

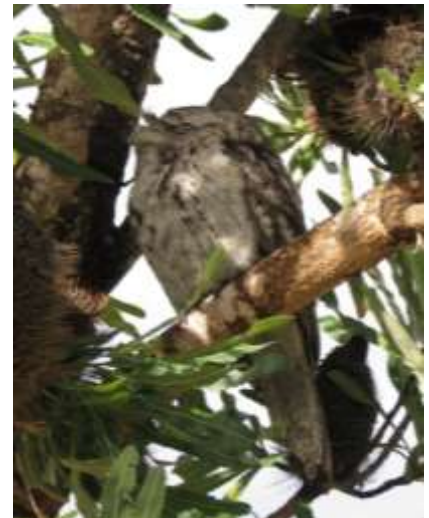
Living World

Tawny Tragedy

As urban Sydney sprawls in all directions, natural bushland is being replaced by houses and roads. This Scientific Inquiry will focus on the adaptations of living things which help them to survive in their environment. It will evaluate the physical conditions of the environment around Brewongle EEC where the Tawny Frogmouth was found dead in an attempt to understand Tawny's cause of death.

Inquiry Questions:

- How are animals adapted to the environment they live in, for example the Tawny Frogmouth?
- How can people use environments more sustainably to reduce the impact we have on the growth and survival of living things?



Health and Safety Issues

As you are working out in the field you need to be aware that:

- Ground material is often covered in moss and can be very slippery.
- Vines and dense undergrowth can trip.
- Fallen trees can be rotten and weak.
- Some animals can deliver painful or venomous bites.
- On slopes, rocks can be easily dislodged.

Outcomes

- ST3-10LW:** Describes how structural features and other adaptations of living things help them to survive in their environment
- ST3-11LW:** Describes some physical conditions of the environment and how these affect the growth and survival of living things

Student Name: _____

Inquiry Aim:

The aim of this Scientific Inquiry is to investigate the Living World, with a focus on the adaptations of living things and the interconnectedness of ecosystems. You will be researching the suspicious death of a Tawny Frogmouth which was found dead at Brewongle EEC in order to uncover its cause of death.

Pre-Visit Tasks: The Tawny Frogmouth

Complete this section at school before your Brewongle Excursion

<https://brewongleeec.com/resources/stage-3-resources/tawny-tragedy/>

<http://australianmuseum.net.au/tawny-frogmouth>

<http://www.parks.tas.gov.au/index.aspX?base=24031>

1. Use the information and the video in the links above to write a paragraph describing the Tawny Frogmouth.

2. What do Tawny Frogmouths eat?

3. What type of habitat do Tawny Frogmouths live in?

4. What is the main threat to Tawny Frogmouths?

5. Can you think of another threat?

POLICE REPORT

| | |
|--|-----------------------------------|
| Case Number: 534952 | Date: 18 th July, 2016 |
| Reporting Officer: Snr Constable Michael Morton | Prepared By: Catherine Wilson |
| Incident: Suspicious Death of <i>Podargus strigoides</i> at Brewongle Environmental Education Centre | |

Detail of Event:

At approximately 6:30am yesterday morning, police received a call reporting the death of *Podargus strigoides*, a.k.a. The Tawny Frogmouth. The body of the bird was discovered that morning by the staff at Brewongle Environmental Education Centre. A staff member found the body lying prone near the bbq and immediately informed police. Police interviewed several people in relation to the mysterious death of *Podargus strigoides* and have provided the following information.

Interviews:

Zoe (The Cleaner):

"I saw Tawny drinking from the ponds two days ago and he appeared to be acting a little strangely".

Mr Atkins (The Gardener):

"I was setting traps for feral animals in the forest last night, when I saw Tawny swoop down at something in the leaf litter; he appeared clumsy and off-balance".

Mr Body (The Principal):

"I always enjoyed watching Tawny catch the moths as they circled our BBQ lights at night. Once, I even saw him catch a mouse as it tried to sneak into the house".

