

www.amarooeec.eq.edu.au Ph. (07) 4596 4333

# Catchment Management

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## Senior Geography Fieldwork Activities in the Upper Murray-Darling Basin

### Acknowledgement

All field work activities occur on land which has been cared for and managed over tens of thousands of years by Indigenous people. We acknowledge their custodianship of the country we walk on and pay our respects to their elders, past, present and emerging.

# Amaroo support for field work activities

There is scope for fieldwork in Units 1 & 3 of the Senior Secondary Geography Curriculum, particularly in the depth studies. Relevant syllabus links are below.

Amaroo can assist with fieldwork activities as outlined below in a number of site-specific ways. We have three main field study sites: Duggan Park in Toowoomba, Irongate Conservation Park near Pittsworth and sites in the Goomburra Valley.

For details and site-specific suggestions, see Amaroo's [overview of fieldwork sites and activities](#).

## Unit 1: Natural & Ecological Hazards

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Depth study of a natural hazard (e.g. effects of drought or fire) or an ecological hazard (e.g. invasive species or disease).

Amaroo can offer

- equipment and techniques associated with assessing vulnerability to ecological threats (e.g. through activities including assessment of ecological condition or prevalence of introduced plants, plant identification, soil testing, invertebrate survey and the effects of fire)
- information sheets for teachers on site-specific invasive weed species

## Unit 3: Land Cover Transformations

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Depth study investigating the link between land changes and biodiversity, and depth study investigating land cover change.

Amaroo can assist with

- observing evidence of the maintenance/restorative work of local groups such as Landcare
- a biodiversity survey of plants and/or invertebrates
- a study of site-specific management options



Irongate Conservation Park



Duggan Park, Toowoomba



Poplar Flat Campground, Goomburra

# Amaroo Resources

Amaroo staff can offer some site-specific geographic, biological and botanical knowledge.

## Resources for vegetation-related activities

- student field data recording sheets for capturing data on vegetation
- student field worksheets and activities for plant identification
- a student manual for understanding concepts and methods involved in assessing vegetation
- a set of 30m tape measures and stakes (e.g. to use for transects)
- a set of collapsible 1m<sup>2</sup> quadrats
- simple clinometers for estimating tree height
- a canopy cover app on Amaroo iPads
- site-specific plant identification keys and PDF identification guides on iPads for Duggan Park, Irongate CP and Poplar Flat Camping Area at Goomburra. The PDF guides are also available for download from the [Amaroo website](#).
- information sheets on selected invasive plants (e.g. Mother of Millions, African Boxthorn)

## Resources for fauna-related activities

- site-specific activities and student field data recording sheets for capturing data on aquatic and terrestrial invertebrates and other terrestrial fauna
- a student manual for understanding concepts and methods involved in sampling fauna
- an aquatic macroinvertebrate identification key on iPads (also available for download for [Android](#) and [iOS](#) devices)
- a bird identification app on iPads
- dip nets, including some on long poles along with tubs and ice cube trays for observing captured macroinvertebrates
- sweep nets, coloured pans, sheets for beating, white boards and relevant PPE for sampling terrestrial invertebrates
- a set of binoculars and eye loupes
- a set of animal scats to identify
- a Malaise trap, Lindgren funnel, pitfall trap, remote camera and an Elliot/Sherman-style trap for demonstration purposes

## Resources for abiotic investigations


- soil test kits for temperature, pH, Nitrogen (N), Phosphorus (P) and Potassium (K) with appropriate PPE
- site-specific activities and student field data recording sheets for capturing data on abiotic parameters related to stream health and soil analysis
- a student manual for understanding concepts and methods involved in assessing water quality
- probes, poles, turbidity tubes and beakers suitable for abiotic water assessment
- hand-held anemometer
- light meter app on iPads


## Other


- Pop-up shelter and hand-washing facilities (if required)


## Pre-excursion resources


- PowerPoint presentations introducing sites, ecological principles and methods:


 Overview of Duggan Park.pptx


 Overview of Goomburra Valley.pptx


 Overview of Irongate Conservation Park.pptx


 Ecology - Assessing species diversity.pptx


 Ecology - Assessing water quality - Data gathering and interpretation.pptx


 Ecology - Assessing water quality - overview.pptx


 Ecology - Classifying ecosystems.pptx


 Ecology - Land management principles.pptx


 Ecology - Sampling methods - Abiotic sampling techniques.pptx


 Ecology - Sampling methods - Biotic sampling techniques (water bugs).pptx


 Ecology - Sampling methods - Canopy cover.pptx


 Ecology - Sampling methods - Sampling fauna.pptx

 Ecology - Sampling methods - Sampling terrestrial invertebrates.pptx

 Ecology - Sampling methods - Sampling vegetation.pptx

 Ecology - Sampling methods - Soil testing.pptx

 Ecology - The Invasion Triangle model.pptx

 Ecology - Threatening processes.pptx

## **Curriculum links to field work activities – content descriptions**

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### **UNIT 1 Natural and ecological hazards**

The nature and causes of the selected hazard and how the activities of people can intensify its impacts (ACHGE016/ACHGE022)

The magnitude, frequency, duration, temporal spacing and effects of the hazard (ACHGE017/ACHGE023 )

The spatial distribution of the hazard, and how an understanding of biophysical and human processes can be used to explain the patterns that are identified (ACHGE018/ACHGE024)

The physical and human factors that why some places are more vulnerable than others (ACHGE019/ACHGE025)

The sustainable policies, procedures and practices designed to reduce the impacts of the hazard through preparedness, mitigation, prevention and adaptation (ACHGE021/ACHGE027)

### **UNIT 3 Land cover transformations**

Indigenous peoples' land management practices and their impact on land cover over time including those of Aboriginal and Torres Strait Islander Peoples. (ACHGE070)

Human-generated land cover change and its consequences including: the competitive advantages of indigenous and introduced species; the balance within each of these groups; and the effects such changes might have on land cover changes and biodiversity (ACHGE073)

A local initiative designed to address the effects of biodiversity loss or change (ACHGE082)

Approaches to land cover restoration and rehabilitation, and the mitigation of future land cover changes, for example, debt-for-nature swaps and preservation strategies (ACHGE083)

A program designed to address the issue of land cover and its consequences at a local (for example, coast dune rehabilitation, urban zoning regulations) (ACHGE084)

The selected program's environmental, economic, and social benefits and costs (ACHGE085)

An assessment of the program's effectiveness (ACHGE086)