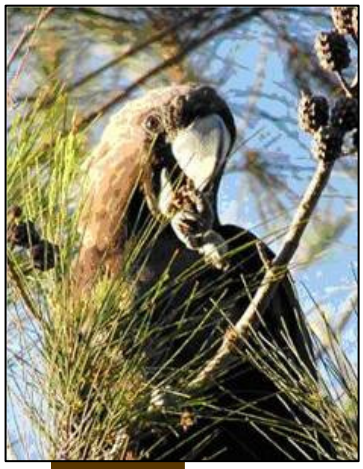


Unit Two – Where Glossy Blacks Live and Feed

Unit Lesson Overview
Years 4-7

Reference and copyright information
This resource was developed by the Glossy Black Conservancy and SEQ Catchments Ltd, 2008 with funding from the Australian Government.

ISBN 978-0-9805530-2-4
Brisbane
Resource drafting by EnviroCom Australia®

Introduction

The Glossy Black Conservancy is committed to the protection of the Glossy Black-Cockatoo across Australia. In Queensland, the Glossy Black-Cockatoo is a threatened species (listed in the *Nature Conservation Act 1992* as vulnerable) and is under pressure from development, habitat destruction and habitat fragmentation.

The Glossy Black-Cockatoo is a highly specialised bird, with a limited number of specific food sources, particular nesting requirements and a slow reproductive rate. Consequently it is highly susceptible to natural disasters and the pressures of urbanisation and development.

The Glossy Black Conservancy educates the community about the plight of this very special bird. In addition the Conservancy collects information on bird movements and numbers, as well as specific sites used by the Glossy Black-Cockatoo to feed, roost or drink. The Conservancy are asking the community to contribute to this data collection effort. More information on reporting Glossy Black-Cockatoos can be found at the Conservancy's website www.glossyblack.org.au.

The information collected is available to the public in a regular newsletter (also available from the website). It is also provided to planners and developers, in government and private industry, to raise awareness of the sites and resources used by the Glossy Black-Cockatoo.

This unit, one of four in a series of school education resources, focuses on the habitat environmental resource requirements for the Glossy Black-Cockatoo. The unit focuses on helping students to understand that the birds are highly specialised and need special protection.

The four educational units available are:

1. ***It's About the Birds*** (***adaptations and structures)*** - lesson plans and activities targeting early primary, or learning outcomes by the end of Year Three.
2. ***Where Glossy Blacks Live and Feed (habitat and environments***) - lesson plans and activities targeting middle to late primary, and learning outcomes by the end of Year Five - Seven.
3. ***Finding the Glossy Black*** (***a field study)*** - lesson plans and activities would target early secondary school and learning outcomes by the end of Year Nine.
4. ***Managing and Protecting the Glossy Black(decisions and considerations for environmental management)*** - lesson plans and activities would target senior students and learning outcomes by the end of Year Twelve.

Unit Two – Where Glossy Blacks Live and Feed (habitat and environments)

Introduction

This unit introduces the essential habitat requirements of Glossy Black-Cockatoos. It explores the feeding, nesting and watering sites used by these birds, as well as introducing students to the critical aspects of the physical environment required by Glossy Black-Cockatoos.

Key Concepts

The key concepts considered in this unit of work include:

- Glossy Black-Cockatoo feeding trees and habits.
- Identifying different physical environments and habitats required for the survival of Glossy Black-Cockatoos.
- Linking the survival of the Glossy Black-Cockatoo to habitat protection and management.

Unit Overview

5 E's Phase	*Lesson*
Engage – to capture and discover	• Habitats – what are they?
Explore – to have shared and/or hands on experiences	• PowerPoint (See PowerPoint notes and PowerPoint presentation on CD) • Casuarina: a tree with little leaves that save water
Explain – to demonstrate what has been learnt in the exploring phase	• Nests – in a tree hollow
Elaborate – to build understanding, through additional investigation	• Where 'ort' we look (for Glossy Black-Cockatoos) • Water sources
Evaluate – to review and reflect on learning	• Real Estate for Sale (Get Glossy Black-Cockatoos to move in to your neighbourhood)

Linking Locally

Planting the appropriate species of she-oaks (*Casuarina* or *Allocasuarina* species) in the school grounds can assist local Glossy Black-Cockatoo populations by providing future potential food sources. Such an activity would provide opportunities for schools to network with local community groups, their Council and other organisations to link the learning in the school with the local community.

