



Black-throated Finch Trust

Classroom Worksheet Years 7–9

Design & Build a Home

Learning Areas

Science / Year 7 / Biological Sciences.

Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112).

Science / Year 7 / Science Inquiry Skills

Processing and analysing data and information. Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (ACSI129).

Science / Year 7 / Science Inquiry Skills /

Questioning and predicting. Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSI124)

Overview

There are over 400 endangered animals in Australia. The Black-throated Finch is one of them. A number of environmental factors are needed for the birds to thrive. Students will participate in an activity that helps them understand what environmental factors need to be present for the birds have to a healthy habitat.

Estimated Time

1.30 hours

Objectives

The students will be able to:

1. Learn what makes a good habitat for Black-throated Finches.
2. Understand what people can do to protect and create habitat.
3. Understand what threatens habitat and the Black-throated Finch.

Background

The southern sub species of the Black-throated Finch is endangered. This means it is facing a *high risk* of extinction in the wild. For more information refer to the Black-throated Finch flyer or landholder Management Guidelines available on www.blackthroatedfinch.com. See the Australian Government webpage for general information about the bird <http://tiny.cc/wgyha>.

In this activity students will collect natural materials from the playground. The object is to create an ideal Black-throated Finch habitat model. The bird needs nesting areas, feed and water within close proximity. They need to be able to easily access the water and feed from suitable grasses. Students will also understand what threatens the survival of this endangered species.

Extra activities are listed for year 8 and 9 students. These explore consequences of environmental changes and human impacts.

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Design & Build a Home

Materials

1. Leaves and twigs. These represent vegetation.
2. Flat pieces of cardboard.
3. Caps from disposable water or juice bottles.
4. Grass.
5. Small amounts of water.
6. Glue and sticky tape.
7. Paper cut outs of Black-throated Finches.

Activity

1. Introduce the environmental elements that make an ideal habitat for Black-throated Finches. These are things like trees for nesting, grasses to eat and water to drink.
2. Ask students to find materials in the school yard. Supply caps from bottles if needed, cardboard and bird cut outs.
3. Glue leaves, twigs and grasses onto cardboard to create a model environment Black-throated Finches would live in.
4. Decide where to put the water source in relation to the rest of the habitat like the trees and grass and fix the cap to the cardboard. Fill with water.
5. Talk to students about the decisions they've made to put what where.
6. Ask students to use cut outs of birds to role play them eating seed, drinking from water and nesting.
7. Now is a good time for students to understand that Black-throated Finches need particular plant species to survive and water sources that are easy to access. They won't

survive in an environment that just has pine trees, buffel grass and deep concrete troughs. Start by talking about the type of tree and grass species research shows they prefer and how they are commonly species that are indigenous species to parts of central and north Queensland.

8. Many of the grass and trees favoured by the Black-throated Finch also played an important role in the life of Indigenous Australians. Talk to students about the traditional uses of species like narrow-leaved ironbark and pigeon grass. To find out more see the NQ Dry Tropics website www.nqdrytropics.com.au.

9. Ask students what sort of water source they have in the model. Is it a trough, a dam or a lake? Finches tend to suck water from the surface. Can birds easily drink from it? If not could it be designed so that it's easy to drink from? Edges could be made shallow to allow birds to drink at the edge. A stick could be put into a trough so birds can get out if they fall in.

10. Students share models with each other. Do they look the same? Are they different? Talk about how presented facts and information can be interpreted differently.

11. Talk about the animals or activities that could threaten the model habitat they've made. Cats could catch birds. Feral pigs can dig up grasses. Mining could destroy vegetation. A hot fire could destroy vegetation. Overgrazing could leave birds with no grass. A developer could destroy hectares of habitat.

12. Ask students how their models compare to the school yard. Could Black-throated Finches live in the school yard? If not why not? A useful reference here is the Black-throated Finch Management Guidelines available from the www.black-throatedfinch.com or www.nqdrytropics.com.au. The Black-throated Finch website photo section under the library tab illustrates the type of environments the bird has been found in. The Management Guidelines highlights grass species the Finch favours. Internet searches will help you understand what they look like.

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Extra Activities

Learning Areas

Year 8

Science / Year 8 / Science Inquiry Skills / Processing and analysing data and information.

