



## Studying Small Land Animals

The following notes have been written to support the Biodiversity workshop demonstration on small land animals. They are intended to help teachers develop a unit on or related to land animals. The explained activities are practical and cost effective and can be adapted to suit the site whether it be a forest reserve or school grounds.

Contents:

1. Background notes
2. Activities for studying animals
3. Supporting resources
4. Demonstration and questions (on site)

### 1) Background notes

Studying animals is a lot harder than most people think. It is a good idea to learn in advance about the animals' habitat (where it lives) and habits (is it nocturnal?). Researching into the location of study enables you to become familiar with the area and the types of animals you might encounter.

Animals have different strategies to avoid being detected, caught or eaten. Most will take flight rather than fight regardless of size. Injury could lead to possible infections and ultimately death so often playing it safe is the best.

Table 1 summarises some common avoidance strategies used by animals when encountered by a potential predator.

<b>Table 1: Predator avoidance strategies.</b>	
<b>Strategy</b>	<b>Animal's that use this strategy</b>
Freeze, hide, play dead (utilise camouflage)	Bird, rat, mice, lizard, insect, possum
Run away	Rabbit, kiwi, cat, rat
Fly away	Most flying birds and insects
Jump	Frog, insect
Click body, make a noise, emit smell	Click beetle, cat, ground beetle
Roll into a ball (protect vulnerable parts of body)	Hedgehog
Climb	Possum, gecko
Display (eye spots, bright colours, increase in size, feathers)	Some animal's will surprise or stall an attacker enough to enable it to escape. Owllet Moths, Peacocks, Monarch butterfly, toad
Attack	Most animal's will defend themselves if they cannot escape

## 2) Activities for studying animals

Counting or catching every animal in a particular area or habitat is usually impractical and in most cases impossible. Scientists instead try to get a sample of the population using one or more methods. The sampling method will depend on the animal or habitat sampled. The greater the number of animals and habitats sampled the greater the chances of getting an accurate representation of the animals and their numbers. Four different kinds of sampling methods are briefly explained below.

### a) Sampling frames or quadrats

Sampling frames can be made out of wood, metal or plastic. The size of the frame should suit the kind of animal being sampled. A 1m by 1m frame is large enough for counting creepy crawlies. Frames can be placed in sequence or randomly in an area.

*Advantage: can be used to study animals that are not very mobile and gives results quickly*

*Disadvantage: Is time consuming and only suitable for small less mobile animals (e.g. creepy crawlies)*



Sampling methods:

- Quadrats (for creepy crawlies)

### b) Capture methods

Animals can be captured alive or dead using a variety of traps and nets. They can be set and checked immediately or left out over a period of time depending on the trap.

*Advantage: Allows a close inspection of the animal*

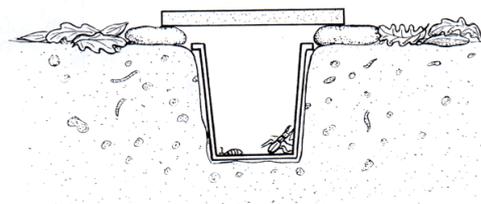
*Disadvantage: May require setting and checking of the trap on a regular basis.*

Note: It is important to check traps on a regular basis to ensure animals caught do not suffer unnecessarily.

Capture methods:

- Tree shake (collect foliage insects)
- Lights traps (night flying insects)
- Nets, traps (variety for catching animals alive or dead)
- Pitfall traps (creepy crawlies)

Pitfall trap design



Pitfall traps can be easily constructed using any container. To be effective the container must be dug into the ground so the rim is level with the ground. Next place some sticks or stones across the opening place the lid on top and weight down with a stone. The traps or pits are what small creepy crawlies fall into when left out over a period of time.

### c) Observational methods (non invasive)

Observational methods are the least invasive of all the survey methods.

*Advantage: Does not harm or stress the animals. Particularly tracking tunnels can detect night animals not often seen during the day.*

*Disadvantage: Is time consuming and often requires practice to get familiar with what is seen, heard or uncovered.*

Observational methods:

- Binoculars
- Spot lighting
- Listening devices
- Night and day surveys
- Tracking tunnels



Tracking tunnels are baited small tunnels which have an ink pad in them that animals walk through and leave footprints on. The card placed inside the tunnel is baited to attract the desired animal. These devices are now commonly used for detecting small mammals and rare insects and lizards by conservation, bio security groups and organisations throughout the world.

### d) Artificial homes

Building artificial animal homes or habitats is one way of providing a home for an animal that would otherwise be hiding or absent from the area. The homes themselves will not guarantee animal populations will increase as many other factors affect animal numbers (e.g. pest animals).

*Advantage: Is a feel good activity that allows animals to be more easily viewed.*

*Disadvantage: The target animal may take some time before it may move into an empty home or habitat.*

Artificial homes

- Bird boxes (e.g. penguin)
- Lizard habitats
- Weta motels
- Wooden disks (for creepy crawlies)

*Wooden disks* (sawn and dried untreated round sections of wood with grooves placed on the ground). Disks simulate tree falls that occur in mature forests and provide habitat for creepy crawlies in a regenerating bush area. Over time the creepy crawly populations will increase.

### 3) Supporting resources

#### **a) New Plymouth Kete (Taranaki online digital archive designed to bring together a record of local events, people, places and experiences – current and historical)**

Includes publications and information produced through the 60 Springs 'Education for Environmental Sustainability' projects running throughout Taranaki.

<http://ketenewplymouth.peoplesnetworknz.info>

#### **b) Useful websites:**

<http://www.emap.rsnz.org/>

(Environmental Monitoring Action Project)

<http://soilbugs.massey.ac.nz/key.php>

(Illustrated guide to New Zealand Soil and Litter Invertebrates)

<http://en.wikipedia.org/wiki/Insect>

<http://www.enchantedlearning.com/Home.html>

(Highly Recommended)

<http://www.landcareresearch.co.nz/research/biocons/gardenbird/>

(National garden bird survey)

<http://www.whatbird.co.nz/>

(bird identification site)

[http://www.landcareresearch.co.nz/research/biosystematics/bioblitz/posters.as](http://www.landcareresearch.co.nz/research/biosystematics/bioblitz/posters.asp)

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(Bio blitz)

<http://www.doc.govt.nz/publications/conservation/native-animals/invertebrates/weta-motel-design/>

(Weta motel plans)

[http://dspace.lincoln.ac.nz/dspace/bitstream/10182/723/1/wmr\\_22.pdf](http://dspace.lincoln.ac.nz/dspace/bitstream/10182/723/1/wmr_22.pdf)

(Insect restoration techniques on Quail island, Canterbury)

<http://www.gotchatraps.co.nz/> (tracking tunnels)

<http://www.rimutakatrust.org.nz/projects/monitor.htm> (slideshow on tracking tunnels)

[http://www.rimutakatrust.org.nz/downloads/Footprints\\_OLDDM-63018%201%20.doc](http://www.rimutakatrust.org.nz/downloads/Footprints_OLDDM-63018%201%20.doc) (footprint identification guide)

<http://www.doc.govt.nz/conservation/native-animals/reptiles-and-frogs/lizards/attracting-lizards-to-your-garden/> (building a lizard habitat)

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