Invite a local Council Officer working in environmental planning to explain how consideration of the habitat of vulnerable species is handled in development applications. Or contact local environment or bird groups to find people with specific information about Glossy Black-Cockatoos in your area.

Reviewing the information on the Glossy Black Conservancy's website (http://www.glossyblack.org.au/), particularly the back issues of the newsletters will identify recent or past sightings of Glossy Black-Cockatoos in your area. Contributing to this information source is also strongly encouraged.

The Queensland Museum offers a loan service for subscription schools. Information on this service can be found at http://www.qm.qld.gov.au/education/loans/loans_subscription.asp.

While the loan service does not currently include a Glossy Black-Cockatoo specimen, it does include a range of birds, eggs, nests and other habitat information that may enhance the teaching within this unit.

Taking Action

One aim of the Glossy Black Conservancy is to encourage community groups, including schools, to track Glossy Black-Cockatoo populations in the region. You can help this effort by reporting sightings of Glossy Black-Cockatoos or the location of their feed trees. The information will assist in protecting resources and habitat for the birds.

Glossy Black-Cockatoos are limited in their range by the availability of feed trees, nesting sites and water sources. To assist the Glossy Black-Cockatoo, you can provide additional feeding sites by planting trees, establish safe water sources such as ponds and bird baths and protect roosting sites by not clearing all old and established trees (particularly those that contain hollows for nesting).

Essential Learnings

Essential Learnings for this unit	
Knowledge and Understanding	**Ways of Working**
Key Learning Area (KLA) *SOSE*	
Students know and understand: ▪ Local environments are distinguished by natural features, places of importance to particular groups, and public spaces ▪ Resources and environments can be used, conserved and protected by valuing and applying sustainable practices ▪ Maps have symbols to represent places and identify the relative position of features including landmarks and locations ▪ Environments are defined by physical and human dimensions ▪ Maps have basic spatial concepts that describe location and direction, including north orientation and four compass points, symbols and a legend or key. ▪ Sustainability of local natural, social and built environments can be influenced by positive and negative attitudes and behaviours ▪ Interactions between people and places affect the physical features of the land, biodiversity, water and atmosphere	**Students are able to:** ▪ Share ideas, and plan and enact responses to group or community issues ▪ Participate in group decision making to achieve goals ▪ Pose questions for investigations ▪ Plan simple investigations based on questions ▪ Pose and refine questions for investigations ▪ Plan investigations based on questions and inquiry models ▪ Collect and organise information and evidence ▪ Evaluate sources of information and evidence to determine different perspectives, and distinguish facts from opinions ▪ Reflect on learning to identify new understandings and future applications.
Key Learning Area (KLA) *Science*	
Students know and understand: ▪ Stewardship of the environment involves conserving natural resources ▪ Science can help to make natural, social and built environments sustainable and may influence personal human activities ▪ Animals, plants and non-living things have different features/characteristics ▪ Change occurs during the life cycle of living things ▪ Living things can be grouped according to their observable characteristics ▪ Structures of living things have particular functions ▪ Living things have relationships with other living things and their environment	**Students are able to:** ▪ Pose and refine simple questions, and make predictions to be tested ▪ Collect and organise data, information and evidence ▪ Select and use tools, technologies and materials suited to the activities and investigations

Lesson One: *Habitats – what are they?*

Lesson Overview

Using different mediums students will develop their own definition of what a habitat is and distinguish the characteristics of various habitats.

Lesson Objectives

Students should be able to:

- Define a habitat
- Identify different habitats

Equipment

For each rotation group:

Rotation 1

- CD of various environmental recordings. For example; Tony O'Connor's seaside, rainforest, Australian bush sounds.
- CD player

Rotation 2

- Dictionaries

Rotation 3

- Magazines

Rotation 4

- DVD of various habitats.
- DVD player
- TV

Rotation 5 (if computers are accessible in the classroom)

- Internet search using the attached hot list.

