Tracks ‘n’ Scats Fieldtrip
Primary Student Pack, Years 4-6

Educational outdoor activities for kids that invoke wonder and respect for our amazing natural landscape.
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Booking Your Tracks ‘n’ Scats Fieldtrip
To book your Tracks ‘n’ Scats Fieldtrip or request a copy of our Teacher Guide contact us on the details below:

P. +61 (8) 9755 2152
E. education@margaretriver.com
Overview

Aim:
This package is designed to support an excursion to Cape Naturaliste Lighthouse precinct in the Southwest and is to be used in conjunction with the Tracks ‘n’ Scats Fieldtrip for years 4-6 students. It has been developed to accompany classroom investigation as per the ACARA Australian Curriculum.

Upon completion of this package students will have:

• increased their understanding of the need for scientific research and how it contributes to maintaining biodiversity
• become familiar with the language and practices associated with conservation research
• improved their knowledge and understanding of a variety of Western Australian fauna
• been inspired to extend themselves to learn more about our unique landscapes and biodiversity
• been encouraged to participate in positive community action that contributes to the protection and conservation of native wildlife
The following chart summarises key curriculum achievement standards covered by this unit of work. The resource materials and activities have been developed to achieve a range of outcomes and be relevant to the new ACARA - Australian Curriculum.

### Australian Curriculum Assessment and Reporting Authority - The Australian Curriculum

<table>
<thead>
<tr>
<th>Science</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science Understanding</strong></td>
<td><strong>Language</strong></td>
</tr>
<tr>
<td>Biological sciences</td>
<td><em>Expressing and developing ideas</em></td>
</tr>
<tr>
<td>• The growth and survival of living things are affected by the physical conditions of their environment.</td>
<td>• Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts.</td>
</tr>
<tr>
<td><strong>Science as Human Endeavour</strong></td>
<td><strong>Literacy</strong></td>
</tr>
<tr>
<td>Nature and development of science</td>
<td><em>Interacting with others</em></td>
</tr>
<tr>
<td>• Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena.</td>
<td>• Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions.</td>
</tr>
<tr>
<td>Use and influence of science</td>
<td><em>Interpreting, analysing, evaluating</em></td>
</tr>
<tr>
<td>• Scientific knowledge is used to inform personal and community decisions.</td>
<td>• Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings.</td>
</tr>
<tr>
<td><strong>Science Inquiry Skills</strong></td>
<td>• Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts.</td>
</tr>
<tr>
<td>Questioning and predicting</td>
<td></td>
</tr>
<tr>
<td>• With guidance, pose questions to clarify practical problems or inform a scientific investigation, and what the findings of an investigation might be.</td>
<td></td>
</tr>
<tr>
<td>Planning and conducting</td>
<td></td>
</tr>
<tr>
<td>• With guidance, plan appropriate investigation methods to answer questions or solve problems. Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate.</td>
<td></td>
</tr>
</tbody>
</table>
Curriculum Links (Continued)

Australian Curriculum Assessment and Reporting Authority - The Australian Curriculum

<table>
<thead>
<tr>
<th>Cross Curricular Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability</strong></td>
</tr>
<tr>
<td>The biosphere, including all life forms, relies on the interdependence of social, economic and ecological systems. We recognise that by valuing and actioning sustainable practices as individuals and communities, we are preserving our environment for the future.</td>
</tr>
</tbody>
</table>

| **Aboriginal and Torres Strait Islander Histories and Cultures** |
| The Wadandi people of the Southwest maintain a special relationship with the land, sea, sky and waterways. Their knowledge of the local area is extensive and they have lived in this area for tens of thousands of years. Their language and history are intrinsically linked to local flora, fauna and landscapes. |
Your Tracks ‘n’ Scats Fieldtrip can be used as a springboard to explore a range of topics surrounding primary school science. You might like to consider the following:

- **Ecosystems**
  - trophic levels
  - producers
  - consumers
  - decomposers
  - food chains
  - food webs
  - energy flow

- **Adaptations**
  - behavioural
  - structural
  - suited to environment
  - evolution
  - survival of the fittest

- **Changes to the Earth’s Surface**
  - climate change
  - plate tectonics
  - earthquakes
  - weather systems

- **Extinction**
  - introduced species
  - deforestation
  - hunting
  - land use
  - overfishing
  - pollution

- **Conservation**
  - translocation
  - repopulation
  - 1080 baiting
  - land management
  - national parks

