



Unit Four – Managing and Protecting the Glossy Black-Cockatoo

**Unit Lesson Overview
Years 11-12**



Dedicated to a better Brisbane



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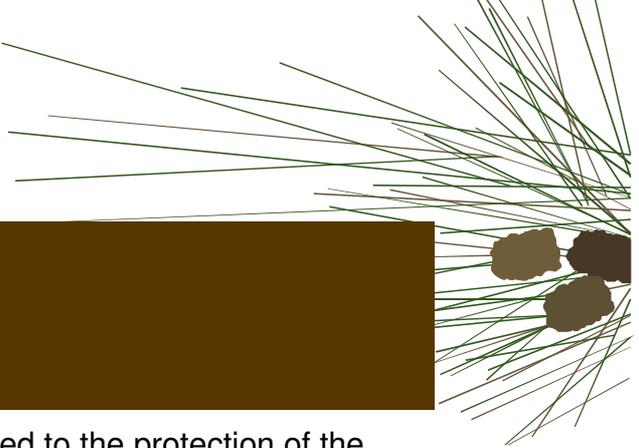
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Introduction

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 developing a management plan to protect the Glossy Black-Cockatoo. The lesson outlines will aid students to understand that the birds are very special and highly specialised.

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 Four – Managing and Protecting the Glossy Black

Introduction

This unit is designed to facilitate a field study to observe Glossy Black-Cockatoo's, their habitats, their resources and other evidence of their use of an area. Students will be engaged with the development of scientific keys, defining elements of the data collection and interpreting this data to develop a field study report highlighting the use of the area or potential for use of the area by Glossy Black-Cockatoos. Through this process students will gain a greater understanding of the specific and highly specialised life strategies utilised by these vulnerable birds.

Key Concepts

The key concepts considered in this unit of work include:

- Identification of Glossy Black-Cockatoo's and their habits.
- Identifying different physical environments and habitats required for the survival of Glossy Black-Cockatoos.
- Identification of evidence of Glossy Black-Cockatoo use of areas.

Unit Overview

<i>5 E's Phase</i>	<i>Lesson</i>
Engage – to capture and discover	<ul style="list-style-type: none">• Glossy Black-Cockatoo - Threats and Vulnerabilities
Explore – to have shared and/or hands on experiences	<ul style="list-style-type: none">• Glossy Black-Cockatoo PowerPoint Presentation• Glossy Black-Cockatoo - Looking in the Local Area
Explain – to demonstrate what has been learnt in the exploring phase	<ul style="list-style-type: none">• Specific threats in the study area
Elaborate – to build understanding, through additional investigation	<ul style="list-style-type: none">• Survey and community research
Evaluate – to review and reflect on learning	<ul style="list-style-type: none">• Project Report - Environmental Management Plan



Linking Locally

Undertaking a field trip within the local area will allow students to be immersed in the local environment. To assist the field trip it is recommended that local organisations such as Queensland Parks and Wildlife Service (QPWS), the local Council or local community and bird groups be contacted to access any supporting interpretive services that may be offered in your region. These services may supplement the data collection within the unit of work by providing equipment and local area history. Using such services will also demonstrate the range of community members employed or volunteering within the broad field of environmental protection.

To support the unit of work on Glossy Black-Cockatoos it is recommended that consideration be given to inviting a local Council Officer working in environmental planning to explain how consideration of the habitat of vulnerable species is handled in development applications.

Contact local environment or bird groups to find people with specific information for Glossy Black-Cockatoos in your area.

