RUMBALARA
ENVIRONMENTAL EDUCATION CENTRE

Stage 6 – Geography
Ecosystems at Risk

Avoca Lagoon

Program Overview

At Avoca Lagoon students will investigate the endangered Green and Gold Bell Frog, urban impacts on water quality, and conduct a kayak based survey of impacts and endangered ecological communities.

Key Questions

1. What are the reasons for the location of the Avoca Lagoon?
2. What action is appropriate for managing lagoon ecosystems sustainably?
3. What will Avoca Lagoon be like in the future?

Learning Experiences & Content

Geographical Tools

Students will use a variety of geographical tools to acquire, process and communicate geographical information such as maps, surveys and fieldwork instruments e.g. water testing instruments.

Lagoon Foreshore Survey – Kayak

Students will participate in a lagoon foreshore survey by kayak to evaluate management issues for the lagoon. They will paddle to numerous locations and take note of human impacts, native vegetation, weeds, fauna sightings and the dominant vegetation community. Some of the management issues discussed will include clearing of riparian vegetation, acid sulphate soils and the endangered Grey Headed Flying Fox community.

Water Quality Asessment

Students will use water testing equipment to measure the quality of the water in Avoca lagoon, assess its condition with past water quality results and discuss ways of improving water quality.

Endangered Green and Gold Bell Frog Investigation

Bareena Wetland is adjacent to Avoca Lagoon and is one of the few remaining locations where the endangered Green and Gold Bell Frog can be found. Students will discuss why Bareena Wetland is an ecosystem at risk and assess the suitability of the site for the frog by analysing the salinity, water depth, water temperature, pH and vegetation.

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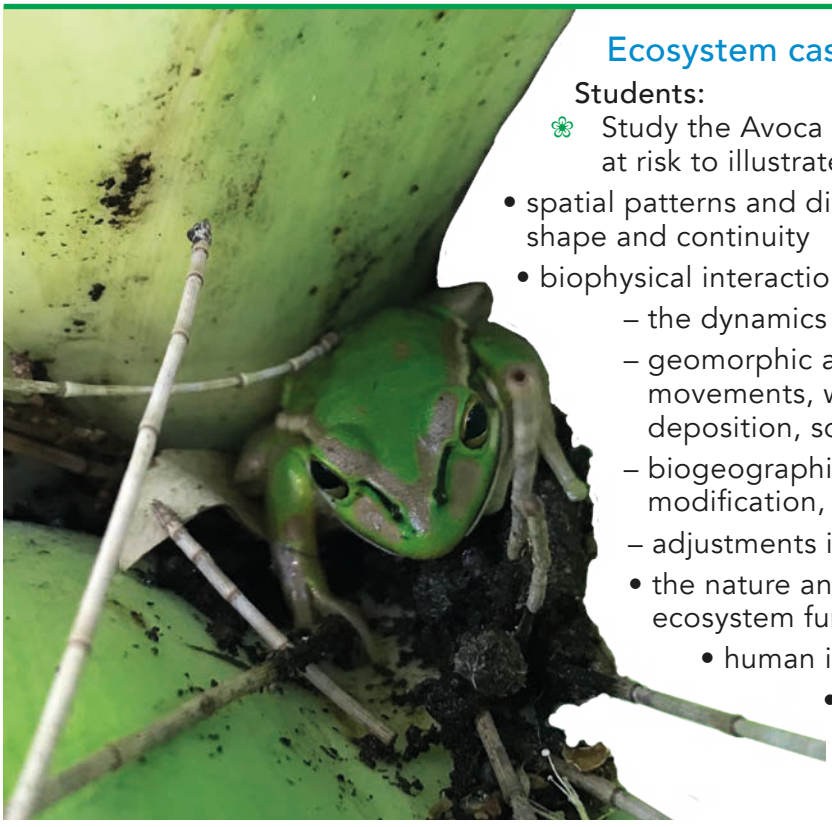
Outcomes

Geography – Stage 6

- **H1** explains the changing nature, spatial patterns and interaction of ecosystems, urban places and economic activity.
- **H2** explains the factors which place ecosystems at risk and the reasons for their protection.
- **H5** evaluates environmental management strategies in terms of ecological sustainability.
- **H6** evaluates the impacts of, and responses of people to, environmental change.
- **H7** justifies geographical methods applicable and useful in the workplace and relevant to a changing world.
- **H8** plans geographical inquiries to analyse and synthesise information from a variety of sources.
- **H9** evaluates geographical information and sources for usefulness, validity and reliability.
- **H10** applies maps, graphs and statistics, photographs and fieldwork to analyse and integrate data in geographical contexts.
- **H11** applies mathematical ideas and techniques to analyse geographical data.
- **H12** explains geographical patterns, processes and future trends through appropriate case studies and illustrative examples.
- **H13** communicates complex geographical information, ideas and issues effectively.

Geography Content



Ecosystem case study

Students:

- Study the Avoca Lagoon as a case study of an ecosystem at risk to illustrate their unique characteristics including:
  - spatial patterns and dimensions: location, altitude, latitude, size, shape and continuity
  - biophysical interactions including:
    - the dynamics of weather and climate
    - geomorphic and hydrologic processes such as earth movements, weathering, erosion, transport and deposition, soil formation
    - biogeographical processes: invasion, succession, modification, resilience
    - adjustments in response to natural stress
  - the nature and rate of change which affects ecosystem functioning
    - human impacts (both positive and negative)
      - traditional and contemporary management practices.

NSW GOVERNMENT Education Public Schools

$5 per student, up to 60 students. Includes two Rumbalara teachers.
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