- **Lifecycles**
  - mammals
  - birds
  - insects
  - amphibians
  - reptiles
  - interconnection between organisms

- **Adaptations**
  - behavioural
  - structural
  - suited to environment
  - evolution
  - survival of the fittest
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Descriptions</th>
<th>Activities</th>
<th>Resources</th>
</tr>
</thead>
</table>
| **Literacy**                                  | • Participating in pair, group, class and school speaking and listening situations, including informal conversations, class discussions and presentations.  
• Considering familiar situations in order to think about possible areas for investigation. | Provide an introduction to the unit, explaining the research they will be carrying out, the fieldtrip and how the activity links to students’ learning.  
Use the *Lingo Bingo* activity sheet to promote discussion and familiarise students with some new vocabulary they will be encountering. | Text:  
*Tracks, Scats and Other Traces: A Field Guide to Australian Mammals*  
Triggs, B 1999.  
Oxford University Press, South Melbourne.  
Online:  
*Study Jam Science Ecosystems*  
| **Science as a Human Endeavour**              | • Describing the stages of life cycles of different living things such as insects, birds, frogs and flowering plants.  
• Comparing life cycles of animals and plants.  
• Recognising that environmental factors can affect lifecycles such as fire and seed germination.  
• Investigating the roles of living things in a habitat, for instance producers, consumers or decomposers.  
• Predicting the effects when living things in feeding relationships are removed or die out in an area.  
• Recognising that interactions between living things may be competitive or mutually beneficial.  
• Explaining how particular adaptations help survival such as nocturnal behaviour. | Use the *Quenda Quest* information sheet to introduce the quenda (southern brown bandicoot). Students may rewrite information in their own words.  
Introduce the quenda.  
Identify where quendas live in the Southwest.  
Identify some of the factors that may impact the quenda population.  
Establish the quenda’s important role in the ecosystem and food chain/web.  
Identify how scientists investigate or track species and look at repopulating broken ecosystems.  
Use the *Tools of the Trade* and *Repopulation Station* activity sheets. | Text:  
*Threatened Animals of Western Australia*,  
Department of Conservation and Land Management.  
*Tracks, Scats and Other Traces: A Field Guide to Australian Mammals*  
Triggs, B 1999.  
Oxford University Press, South Melbourne.  
Online:  
*Western Australia’s animals*  
*Living with Quendas*  
*Study Jam Foodwebs*  
| **Science Understanding**                     |                                                                              |                                                                                                      |                                                                                                               |
| *Biological sciences*                         |                                                                              |                                                                                                      |                                                                                                               |
| • Living things have life cycles.             |                                                                              |                                                                                                      |                                                                                                               |
| • Living things depend on each other and the environment to survive. |                                                                              |                                                                                                      |                                                                                                               |
| • Living things have structural features and adaptations that help them to survive in their environment. |                                                                              |                                                                                                      |                                                                                                               |
| • The growth and survival of living things are affected by physical conditions of their environment. |                                                                              |                                                                                                      |                                                                                                               |
| **Science as a Human Endeavour**              |                                                                              |                                                                                                      |                                                                                                               |
| *Nature and development of science*          |                                                                              |                                                                                                      |                                                                                                               |
| • Science involves making predictions and describing patterns and relationships. |                                                                              |                                                                                                      |                                                                                                               |

*Text:*  
*Tracks, Scats and Other Traces: A Field Guide to Australian Mammals*  
Triggs, B 1999.  
Oxford University Press, South Melbourne.  
*Online:*  
*Study Jam Science Ecosystems*  
# Tracks ‘n’ Scats Primary Program Years 4-6