For each student:

- Pencils
- Recording Book

Preparation

- Create a display space entitled 'The Glossy Black-Cockatoo'. Headings should include:
  - Habitat
  - Diet

- Definition: A habitat is an area that provides animals or plants with adequate food, water, shelter and living space.

- For information and examples of teaching strategies and organisational charts as mentioned in the lesson steps: Global Education (Templates) http://www.globaleducation.edna.edu.au/globaled/go.

Lesson steps

1. Introduce the unit by completing a KWL organisational chart. (K) what I know, (W) what I want to know. NB: (L) what I have learnt will be revisited throughout and at the conclusion of the unit.

   Alternatively use the concept of a Headline - Thinking Routine. Ask students to write a newspaper headline about the topic that captures the most important aspect that should be remembered. This can be done in pairs for the younger year levels. The headline assists the teacher to gauge prior knowledge. At the end of the unit, students devise another headline taking into account what they have learnt. This may complement the culminating learning experience.

2. Divide the class into groups of 4 or 5 students. Each group is to complete an activity at each station, documenting information in their recording books.

Rotation 1

- The students listen to a CD of environmental sounds. Each track depicting a different habitat. For example; the seaside, rainforest, Australian bush etc.
- In their recording books, the students illustrate or write what they think each habitat is and list its characteristics.

Rotation 2

- The students look up the dictionary meaning of the word 'habitat'.
- The students check various dictionaries to compare interpretations.

Rotation 3

- Using magazines, the students cut out pictures that depict different habitats. The students paste their findings in their recording books.

Rotation 4

- The students watch a DVD showing different habitats. Students record their observations in their recording books.

Rotation 5

- Using the hot list provided, students explore the definition via the internet.

3. The students collate their data and develop a group definition for the term 'habitat'. Students share their definitions with the class.
4. Devise a class definition.
5. Suggestion to link in ICT is to use Kidspiration or Inspiration to create a concept map(http://www.inspiration.com/)
6. The photographs of various habitats included can help to reinforce student definitions.

Curriculum links

The Arts - Media

Science – Life and Living

Studies of Society and the Environment (SOSE) – Place and Space

Technology– Information

English – Reading and Viewing, Writing and Designing

Wetland

Park Land

Estuary

Farmland

Rainforest

Woodland

Eucalypt Forest

Habitat Hotlist

Queensland Environmental Protection Agency
http://www.epa.qld.gov.au/nature_conservation/habitats/

Queensland Environmental Protection Agency
http://www.epa.qld.gov.au/wetlandinfo/site/index.html

Kids Net
http://dictionary.kids.net.au/word/FWS

Queensland Museum
http://www.qm.qld.gov.au/education/learningresources.asp
(wild backyards)

Australia's Virtual Herbarium
http://plantnet.rbgsyd.nsw.gov.au/avh.html

Australian Plant Image Index
http://www.anbg.gov.au/anbg/photo-collection/index.html

Lesson Two: *She-oak, a tree with little leaves that save water*

Lesson Overview

To identify a she-oak tree by its foliage and compare it to the foliage of other trees found in the local environment.

Lesson Objectives

Students should be able to:

- Identify a she-oak by defining its foliage characteristics.
- Compare she-oak foliage to that of other trees found in their local environment.

Equipment

For the class:

- Art block to mount foliage and leaves

For each student:

- A clip board
- Recording sheet (BLM)
- Pencils
- Tape

Preparation

- If possible collect samples of the foliage and cones of she-oaks prior to the lesson.

- If possible collect samples of pine needles as these make a useful comparison with she-oak foliage.

- For additional images of she-oaks use the search term Casuarina or Allocasuarina the Australian Plant Image Index http://www.anbg.gov.au/anbg/photo-collection/index.html

