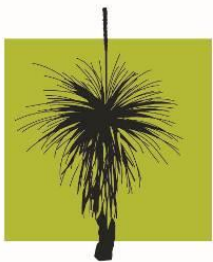


Overview

Surveying the Natural Environment



Toohey Forest
Environmental
Education
Centre



Overview

Surveying the Natural Environment is a whole day program where students use surveying techniques to collect and analyse primary biotic and abiotic field data. Students then use this data to explain how environmental factors change the distribution and abundance of species within a variety of ecosystems.

The program begins with a **free pre-visit**, from Toohey Forest staff, to your school to unpack ecological sampling and surveying techniques prior to the excursion. On the day, students work in small groups to conduct a bird survey in four different sites (urban through to natural). This data is used to discuss Simpson's Diversity Index and the limitations of this methodology and possible bias.

After a break, students use a 70m transect, observing the transition from wet to dry sclerophyll forest. Groups are allocated two quadrats in which they are required to gather a variety of primary data. Students utilise Vernier data loggers, soil pH kits, laser range-finders and spherical densimeters to collect a range of abiotic data. Plant strata diversity and abundance data is measured and recorded, to observe changes along the transect.

Throughout the day students have opportunities to analyse their shared primary data, develop 'Research Questions' and support their work with statistical analysis such as p-values and Simpson's Diversity Index (SDI). Collected data is used to identify trends, patterns and relationships (abiotic & biotic) within different ecosystems and environments.

Surveying the Natural Environment has been assessed as medium risk. A Curriculum Activity Risk Assessment and student field booklet is provided upon confirmation of your booking.

***Toohey Forest EEC suggests that primary data collected may not be suitable for the completion of an IA2 – 'Student Experiment'.**

Biology

Unit 3: Biodiversity and the interconnectedness of life

Topic 1: Describing biodiversity **Topic 2:** Ecosystem dynamics

Learning Goal:

To **collect** distribution and abundance data of plant strata as they transition from a wet to dry sclerophyll forest (using a belt-line transect), then **analyse** the data and **identify** the possible factors (e.g. abiotic) that cause this change. **Collect** data on bird sightings within defined environments and **use** indices to compare these areas.

Students will:

- **understand** that ecosystems are composed of varied habitats (microhabitat to ecoregion)
- **interpret** data to classify and name an ecosystem
- **describe** the process of stratified sampling in terms of purpose (estimating population, density, distribution, environmental gradients and profiles, zonation, stratification) site selection choice of ecological surveying technique (quadrats, transects) minimising bias (size and number of samples, random-number generators, counting criteria, calibrating equipment and noting associated precision) methods of data presentation and analysis
- **measure** abiotic factors in the field (e.g. soil moisture, soil pH, light intensity, soil and air temperature, humidity)
- **use** appropriate technology, such as data loggers, chemical tests, range finders (canopy height) and other equipment to measure factors



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