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<th>Outcomes</th>
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<th>Activities</th>
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<tbody>
<tr>
<td><strong>Science Inquiry Skills</strong>&lt;br&gt;Questioning and predicting</td>
<td>• Exploring the range of questions that can be asked about a problem or phenomena with guidance.&lt;br&gt;• Making and recording measurements using familiar formal units.&lt;br&gt;• Using provided graphic organisers to sort and represent information.</td>
<td>On your fieldtrip and with the guidance of one of our staff members, students will use the <em>Investigating Evidence, Looking at Evidence, Evidence Key</em> and <em>Record of Animal Evidence</em> activity sheets to conduct their fieldwork. This will involve a 30 minute interactive presentation, followed by an approx 1.5 hours of fieldwork exercises.</td>
<td><strong>Text:</strong>&lt;br&gt;<em>Tracks, Scats and Other Traces: A Field Guide to Australian Mammals</em>&lt;br&gt;Triggs, B 1999. Oxford University Press, South Melbourne.&lt;br&gt;<strong>Online:</strong> <em>Tracking Animals - How to Read Animals Tracks</em>&lt;br&gt;<a href="http://www.survival.org.au/tracking.php">http://www.survival.org.au/tracking.php</a></td>
</tr>
<tr>
<td><strong>Science Understanding</strong>&lt;br&gt;Biological sciences</td>
<td>• Investigating the roles of living things in a habitat.&lt;br&gt;• Predicting the effects when living things in feeding relationships are removed or die.&lt;br&gt;• Discussing with teacher guidance which graphic organisers will be most useful in sorting or organising data arising from investigations.</td>
<td>Use the <em>Fauna File</em> activity sheet to create profiles on a number of local species. Perform your own surveys and record your data in a graphic organiser. You’ll more than likely be amazed at the creatures that live near you. Conclude your investigation by <em>Writing a Report</em> on a particular species, including details of its conservation status and repopulation programs.</td>
<td><strong>Text:</strong>&lt;br&gt;<em>Mammals of the South-West,</em>&lt;br&gt;Johnson, B &amp; Thomson-Dans, C 2007. Department of Environment and Conservation.&lt;br&gt;<em>Threatened Animals of Western Australia,</em>&lt;br&gt;Burbidge, A 2004. Department of Conservation and Land Management.&lt;br&gt;<strong>Online:</strong>&lt;br&gt;<em>Western Australia’s animals</em>&lt;br&gt;<a href="https://www.dpaw.wa.gov.au/plants-and-animals/animals/animal-species-profiles">https://www.dpaw.wa.gov.au/plants-and-animals/animals/animal-species-profiles</a>&lt;br&gt;<em>Western Shield Program</em>&lt;br&gt;<a href="https://www.dpaw.wa.gov.au/management/pests-diseases/westernshield">https://www.dpaw.wa.gov.au/management/pests-diseases/westernshield</a></td>
</tr>
<tr>
<td>Planning and conducting</td>
<td>• With guidance, pose clarifying questions and make predictions about scientific investigations.&lt;br&gt;• Use formal measurements and digital technologies as appropriate, to make and record observations accurately.&lt;br&gt;• Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trend.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing and analysing data and information</td>
<td>• Exploring the range of questions that can be asked about a problem or phenomena with guidance.&lt;br&gt;• Making and recording measurements using familiar formal units.&lt;br&gt;• Using provided graphic organisers to sort and represent information.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Planning and conducting**
  - With guidance, pose clarifying questions and make predictions about scientific investigations.
  - Use formal measurements and digital technologies as appropriate, to make and record observations accurately.
  - Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trend.

- **Processing and analysing data and information**
  - Exploring the range of questions that can be asked about a problem or phenomena with guidance.
  - Making and recording measurements using familiar formal units.
  - Using provided graphic organisers to sort and represent information.

- **Evaluating and Communicating**
  - Reflect on investigations.
  - Represent and communicate observations, ideas and findings using formal and informal representations.
Teacher Background Information - Quenda

Biology, habitat and diet

The quenda, otherwise known as the southern brown bandicoot, is a small marsupial endemic to the south west of Western Australia. It can be found along the coastal plain between Guilderton in the north and Esperance in the south. Despite being under threat from urban sprawl, land clearing and introduced species, the quenda has been removed from the State Threatened Fauna List. It is however, still protected under the Wildlife Conservation Act 1950 and can often be found in urban areas, where remnant bushland exists.

The quenda is approximately the same size as a rabbit when fully grown and weighs up to two kilograms. They have dark grey-brown fur, with a paler underbelly, a pointed head, and a short stiff tail. Sometimes mistaken for large rats, they have a hopping gait and do not climb.

The quenda is classed as an insectivore, meaning that its diet consists mostly of insects (including earthworms, adult beetles and their larvae). It does however, supplement this with underground fungi, subterranean plant material, and very occasionally, small vertebrates. In urban areas, quendas can be quite bold and have been known to eat fruit, grains and pet foods. The species changes its diet seasonally as different foods become available.

Quendas usually inhabit the dense understory in bushland, often near water sources or in woodland areas. They may have several nesting sites within a home range, which are usually just small indentations in the ground hidden beneath a shrub. Home ranges can extend to seven hectares but may be smaller depending on food availability.