Mrs Keary (The Teacher):

"I know that Tawny was angry about people calling him an owl, he insisted that he was not a member of the owl family".

Mrs Brown (The Administration Manager):

"I saw strange footprints in the mud after it rained the other day, maybe this has something to do with it. It certainly wasn't me, I love owls".

Areas for Investigation:

Three areas of suspicion have been identified for further investigation: the sources of FOOD, WATER and SHELTER for the Tawny Frogmouth. The Crime Scene Investigation Team will conduct a thorough investigation into each area and report back at the conclusion of the day. Meanwhile, our forensic veterinarian will investigate blood samples of the bird.

Read the Police Report on page 3. Make an hypothesis about Tawny's cause of death. Provide evidence for (justify) your hypothesis.

At Brewongle: The Tawny Frogmouth

Suspect Checklist

At the conclusion of each investigation, indicate whether or not the suspect could have committed the crime.

| SUSPECT | | HIGHLY SUSPECT | POTENTIAL SUSPECT | INNOCENT |
|----------------|-----------------|-----------------------|--------------------------|-----------------|
| Water | Quality | | | |
| | Bugs | | | |
| Food | Zone 1 - Forest | | | |
| | Zone 2 - House | | | |
| Shelter | Natural Habitat | | | |
| | Feral Animals | | | |

Water – Physical & Chemical Tests

Did you know?

- The more turbid (dirty) the water, the higher the temperature
- The higher the temperature of the water, the lower the oxygen level

| | RESULT | RESULT BETWEEN | SCORE | YOUR SCORE |
|---|--------|----------------|-------|------------|
| TEMPERATURE | | 0 - 6° | 2 | |
| | | 7 - 11° | 4 | |
| | | 12 - 18° | 10 | |
| | | 19° + | 2 | |
| | | | | |
| OXYGEN Fish need at least 2 milligrams / litre to survive | | 0 – 2 | 0 | |
| | | 3 – 4 | 4 | |
| | | 5 – 8 | 10 | |
| | | 9 + | 4 | |
| | | | | |
| SALINITY | | 0 - 200 | 10 | |
| | | 201 – 300 | 8 | |
| | | 301 – 500 | 5 | |
| | | 501 + | 2 | |
| TOTAL SCORE | | | | |





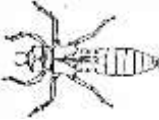




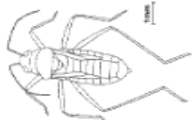
SCORE RESULTS

| | |
|---------|-------------------|
| 0 - 8 | Highly Suspect |
| 9 – 15 | Potential Suspect |
| 16 – 30 | Innocent |

Water – Biological Tests

Did you know?

- Water bugs are a food source for fish, frogs and birds
- Water bugs are sensitive to their surroundings

| | | SCORE | | | SCORE |
|-------------------------|--|-----------|-----------------------|---|----------|
| Back Swimmer | 10-15mm  | 5 | Water Boatman |  8-10mm | 5 |
| Damsel-fly Nymph |  15-25mm | 6 | Water Scorpion |  25-50mm | 3 |
| Dragon-fly Nymph |  25-50mm | 5 | Water Snail |  5-8mm | 2 |
| Tadpole |  10-20mm | 10 | Water Strider |  5-12mm | 4 |
| Diving Beetle |  5-45mm | 6 | Water Treader |  5mm | 4 |
| TOTAL SCORE | | | | | |

SCORE RESULTS

| | |
|---------|-------------------|
| 0 - 10 | Highly Suspect |
| 11 – 25 | Potential Suspect |
| 26 – 50 | Innocent |

Food – Zone 1 (Forest)

Did you know?

