place by making the piece of wire into a ‘U’ shape and pinning it into the ground. You might like to leave out several tracking tunnels in the area.
8. Check the white paper for animal prints in the morning.