Threats and conservation programs

Despite being removed from the threatened fauna list, many quenda populations are fragmented and still under pressure due to a number of factors:

- juvenile or small quendas are particularly susceptible to predation from introduced species such as cats, dogs and foxes
- competition for resources such as food and shelter from rabbits (another introduced species)
- loss of habitat from land clearing limits foraging ranges and causes fragmentation separating populations
- quendas often fall victim to road vehicles as they search for food or try to establish home ranges
- drowning in backyard pools has been a problem for quendas

Quendas play an important role in the ecosystem of the Southwest. When searching for underground foods, they dig into the soil with their strong fore-claws to produce a characteristic conical hole and, with their eyes shut, use their nose as a probe. In the process of making many small diggings, they:

- aerate the soil
- spread and bury seeds
- allow water to penetrate the soil
- increase nutrient cycling: they mix decaying leaf matter into the soil
- spread fungi through the soil: each tree has symbiotic fungi which help it grow (essentially they help plants grow; less digging mammals means less species of plant)

Scientists regularly monitor quenda populations. Every year in the spring, the annual quenda count is run by the Department of Parks and Wildlife and the World Wildlife Fund. You can participate by contacting WWF on quenda@wwf.org.au.

While captive breeding programs have not been needed for the quenda yet, other conservation methods have been employed and with positive effect. These include:

- replanting/replacing forest corridors allowing animals to move between different groups and areas to breed thus increasing genetic diversity and helping to combat illness and diseases
- regulations for companies to restore land and the establishment of reservations for native wildlife
- 1080 poison baiting, like the Western Shield program to eradicate introduced species
Lingo Bingo

A vocabulary building game

Below is a list of 16 terms which are essential to learn for any field investigation team.

Each member of your team should select four different terms and write them down.

Use the internet to search for definitions for each term and note them down.

When you have learned the meaning of each of your terms, swap with another member of your research team and copy down their terms and definitions also.

Lingo Bingo research word list

How to play

1. Now you must put away your books, find a clean piece of paper and as a team choose six of the new terms you have learned.
2. Your teacher will choose a term at random and read out the definition but not the actual term.
3. Your team must cross out the term if it is on your list.
4. Continue like this until your team has crossed out all your selected terms and yell BINGO!
Quenda Quest

Research scientists are like detectives. They investigate, analyse evidence and solve mysteries about the environment. The results of their investigations can contribute to the protection of wildlife, which makes research important for biodiversity.

Many conservation organisations, universities, volunteer groups, and government departments, including the Department of Parks and Wildlife are involved in research.

Your field investigation team is going to be looking for the mysterious quenda, a small marsupial which is found in the south west of Western Australia. Here are a few interesting facts about the quenda:

- Quendas dig for their food.
- Their favourite foods are soil invertebrates. However, they like their veggies as well and will often eat plant material such as tubers, bulbs and corms, as well as fungi.
- Quendas will cover a range of seven hectares looking for food. That’s ten times the size of the average house block.
- They break up the soil making it more water absorbent, spreading seeds and most importantly spreading fungi. This fungi has a close connection with the trees in areas where quendas live. It lives on the tree’s roots and helps them to absorb nutrients. Without the fungi, the trees would perish.
- In one night a single quenda can dig up to 20 holes in the soil looking for food.
- Each hole is about 10 - 15 centimetres long and overturns about 500 grams of soil, which means one quenda can move over three tonnes of soil in a year! Imagine what 100 Quendas can do!
- All this digging changes the soil quality. It becomes more water absorbent, aerated and contains more nutrients which helps other vegetation thrive. This in turn, creates a healthy environment for soil invertebrates; all part of the complex ecosystem.
Researchers to the Rescue

Your turn...

The information gathered by research scientists can help with the conservation of endangered native fauna. This plays an important part in maintaining a healthy environment and supporting biodiversity.

Read the Quenda Quest resource sheet and answer the following questions.

1. In groups or pairs, brainstorm the names or types of organisations which you think may be involved in conservation research and make a note of the type of research they may conduct.

2. Looking at the diagram of the quenda digging, what is happening to the soil in this diagram and why?

3. Draw a diagram that illustrates the relationship between the following organisms in the coastal heath environment. How do they interact?

4. What would happen if one of these organisms died? Use words or a diagram to illustrate your answer.
Tools of the Trade

To track, observe, catch, measure and analyse animals in their environment, research scientists have a pretty unique set of tools. Which tool they use, depends on what type of investigation they are performing.

1. There are two main types of investigation used to study animals depending on how easy it is to observe them in the natural environment: direct investigation and indirect investigation. What do you think these might mean?