Lesson steps

1. Introduce the lesson posing the question 'What do Glossy Black-Cockatoos eat?' (Using the thinking strategy Think, Pair, Share).
2. Using the collected samples explain that in South East Queensland, Glossy Black-Cockatoo's feed mainly on two species of she-oak: the Black She-oak and the Forest She-oak. Explain that these trees are often pioneer species (to explain this concept see PowerPoint hand out notes).
3. Map the local environment by engaging in a discovery walk. On your map record key features, such as areas where trees are found, identifying if these are she-oaks or trees that could be used for roosting or nesting by Glossy Black-Cockatoos. The Glossy Black Habitat Map Black Line Master (BLM) provides a key for plotting important features; to complement this, students should develop a specific symbol to represent roosting sites suitable for the Glossy Black-Cockatoo.
4. Encourage the students to record observations of various trees and habitat features and to collect samples or record (by photograph, drawing or rubbing) examples of leaves, bark, nuts and flowers.
5. Students should collect and draw 5 different leaf samples (including she-oak) to display. Students should identify and label their samples and write a paragraph, using descriptive language, to describe and differentiate their samples (i.e. 'this leaf has a serrated edge and is white underneath').
6. To conclude the lesson, play the game 'Is this a she-oak?' Using she-oak foliage, pine needles and other leaves. Ask students to identify whether it is a she-oak.

Note: This game can be incorporated throughout the duration of the unit to reinforce the botanical characteristics of the she-oak.

Curriculum links

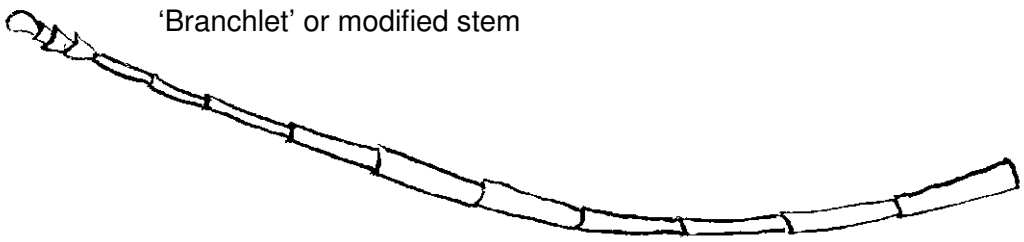
The Arts: Visual Arts

Science: Life and Living

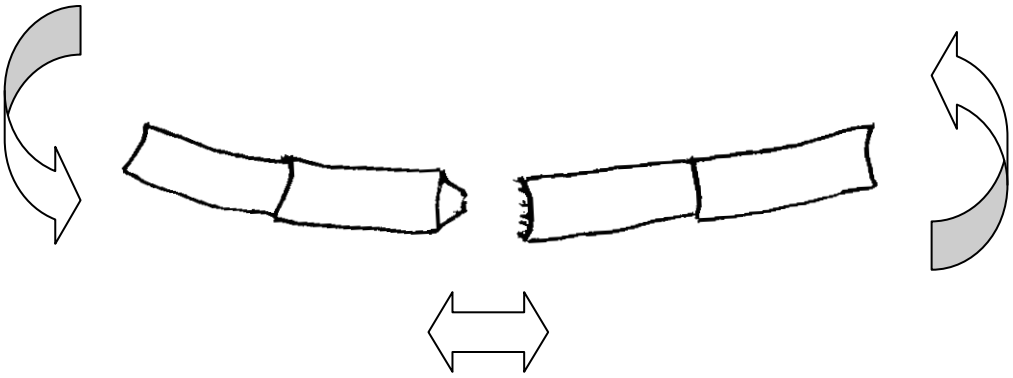
SOSE: Place and Space

Leaf structure of a she-oak

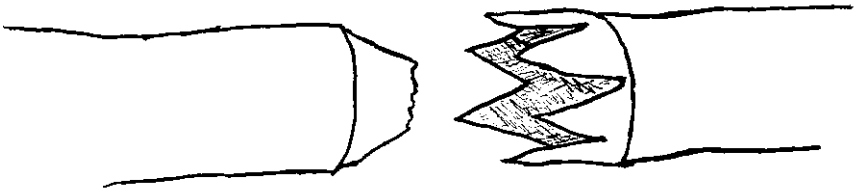
She-oak foliage is characterised by fine, ridged branchlets or modified stems. Each branchlet segment incudes tiny triangular teeth – these are the leaves. The number of leaves identify the species. The branchlets and leaves reduce the amount of water lost by the she-oak and allow it to survive in dry climates.



Separate the modified steams by gentle twisting at one of the nodes.



