Overview

Ecological Sampling: Wet/Dry Sclerophyll Transition

Toohey Forest Environmental Education Centre

Overview

Ecological Sampling Techniques: Wet/Dry Sclerophyll Transition is a whole day program where students use ecological sampling 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, as an ecosystem transitions from one type to another.

The program begins with a **free pre-visit,** from Toohey Forest staff, to your school to engage the students in ecological sampling and analytical techniques prior to the excursion. On the day, students work in small groups to research a 70m transect observing the transition from a wet sclerophyll forest to a dry sclerophyll forest. Groups are allocated two quadrats within designated boundaries 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 densiometers to collect a range of abiotic data. Plant diversity and abundance data is also measured and recorded, to observe changes in distribution and abundance of the plant species present along the transect.

The program concludes with students analysing their shared primary data by developing 'Research Questions' and supporting these with statistical analysis such as t-tests, p-values and Simpsons Diversity Index (SDI). After identifying a significant difference in the distribution of a plant species, students try to identify relationships between the distribution of a plant species and the changes that occur in the abiotic primary data they collected.

Ecological Sampling: Wet/Dry Sclerophyll Transition has been assessed as medium risk. A Curriculum Activity Risk Assessment is available on request. A student field booklet is provided upon confirmation of your booking.

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 species 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.

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** the process of stratified sampling to collect and analyse primary biotic and abiotic field data to classify an ecosystem
- **use** appropriate technology, such as data loggers, chemical tests, range finders (canopy height) and other equipment to measure factors

Queensland Government

w: http://www.tooheyforesteec.eq.edu.au
e: principal@tooheyforesteec.eq.edu.au
p: 07 3735 6557