   Discuss with your class and write your answers below.

   Direct investigation:

   Indirect investigation:

2. The majority of marsupials in the Southwest are nocturnal. What method of investigation do you think would be best for studying them? Explain your answer.

3. Below are some of the tools a research scientist might use to monitor or gather information about a particular species. Circle the tools you think would be used for indirect investigation.
Repopulation Station

**Ways to increase numbers of an endangered species...**

Captive breeding is one important way to repopulate a species. It requires a lot of time, energy and money so it is very important to monitor animals once they are released back into the wild.

Radio tracking devices are a common direct investigation method used to collect information and monitor the movement and wellbeing of released animals.

Below is a map showing the movements of our newly released quenda over a period of six days.

With normal behaviour we might expect to see it moving around foraging for food, then returning to its nest.

1. **How far did our quenda move over each of the following days?**
   - Day 1, 2 & 3
   - Day 4 & 5
   - Day 6

2. **Describe the animal's movements each day?**
   - Day 1, 2 & 3
   - Day 4 & 5
   - Day 6

3. The signal from our quenda’s radio collar never moved from the last position on day 6. What could have happened to our newly released quenda? Discuss your ideas with your class.
Investigating Evidence

How to carry out an investigation!

Your role in the field investigation team is an important one. You will analyse evidence from animals in their natural habitat. The instructions below tell you what to do as part of that investigation. It is important that you understand what to do and what your role is before you enter the field. Carefully read the steps below.

*Keep to the trail*  
*Handle evidence with care*  
*Walk slowly and quietly*  
*Work as a team*

Any damage to the evidence could lead to incorrect findings and jeopardise the investigation!

Follow these steps at each evidence site

**Step 1. Site Observer** leads the search for the evidence along the trail.

**Step 2. Site Observer** marks the area where the evidence is found before the evidence is touched. Only the **Evidence Handler** is allowed in the evidence site!

**Step 3. Decoder** reads the code on the evidence post, decodes it and informs the unit what type of evidence it is.

**Step 4. Evidence Handler** uses gloves and is the only person to handle the evidence.

**Step 5. Reporter** reads out the appropriate key and explains what to do.

**Step 6. Evidence Handler** and the **Analyst** observe the evidence closely. The **Analyst** takes measurements and gives the information to the **Recorder**

**Step 7. Recorder**, assisted by the **Site Observer**, records the correct evidence on the **Record of Animal Evidence** sheet.

*Always* remain together at each site until the **Site Observer** checks the evidence is recorded and is ready to lead you to the next evidence site.

*Repeat* this process at all six evidence sites.

*Have* you and your group read and understood the instructions? YES!

**Site Observer** it is time to hand out the equipment.
Looking at Evidence

You can learn about animals by observing them directly or indirectly:

**Direct Investigation**
Observing and recording the behaviour of animals in their natural habitat.

**Indirect Investigation**
Gathering evidence about animals in their natural habitat. This evidence reveals how the animal lives without directly observing them.

**Evidence – what to look for in the forest**
Walking through the forest you can find signs of animal activity including tracks, scats, shelters, feeding signs and bones. Knowing what to look for and being able to ‘read’ the signs can help you identify an animal and understand how it lives. An **Evidence Key** is used to determine what animal left the evidence.

<table>
<thead>
<tr>
<th>Scats</th>
<th>Tracks</th>
<th>Bones</th>
<th>Food</th>
<th>Shelter or Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific word used for animal droppings. Scat size, shape, texture and colour can be used to identify an animal and reveal its diet.</td>
<td>Tracks are the prints made by an animal’s feet. Tracks can be of back footprints or a pattern of both back and front footprints. The shape and size of a track or track pattern can identify an animal.</td>
<td>Bones and other remains can identify an animal. The skull shape and size is often used for identification.</td>
<td>Remains of the food that an animal eats indicates if the animal is a herbivore, carnivore, insectivore or omnivore.</td>
<td>Animals have special types of shelter. Shelter sites and nests can reveal the identity of an animal.</td>
</tr>
</tbody>
</table>
Scats