Look closely at base end to see the small triangle leaves of the she-oak that are present at each of these nodes.



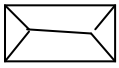
Glossy Black Habitat Map

Key

She Oaks

Fence

Bird water source



Classrooms/building

Oval/sports grounds

Lesson Three: *Nests – in a tree hollow*

Lesson Overview

To gain an insight into the specific nesting and roosting requirements of the Glossy Black-Cockatoo.

Lesson Objectives

Students should be able to:

- Identify potential nesting sites.
- Create a suitable nesting hole.

Equipment

For the class:

- Art media such as paint, sticky tape, glue
- Light card

For each student:

- Writing materials
- Suitable nesting box material

Preparation

- Instruct students to gather resources from home that they can use to create a suitable nesting box (a shoe box or similar is a suitable size).

- Source images or examples of bird's nests. Bird's nests may include burrows, mud nests, woven baskets, or a collection sticks and large mounds on the ground.

- A suitable nesting hollow for a Glossy Black-Cockatoo would have an entrance that was easy for the Glossy Black to get in, but did not allow predators (such as eagles, snakes and goannas) to see or access the chick or the egg. The hollow should allow the bird to turn around (birds find it hard to reverse) and deep enough so a predator could not reach into the hollow and take the chick or egg. The hollow position and shape should prevent rain from entering the hollow.

Lesson steps

1. Brainstorm and describe/sketch in groups different types of bird's nests.
2. Explain that Glossy Black-Cockatoos nest in hollow spaces in trees. Ask the students to explore and discuss what features would a Glossy Black-Cockatoo look for in a safe nest.
3. Using the information collected in Lesson Two, students may be able to identify trees in or near the school that could provide a nest for a Glossy Black-Cockatoo.
4. Design and create a nesting hole (you could use a variety of materials) that would adequately house a Glossy Black-Cockatoo.
5. Unit One – Lesson Three: *Growing up - It's never easy*, can be utilised to provide context.

Curriculum links

The Arts: Visual Arts

Technology: Technology Practice;

www.environment.sa.gov.au/.../glossyblack.html

Lesson Four: *Where 'ort' we look?*

Lesson Overview

Students explore the food source of the Glossy Black-Cockatoo and its eating behaviours. Students may also wish to propagate she-oak seeds.

Lesson Objectives

Students should be able to:

- Recall the names; 'cone' and 'ort'.
- Identify an ort.
- Describe eating behaviours.

Equipment

For the class:

- Close up pictures of orts and cones
- Samples of orts
- BLM

For each student:

- A piece of fruit that can be peeled (bananas, mandarin, orange)

Preparation

- Each student requires a piece of fruit that can be peeled (bananas, mandarin, orange).
- Cones from a she-oak.

Lesson steps

1. Provide examples of the cone from a she-oak. Ask students to write a descriptive paragraph or poem about its appearance; (texture, colour, form etc).
2. Using photos, explain that once a Glossy Black-Cockatoo has eaten the seeds the left over cone is called an ORT. Have students write a descriptive paragraph or poem about orts.
3. Explain that researchers rely heavily on orts to track populations and determine feeding behaviours. Remind students that all cockatoos, including the Glossy Black-Cockatoo, only use their left foot to collect and manoeuvre food.
4. Ask students to peel and eat their piece of fruit with only their left hand and mouth.
5. Have students reflect on this experience.

Additional activity

Propagate extracted seed (assistance from groundsperson maybe required).

Propagation

Collect unopened cones from a she-oak (do not collect cones from protected areas) and place them in a paper bag, place the bag in a cool, dark, dry place. Regularly shake the bag and collect any seeds that fall out.

In late winter to early summer, sprinkle the seeds onto a seed raising mixture and lightly cover with the mixture. When they are large enough to handle, prick the seedlings out into individual pots and grow them in a greenhouse for at least their first winter. Plant them out into their permanent positions in late spring or early summer, after the last expected frosts.

She-oaks can also be grown directly from cuttings during July and August.

Curriculum links

English: Writing and Designing

Science: Life and Living

Cones

Orts

Lesson Five: *Water sources*

Lesson Overview

Students explore the water sources utilised by the Glossy Black-Cockatoo to provide contextual understanding of the bird's habitat requirements.