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (AC SIS144).

Science / Year 8 / Science Inquiry Skills / Questioning and predicting.

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (AC SIS139).

Activity

1. The effect of fires on the environment and wildlife. Fires in the wet season compared with fires in the dry season.
 - Write down what would happen to the model environment if a fire late in the dry season went through it. Refer to this Savanna Explorer web page www.savanna.org.au/all/fire_types.html for more information about the types of fires that affect northern Australia. The information can generally be applied to other tropical areas of Australia.
2. Based on information we know about ideal habitats for Black-throated Finches predict the chain of events that would happen to the birds in the event of a fire. The fire would burn their food source; finches might travel further to look for food. Where would they nest? Fire could also introduce more competition for food and water from other animals.

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Extra Activities

Learning Areas

Year 9

Science / Year 9 / Science Understanding / Biological sciences.

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176).

Science / Year 9 / Science as a Human Endeavour / Nature and development of science.

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE158).

Materials

1. Pictures of cats, feral pigs, cattle and horses.
2. Satellite imagery. NQ Dry Tropics can supply schools with example imagery from the Townsville area upon request. Call 4724 3544.

This website

www.derm.qld.gov.au/slats/div/div.html is useful to understand how satellite imagery is used to explore different vegetation and terrain types.

Activity

Threats facing Black-throated Finches. Break into teams of two or three for this activity.

Team 1: Impact of feral pigs and cats

- Cut out a picture of a feral pig and a cat. Stand them in the model.
- Write down the effects they can have on the environment. For information on feral cats see this Australian Government webpage <http://tinyurl.com/7jxqhqd>. Pigs can dig up the ground destroying grasses and displacing seed making it hard to access. For more information see this Australian Government feral pig webpage <http://tinyurl.com/7qymhx3>.
- Manipulate the model to show the affects the introduced animals would have.

Team 2: Impact of weeds

- Introduced grasses, shrubs and trees can outcompete native vegetation and become weeds. Chose three exotic plant species to introduce to the model. They could be grasses, shrubs, trees or water weeds. See www.weeds.gov.au for more information on weeds

common in your area. Your local natural resource management and Landcare groups might also have relevant information, as might your local council. Weeds like grader grass can outcompete grass species favoured by the Black-throated Finch. Chinese apple can encroach on habitat.

- Write down the consequences. What happens when weeds take over? Can the finches still find food? Can they eat the seed from the weed? Can birds use the weeds to nest in or is it too prickly or the wrong shape? Do weeds stop natural regeneration of native trees in the area?

Team 3: Impact of domestic animals

- Cattle and horses are common throughout some Black-throated Finch habitat. Introduce pictures of cattle or horses to the model.
- Write down the consequences. Where will the stock get feed and water? Will they compete with the birds for feed and water? Is there enough for everyone? Can stock have positive influences on habitat? The landholder_Management_Guidelines discusses how to protect habitat grazed by domestic stock. See www.blackthroatedfinch.com or www.nqdrytropics.com.au

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Extra Activities

Team 4: Impact of fire

- Hot fires can destroy food sources and habitat.
- Write down what would happen to the model environment if a fire late in the dry season went through it. Refer to this Savanna Explorer web page www.savanna.org.au/all/fire_types.html for more information about types of fires that affect northern Australia. The information can generally be applied to other tropical areas of Australia.

1. Each group shares its scenarios with the class using their transformed model to role play the sequence of events the group predicts will happen when aforementioned threats appear in the habitat.
2. Technology like satellite imagery can be useful to identify good habitat areas for Black-throated Finches. It is used to monitor changes in the landscape over time and to identify connectivity between habitats or wildlife corridors.

Team 5: Impacts of vegetation clearing

- Clearing trees can remove nesting sites for birds. It can also reduce the opportunities they have for moving through the landscape.
- Write down what would happen to your model habitat if a bulldozer came through. Information on Australian Government's Department of Sustainability, Environment, Water, Population and Communities helps you understand some of the effects of clearing land. See its section on broadscale vegetation clearing at <http://tinyurl.com/7teqm64>. What would happen to the birds? How long might it take for vegetation to grow back?

- Look at satellite imagery and see if you can identify areas that have lots of vegetation compared with areas that don't have a lot of vegetation.