Procedure
- Select scat shape.
- Measure length of scat.
- Select scat size group.
- Select animal group from list (A to E).
- Record group of possible animals on the Record of Animal Evidence worksheet.
- Go to the next evidence site.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Size</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long</td>
<td>2cm or more</td>
<td>A. cat, chuditch, nyingarn, red fox</td>
</tr>
<tr>
<td></td>
<td>2cm or less</td>
<td>B. bilby, koomal, numbat, ngwayir, quenda, wambenger, woylie</td>
</tr>
<tr>
<td>Oval, Round or Square</td>
<td>2cm or more</td>
<td>C. feral pig, yonga</td>
</tr>
<tr>
<td></td>
<td>2cm or less</td>
<td>D. koomal, quokka, ngwayir, wambenger, western brush wallaby, yonga</td>
</tr>
<tr>
<td>No specific shape or form:</td>
<td></td>
<td>E. tawny frogmouth, white-tailed black cockatoo</td>
</tr>
</tbody>
</table>
**Tracks**

**Procedure**
- Select track shape.
- Measure length of track.
- Select track size group.
- Select animal group from list (A to L).
- Record group of possible animals on the **Record of Animal Evidence** worksheet.
- Go to next Evidence Site.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Size</th>
<th>Animal</th>
</tr>
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<tbody>
<tr>
<td><strong>Two Tracks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long narrow track (hind) + small track (fore). Measure the long track.</td>
<td>15cm or longer</td>
<td>A. western brush wallaby, yonga</td>
</tr>
<tr>
<td></td>
<td>10cm to 15cm</td>
<td>B. bilby, quenda, quokka, western brush wallaby</td>
</tr>
<tr>
<td></td>
<td>8cm - 10cm</td>
<td>C. quenda, woylie</td>
</tr>
<tr>
<td><strong>One Track</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long narrow track: no small track. Measure the long track.</td>
<td>10cm or longer</td>
<td>D. western brush wallaby</td>
</tr>
<tr>
<td></td>
<td>6cm - 13cm</td>
<td>E. quokka</td>
</tr>
<tr>
<td></td>
<td>4cm - 8cm</td>
<td>F. woylie</td>
</tr>
<tr>
<td><strong>Two Tracks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different shapes and sizes: not long and narrow. Measure track pattern(front claw tip to hind heel).</td>
<td>10cm - 15cm</td>
<td>G. chuditch, koomal, ngwayir, nyingarn</td>
</tr>
<tr>
<td></td>
<td>5cm - 10cm</td>
<td>H. chuditch, ngwayir, wambenger</td>
</tr>
<tr>
<td></td>
<td>1cm - 5cm</td>
<td>I. bush rat</td>
</tr>
<tr>
<td><strong>Two Tracks both same size and shape.</strong> Measure hind track.</td>
<td>6cm - 10cm</td>
<td>J. red fox</td>
</tr>
<tr>
<td></td>
<td>4cm - 5cm</td>
<td>K. cat, rabbit</td>
</tr>
<tr>
<td><strong>No distinct track evident.</strong></td>
<td></td>
<td>L. owl, tawny frogmouth, white-tailed black cockatoo</td>
</tr>
</tbody>
</table>
## Bones

### Procedure

- Measure length of skull.
- Select animal group from list (A to F).
- Record group of possible animals on the **Record of Animal Evidence** worksheet.
- Record any other remains at the site.
- Go to the next evidence site.

<table>
<thead>
<tr>
<th>Scull Size</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>20cm - 30cm</td>
<td>A. feral pig, yonga</td>
</tr>
<tr>
<td>13cm - 20cm</td>
<td>B. red fox, western brush wallaby</td>
</tr>
<tr>
<td>10cm - 13cm</td>
<td>C. chuditch, nyingarn</td>
</tr>
<tr>
<td>5cm - 10cm</td>
<td>D. chuditch, koomal, ngwayir, owl, quenda, tawny frogmouth, white-tailed black cockatoo</td>
</tr>
<tr>
<td>3cm - 5cm</td>
<td>E. bush rat, wambenger</td>
</tr>
</tbody>
</table>
**Food**

**Procedure**
- Select type of leftover food.
- Select food group.
- Select animal group from list (A to D).
- Record group of possible animals on the *Record of Animal Evidence* worksheet.
- Go to the next evidence site.