Review 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 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	
<p>Students know and understand:</p> <ul style="list-style-type: none"> ▪ Environments are defined by physical characteristics and processes, and are connected to human activities and decisions about resource management. ▪ Sustainability requires a balance between using, conserving and protecting environments, and involves decisions about how resources are used and managed ▪ Physical environments are defined by spatial patterns, including the arrangement of elements on the Earth's surface, the definable areas of the Earth's surface, the space between different locations, and absolute and relative location. 	<p>Students are able to:</p> <ul style="list-style-type: none"> ▪ plan investigations using inquiry models ▪ collect and analyse information and evidence from primary and secondary sources ▪ evaluate sources of information and evidence for relevance, reliability, origins and perspective ▪ draw conclusions and make decisions based on information and evidence by identifying patterns and connections ▪ communicate descriptions, decisions and conclusions, using different text types for specific purposes and the conventions of research-based texts ▪ respond to investigation findings and conclusions by planning and implementing actions
Key Learning Area (KLA) Science	
<p>Students know and understand:</p> <ul style="list-style-type: none"> ▪ Scientific knowledge can help to make natural, social and built environments sustainable, at a scale ranging from local to global ▪ Immediate and long-term consequences of human activity can be predicted by considering past and present events ▪ Survival of organisms is dependent on their adaptation to their environment ▪ Different feeding relationships exist within an ecosystem ▪ In ecosystems, organisms interact with each other and their surroundings ▪ Changes in ecosystems have causes and consequences that may be predicted 	<p>Students are able to:</p> <ul style="list-style-type: none"> ▪ plan investigations, including identifying conditions for a fair comparison, variables to be changed and variables to be measured ▪ collect and analyse first- and second-hand data, information and evidence ▪ select and use scientific tools and technologies suited to the investigation ▪ draw conclusions that summarise and explain patterns in data and are supported by experimental evidence and scientific concepts



Lesson 1: *Glossy Black-Cockatoo - threats and vulnerabilities*

Lesson Overview

Using the student's knowledge of the local area, bushland and other habitats that may support Glossy Black-Cockatoo populations in the local area will be identified.

Once identified, the specific requirements of the Glossy Black-Cockatoo will be utilised as an overlay to define an area of focus for local field trips.

Lesson Objectives

Students should be able to:

- Define a habitat.
- Identify different habitats in their local area.
- Apply criteria of needs to the habitats to identify any potential Glossy Black-Cockatoo habitats in the local area.

Equipment

For the class:

- Copies of 'Refidex' or similar maps defining developed and bushland areas (such as parks)
- Access to electronic resources such as Google maps (optional)
- Access to aerial photography of the local area (optional)
- Access the EPA's remnant vegetation mapping http://www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/.

For each student:

- Writing materials

Preparation

- Review the term habitat with students.
- Obtain a sample she-oak stem with leaves and cones.
- Review PowerPoint presentations

Lesson steps

1. Using the 'Refidex' or other mapping resources, students work in groups to identify local environments and different habitats, within a 10 km radius of the school.
2. Students apply labels to the habitats based on their local knowledge, including terms such as open, woodland, shrub areas, parklands, urban, acreage developments, wetlands and others.
3. Introduce the limiting habitat requirements of the Glossy Black-Cockatoo and ask the students to identify and highlight these on their maps. The limiting habitat requirement specific to Glossy Black-Cockatoos are:
 - Areas of she-oaks (*Allocasuarina* or *Casuarina* species), identified from their cones and segmented needle like leaves.
 - Areas that contain older bushland, including sites with established large gum trees, in dense communities; more likely to provide hollows for nesting.
 - Areas where water could be accessed; reminding students that Glossy Black-Cockatoos are very large (wingspans of 90cm) and need room around the edge of water sources to land
4. Conclude by noting that all three of the overlay or limiting features must be present within 10km to have the potential to be Glossy Black-Cockatoo habitat.





Lesson 2: *Glossy Black-Cockatoo – PowerPoint presentation*

Lesson Overview

The Glossy Black-Cockatoo is a highly specialised bird that is under threat from habitat loss and other development pressures. The PowerPoint presentations summarise the most up to date scientific and descriptive information on the identification and habits of the Glossy Black-Cockatoo.

Lesson Objectives

Students should be able to:

- Identify a Glossy Black-Cockatoo.
- Identify the key ecological factors influencing the survival of the bird.
- Be aware of its degree of specialisation and need for assistance in its protection.