Soil gives life to plants, without plants there

| SOIL | RESULT | RESULT BETWEEN | SCORE | YOUR SCORE |
|--------------------|--------|----------------|-------|------------|
| Acid / Alkaline | | 0 – 4 | 0 | |
| | | 5 - 8 | 10 | |
| | | 8 + | 0 | |
| | | | | |
| Leaf Litter | | 0cm | 0 | |
| | | 1 – 2cm | 5 | |
| | | 3 – 5cm | 10 | |
| | | | | |
| Invertebrates | | 0 | 0 | |
| | | 0 - 5 | 5 | |
| | | 6 + | 10 | |
| TOTAL SCORE | | | | |

SCORE RESULTS

| | |
|---------|-------------------|
| 0 -10 | Highly Suspect |
| 11 – 15 | Potential Suspect |
| 16 - 30 | Innocent |

What was caught in the trap?

Food – Zone 2 (House)

Indicate with a tick ✓ if you observe one of these items

| Potential Food Items Consumed by the Antechinus and Insects | Score | ITEM ✓ |
|---|-------|-----------|
| Bread | 6 | |
| Meat Scraps | 8 | |
| Fruit Scraps | 2 | |
| Garden Waste | 4 | |
| Bird Seed | 10 | |
| Plastics | 10 | |
| Paints | 13 | |
| Oils | 10 | |
| Poisons | 15 | |
| Chemicals | 15 | |
| Grass Clippings | 3 | |
| Paper | 2 | |
| TOTAL SCORE | | |

| SCORE RESULTS | |
|----------------------|-------------------|
| 50+ | Highly Suspect |
| 21 - 50 | Potential Suspect |
| 0 - 20 | Innocent |

Feral Animals - Sketch the footprints you observe then use the ID Charts to identify the animals present.

| | |
|-------------|-------------|
| | |
| Name | Name |
| | |
| Name | Name |

| SCORE RESULTS | |
|----------------------|-------------------|
| 2+ feral animals | Highly Suspect |
| 1 feral animal | Potential Suspect |
| 0 feral animals | Innocent |

Shelter – Habitat

| | | SCORE | YOUR SCORE |
|---------------------|-----------|-------|------------|
| Trees | Old | 3 | |
| | Medium | 2 | |
| | Young | 1 | |
| Shrubs | None | 0 | |
| | Some | 1 | |
| | Lots | 2 | |
| Ground Cover | 0 – 30% | 1 | |
| | 31 – 60% | 2 | |
| | 61 – 100% | 3 | |
| Weeds | None | 2 | |
| | Some | 1 | |
| | Lots | 0 | |
| TOTAL SCORE | | | |

| SCORE RESULTS | |
|----------------------|-------------------|
| 0 -5 | Highly Suspect |
| 6 - 10 | Potential Suspect |
| 11 - 13 | Innocent |

Post-Visit Tasks: The Tawny Frogmouth

Complete this section at school after your Brewongle excursion

1. Conduct an audit of the chemicals and waste found around your home.

| Potential food Items consumed by native wildlife | Score | ITEM ✓ |
|--|-------|--------|
| Bread | 6 | |
| Meat Scraps | 8 | |
| Fruit Scraps | 2 | |
| Garden Waste | 4 | |
| Bird Seed | 10 | |
| Plastics | 10 | |
| Paints | 13 | |
| Oils | 10 | |
| Poisons | 15 | |
| Chemicals | 15 | |
| Grass Clippings | 3 | |
| Paper | 2 | |
| TOTAL SCORE | | |

| SCORE RESULTS | |
|----------------------|-------------------|
| 50+ | Take Action! |
| 21 - 50 | Make Some Changes |
| 0 - 20 | Well Done |

2. Use information from the websites below to create a timeline of the introduction and impacts of foxes in Australia.

<http://www.dpi.nsw.gov.au/content/agriculture/pests-weeds/vertebrate-pests/pest-animals-in-nsw/fox-biology>

<http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/pest-animals/a-z-of-pest-animals/red-fox>

3. Use information on the link below as well as other sources to research the effects of domestic pets on native wildlife. Conduct a class debate on the topic “People should not be allowed to have domestic pets in Australia”.

<http://www.environment.gov.au/resource/protecting-our-wildlife-responsible-pet-ownership>

4. Create a short viral video (less than 1 minute) to educate the community on ways to reduce the impacts their pets have on native wildlife. Share your video with Brewongle EEC and we will help you send it viral!