<table>
<thead>
<tr>
<th>Leftover Food</th>
<th>Food group</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Animal remains</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• bones, feathers, etc.</td>
<td>Carnivore</td>
<td>A. chuditch, owl, red fox, tawny frogmouth,</td>
</tr>
<tr>
<td>• regurgitated pellets (caste)</td>
<td></td>
<td>wambenger</td>
</tr>
<tr>
<td><strong>Plant remains</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• flowers</td>
<td>Herbivore</td>
<td>B. koomal, ngwayir, rabbit, western brush</td>
</tr>
<tr>
<td>• leaves, grass</td>
<td></td>
<td>wallaby, white-tailed black cockatoo,</td>
</tr>
<tr>
<td>• bulbs, roots, fungus</td>
<td></td>
<td>yonga</td>
</tr>
<tr>
<td><strong>Animal and plant remains</strong></td>
<td>Omnivore</td>
<td></td>
</tr>
<tr>
<td>(possibly including insects)</td>
<td></td>
<td>C. bilby, bush rat, quenda,</td>
</tr>
<tr>
<td><strong>Insect remains</strong></td>
<td>Insectivore</td>
<td>D. numbat, nyingarn, wambenger</td>
</tr>
</tbody>
</table>
**Home/Shelter**

**Procedure**
- Select type of home/shelter.
- Select size/other details group.
- Select animal group from list (A to M).
- Record group of possible animals on the *Record of Animal Evidence* worksheet.
- Go back over all the evidence.

<table>
<thead>
<tr>
<th>Home/Shelter</th>
<th>Size/Other Details</th>
<th>Animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burrow below the ground</td>
<td>Greater than 20cm</td>
<td>A. red fox</td>
</tr>
<tr>
<td></td>
<td>10cm - 20cm</td>
<td>B. bilby, chuditch, rabbit</td>
</tr>
<tr>
<td></td>
<td>Less than 10cm</td>
<td>C. bush rat, numbat</td>
</tr>
<tr>
<td>Unconstructed resting place</td>
<td>Open grassland, woodland</td>
<td>D. western brush wallaby, yonga</td>
</tr>
<tr>
<td></td>
<td>Under logs, thick scrub or undergrowth</td>
<td>E. chuditch, nyingarn, quokka</td>
</tr>
<tr>
<td></td>
<td>Dense bushes</td>
<td>F. woylie</td>
</tr>
<tr>
<td></td>
<td>Perch in tree or branch</td>
<td>G. tawny frogmouth, white-tailed black cockatoo</td>
</tr>
<tr>
<td>Enclosed shelter; no constructed nest</td>
<td>Cave or rock crevice</td>
<td>H. chuditch, nyingarn, nyingarn</td>
</tr>
<tr>
<td></td>
<td>Hollow logs or stump near ground</td>
<td>I. cat, chuditch, nyingarn, red fox</td>
</tr>
<tr>
<td></td>
<td>Tree hollow</td>
<td>J. cat, chuditch, koomal, red fox</td>
</tr>
<tr>
<td>Enclosed shelter: constructed or partially</td>
<td>Tusk, grasstree skirt or undergrowth</td>
<td>K. bush rat, mardo, quenda, woylie</td>
</tr>
<tr>
<td>partially constructed nest</td>
<td>Hollow log or stump</td>
<td>L. quenda, wambenger</td>
</tr>
<tr>
<td></td>
<td>Drey, bulky nest in the tree trunks or branches</td>
<td>M. ngwayir</td>
</tr>
</tbody>
</table>
# Record of Animal Evidence

For each piece of evidence you find, put the trail number in the box for the animal it could be. You will have to fit more than one trail number in some boxes, so make sure you leave enough room.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Scats</th>
<th>Tracks</th>
<th>Food</th>
<th>Bones</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>bilby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bush rat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chuditch (western quoll)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>feral pig</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>koomal (brushtailed possum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ngwayir (ringtail possum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>numbat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nyingarn (echidna)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>owl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quenda (southern brown bandicoot)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quokka</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rabbit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>red fox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tawny frogmouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wambenger (brush tailed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>western brush wallaby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>white-tailed black cockatoo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>woylie (brush tailed bettong)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yonga (western grey kangaroo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Record which animal you identified on each trail.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Learning Area: Science
Fauna File

Create a profile on one of the animals from your field excursion.

1. Fill in the information below to create your own fauna profile.

Animal Profile

Aboriginal Name
Scientific Name
Common Name
Previous Distribution
Current Distribution
Conservation Status
Habitat
Description
Distinguishing features

2. What are the main threats to your species' population?

3. What other facts did you discover about your animal?

4. Draw a picture below showing the footprints or tracks of your animal. Make sure you note down the size.

5. Draw a picture below showing the scats of your animal. Make sure you note down the size.
Perform your own Surveys

Use one of the methods below to carry out your own surveys in your area.

Sand traps and track plates are simple survey tools which will help you identify the kind of animals living in your local environment. You’d be surprised by the number of animals moving around, even in urban areas.