Equipment

For the class:

- The PowerPoint presentation
- Presenters notes - teaching

Preparation

- Review the presenter's notes prior to using the PowerPoint. There are two attached PowerPoint presentations and associated presenters notes. The degree of detail varies between versions and it is recommended that the selection of PowerPoint is based on the level of the student's previous knowledge and judged ability to comprehend.

Lesson steps

1. Show Power Point and review with students



Lesson 3: *Glossy Black-Cockatoo – looking in the local area*

Students will develop and utilise a range of data sheets to record information during the field trip. Data collection should not be limited to bird sightings, but include field transects, vegetation identification, collection of evidence of feeding, etc.

Lesson Objectives

Students should be able to:

- Collect and classify data from a primary data collection activity.

Equipment

For the class:

- First aid kit

For each student:

- Parent/guardian permission slips if excursion is off the school campus.
- Standard risk assessment procedures prior and during trip as per Education Queensland guidelines.

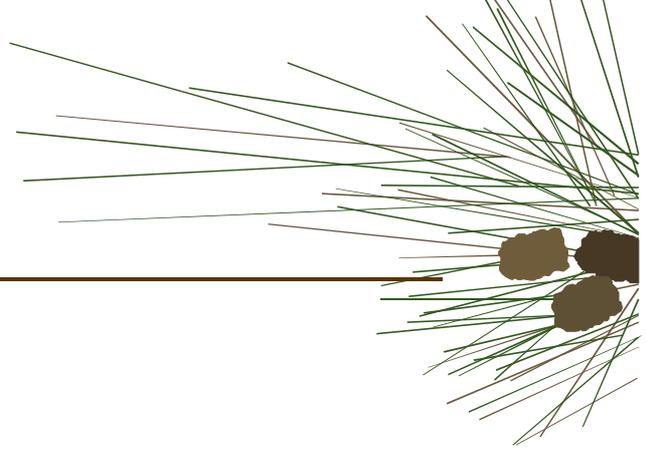
Preparation

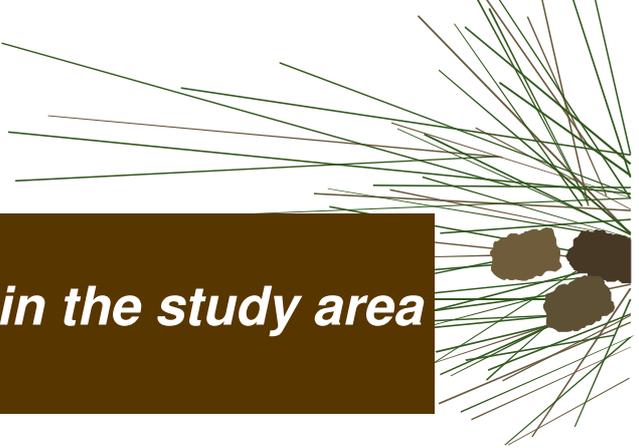
- Check first aid kit is up to date.
- Send out and retrieve permission slips from parent/guardian if required.
- Review the identification keys developed in Unit Three of this resource. Students can either develop keys as per the outlined lessons or utilise the existing keys provided as teacher's guides.
- Review the newsletters and information contained within the Glossy Black Conservancy's website www.glossyblack.org.au.

Lesson steps

Consider these key points.

1. Primary data includes:
 - a. GPS location
 - b. date
 - c. number of Glossy Blacks sighted
 - d. samples including orts, cones and branchlets
 - e. transect of vegetation types (feed and roosting trees)
 - f. transect under trees noting cone/ort density
 - g. water sources
2. Additional data includes
 - a. other bird species sighted (heard)
 - b. other vegetation types (including comments on topographical locations and/or aspects where vegetation communities change)
 - c. weather (current and previous)
 - d. evidence of disturbance (eg recent land clearing, fire)
3. Secondary data includes
 - a. history of study area (including historical disturbances)
 - b. surrounding land use
 - c. historical Glossy Black-Cockatoo sightings





Lesson 4: *Specific threats in the study area*

Lesson Overview

Scaffolding on the previous lessons, students will further explore the linkages between the needs of the Glossy Black-Cockatoo and existing or potential threats to these needs in the local area.