Lesson Objectives

Students should be able to:

- Identify potential water sources suitable for a Glossy Black-Cockatoo.
- Design a water feature for the school or home that would attract Glossy Black-Cockatoos.

Equipment

For the class:

- Photos of water sources where Glossy Black-Cockatoo have been sighted as provided or available in the PowerPoint presentation.

For each student:

- Writing and drawing utensils.

Preparation

- Water is critical to the survival of Glossy Black-Cockatoos. Finding water is one area where Glossy Black-Cockatoos are very resourceful. Glossy Black-Cockatoos commonly drink from human made water sources such as ponds and dams. In some areas the human made sources are used in preference to naturally occurring water.

- Limiting the types of water sources used are the physical attributes of Glossy Black-Cockatoos – they are big. As a result they cannot access some densely vegetated water courses and ponds. They are commonly observed to use alternatives such as road side drains, pot holes, bird baths and frog ponds.

Lesson steps

1. Display and discuss photos of potential water sources that can be used by the Glossy Black-Cockatoo.
2. In small groups have students design a ‘frog pond’ or other water source that could be used by Glossy Black-Cockatoos. Ask the students to select a suitable place in the school grounds to site the pond. When selecting a site consider factors such as space for the birds to access the water source and likely disturbances that would frighten or prevent the birds from drinking (such as a pond on the football oval).

Curriculum links

Mathematics: Measurement

SOSE: Place and Space

Science: Life and Living

Technology: Technology Practice; Materials

Lesson Six: *Real Estate for sale*

Lesson Overview

As a culminating activity students will design a Real Estate advertisement that incorporates the habitat requirements of the Glossy Black-Cockatoos.

Lesson Objectives

Students should be able to:

- Identify habitat requirements in terms of food sources, nesting and water requirements.
- Identify potential threats to the Glossy Black-Cockatoos habitat.

Equipment

For the class:

- 6 Thinking hats

For each student:

- Art block
- Art media

Preparation

Having completed the previous activities, students should have an understanding of the essential criteria for Glossy Black-Cockatoo habitats.

Review the difference between food sources and nesting habitats. Food sources (she-oaks) are pioneering trees and are often present in areas of recent disturbance (e.g. fire or land clearance), nesting trees (e.g. eucalypts, particularly ones with hollows) are found in established and mature habitats. It is also interesting to note that some groups of Glossy Black-Cockatoos in SEQ (particularly those from the southern Moreton Bay Islands) only use man-made water sources, such as dams, ponds and bird baths.

Glossy Black-Cockatoos are believed to travel up to10km between their feeding, nesting and watering sites.

Lesson steps

1. Following up on the headline completed in Lesson One, have students write their new headline by posing the following question: *'How has your Glossy Black-Cockatoo headline changed?'*
2. Recap the habitat needs of the Glossy Black-Cockatoo by using DeBono's 6 Thinking Hats. Students form 6 groups and discuss their hat, recording their responses. Regroup and discuss.

> **DeBono's 6 Thinking Hats**
> Red hat represents **feelings** about an issue.
> White hat represents the **facts** about an issue.
> Yellow hat represents the **positive aspects** of an issue.
> Black (or Purple) hat represents the **negative aspects**.
> Green hat represents **creative solutions or alternatives**.
> Blue hat represents the thinking about the **bigger picture** or what the issue is really all about.

3. Pose the question*, 'If we would like Glossy Black-Cockatoos to move into our local area, what do we need to provide?'*
4. Explain the culminating activity where students are to design a poster size Real Estate advertisement to attract the Glossy Black-Cockatoos, incorporating the habitat requirements of the Glossy Black-Cockatoo. Words and pictures can be used.
5. Emphasise and discuss the importance of layout, the amount of information, colour required. Using the basic framework provided, scaffold the students planning.
6. Students are required to complete a draft copy of layout before completing the final advertisement.

Curriculum links

The Arts: Visual Arts

English: Writing and Designing; Language Elements; Literary and non-literary texts

www.glossyblack.org.au

Reference and copyright information

This resource was developed by the Glossy Black Conservancy and SEQ Catchments Ltd, 2008 with funding from the Australian Government.

Brisbane

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