**Sand Traps** *(for medium to large animals)*

You can build a sand trap in a kitty litter box or any flat container with low edges. You can even make a sand trap in the bush or forest near your home with no container at all.

*You’ll need:*
- 20 litres of clean play sand
- trowel or rake
- bait
- fish oil (optional)

*What to do:*
- add your fish oil to the sand if using, mix, then pour sand onto a flat area of ground.
- use your trowel or rake to spread the sand out to about one square metre.
- place your bait in the middle of your sand patch.
- leave it overnight and come back the next day to inspect.
- use a tracks and scats field book to identify the species’ footprints.

---

**Track Plates** *(for smaller animals)*

Sometimes sand traps will not work for smaller animals so you can use a track plate instead.

*You’ll need:*
- water spray bottle
- a vinyl placemat
- builder’s chalk
- tent peg
- bait (fish oil)
- small sponge or cotton pad
- contact adhesive sheet

*What to do:*
- spray your vinyl placemat with a light mist of water.
- dust your placemat with a generous layer of chalk.
- place it on the ground in an area where you think animals might pass.
- soak sponge or cotton pad with fish oil.
- push tent peg through the cotton pad and through the middle of the vinyl placemat. This will hold both the placemat and bait down.
- leave overnight. Upon return very carefully layer contact adhesive sheet over the chalk to pick up the print.
Writing a Report

Concluding your investigation

Prepare a report to present to your class. A full report would include more researched information about your animal. You could work in groups and each cover a different aspect. It should include the following information:

- Animal profile
- Habitat details including current or proposed management plans
- Protection strategies such as the Western Shield program or any other programs you find
- Captive breeding plans or reintroduction strategies
- Conclusion - what do you think needs to be done to protect this animal?

Get involved

There are a number of groups running surveys and collecting information on a variety of different native fauna. Sign up and join one. Here are links to a couple which may interest you:

Armchair Science

In 2016, the Department of Parks and Wildlife launched the citizen science project, Western Shield Camera Watch. Through their website, members of the public can help with the huge task of identifying and recording animal sightings from thousands of images taken by 90 cameras set up in Western Australia’s northern jarrah forests. Anyone can volunteer and you don’t need scientific knowledge, just a keen eye and a willingness to learn! For more information follow the link below:


Fun Fieldwork

The World Wildlife Fund; in conjunction with the Western Australian Department of Parks and Wildlife run the annual Spring Quenda Count. Since 2012, these surveys have been carried out through the Perth Metropolitan area and surrounds.

The quenda is listed as a Priority 5 species, meaning that its status needs to be kept under review. The quenda surveys will provide valuable data to help inform the status assessment of this species.

Books ‘n’ Bytes

Here are some great resources to assist you with your investigations:

Print resources...


Online resources...


Western Shield Camera Watch (last viewed 1/3/17) - https://www.zooniverse.org/projects/birgus2/western-shield-camera-watch/home


PetSmart - Youtube Channel (last viewed 31/12/16) - https://www.youtube.com/user/PestSmart

Feral cats in Australia: Part 1 - History and Population (last viewed 31/12/16) - https://www.youtube.com/watch?v=v9LrWvNUT8k

Acknowledgements

The assistance and support of the following people and organisations is gratefully acknowledged:

Stephen Crane, Leone Boudewyns and Geoff Barrett from the Department of Parks and Wildlife.

Caitlin Delane and the Year 6 class at Our Lady of the Cape Primary School.
Teacher’s Cheat Sheet - Record of Animal Evidence

For each piece of evidence you find, put the trail number in the box for the animal it could be. You will have to fit more than one trail number in some boxes, so make sure you leave enough room.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Scats</th>
<th>Tracks</th>
<th>Food</th>
<th>Bones</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>bilby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bush rat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cat</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chuditch (western quoll)</td>
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<td></td>
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<tr>
<td>feral pig</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>koomal (brushtailed possum)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>ngwayir (ringtail possum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>numbat</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>nyingarn (echidna)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>owl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quenda (southern brown bandicoot)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>quokka</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rabbit</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>red fox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tawny frogmouth</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>wambenger (brush tailed phascogale)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>western brush wallaby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>white-tailed black cockatoo</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>woylie (brush tailed bettong)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yonga (western grey kangaroo)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Record which animal you identified on each trail.

Trail 1. .......................................................... Trail 2. ..........................................................
Trail 3. .......................................................... Trail 4. ..........................................................
Trail 5. .......................................................... Trail 6. ..........................................................
Trail 7. ..........................................................