Lesson Objectives

Students should be able to:

- Identify key threats to the survival of Glossy Black-Cockatoos within their local area.

Equipment

For the class:

- Access to the library
- Access to a computer or the computer lab
- Copies of previous Glossy Black Conservancy newsletters and other resources - <http://www.glossyblack.org.au/>

Preparation

- Students should have considered the habitat requirements of Glossy Black-Cockatoos and reviewed the Glossy Black-Cockatoo PowerPoint prior to this activity.
- Glossy Black-Cockatoo's have a range of vulnerabilities linked to their highly specialised behaviours and breeding cycles. Suitable feed and nest trees and suitable water sources, do not generally occur within the same natural (undisturbed) habitat. As a result, Glossy Black-Cockatoos need to be mobile to access their required resources. Furthermore, they have well developed preference for specific individual feed trees.
- These highly specialised behavioural characteristics enhance the vulnerability of the bird to changes in the local environment. In addition, they have very slow breeding cycles which are compounded by any distribution/disturbance of the broader population in any area.

Lesson steps

1. Students review the map and overlays of local area potential Glossy Black Resources developed in lesson one.
2. Review the key biological features of the Glossy Black-Cockatoo that make them sensitive to change in local areas.
3. Students choose one of the three listed threats or characteristics that impact on the potential survival of the Glossy Black-Cockatoos:
 - Threats to feed sources and feeding behaviours in the local area
 - Threats to potential nest trees in the local area
 - Threats that may arise from the breeding behaviours of the Glossy Black-Cockatoo
4. Students should research the topic in order to make connections between the behavioural and biological characteristics of the Glossy Black-Cockatoo and existing or potential threats.





Lesson 5: *Survey and community research*

Lesson Overview

Students are to collect data from the community to gauge the level of community support for actions to support the survival of the Glossy Black-Cockatoo.

Lesson Objectives

Students should be able to:

- Collect, interpret and evaluate primary data.
- Collate scientific information in accessible forms.

Equipment

For the class:

- Not required

For each student:

- Not required

Preparation

- Glossy Black-Cockatoos require a diverse range of resources and habitats for their survival. Glossy Blacks are mobile, travelling daily between feeding, roosting and watering sites. One community action that would help to protect the bird is the protection of and/or enhancement of feed and roost trees, as well as potential water sources. Importantly these do not have to be provided in undisturbed natural environments, Glossy Blacks are renowned for their use of urban resources, such as feed trees in gardens and human made water sources such as bird baths.



Lesson steps

1. Students should design a community survey for the local area to identify if households would consider participating in measures to protect the Glossy Black; for example by protecting or planting feed or roost trees and protecting and developing water resources.
2. Distribute the surveys.
3. Collate the results.
4. Review and interpret the level of community support for actions to support Glossy Black Cockatoos.



Lesson 6: *Environmental management plan*

Lesson Overview

Students will compile and interpret data from various sources in order to compile an Environmental Management Plan (EMP) to protect the Glossy Black-Cockatoo in the local area. This is a culmination activity that scaffolds on the work undertaken throughout this unit of work.

Lesson Objectives

Students should be able to:

- Interpret and evaluate primary and secondary data.
- Collate scientific information in accessible forms.
- Develop recommendations from scientific and social data.

Equipment

For the class:

- Not required

For each student:

- Not required

Preparation

Culmination activity; review previous tasks and activities.

Lesson steps

1. Review the essential criteria of an environmental management plan and facilitate student research in the development of such a plan:
 - a. Introduction
 - b. Background Information
 - c. Issues and Threats
 - d. Research and Results
 - e. Recommendations and Findings
 - f. Conclusions



www.glossyblack.org.au

Reference and copyright information

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