CONDUCTING A TRANSECT

Ages 10+

Learning Objectives

- Students will learn how to conduct a transect and observe how plant types change in response to different water levels..

Summary: Students will learn how to conduct a transect and create a profile of wetland vegetation based on using a transect.

Subject Area: Science

Time: 1 hour

Before the Lesson

- Ensure all necessary resources (or alternatives) are available.
- Familiarize yourself and students on the different types of wetland plants found in your area.
- Complete a risk assessment for the activity location.

Materials

- A blank sheet of paper with the title “Transect Sketch” (see page 5)
- 150 m (400 ft) of heavy string
- Four heavy wooden stakes or lengths of PVC pipe, each 3 m (9 ft) long, with water proof marks every 2 ft (or at 40 cm, 120 cm, and 240 cm); leave enough room below the mark at ground level for the stake to be inserted into the ground
- Several hand lenses (at least one for every two students)
- A notebook or science journal to record various observations and diagrams of plants
- An inventory of plants found in the wetland (if available) from your country’s Department of Resources or Environment, a local university, or the National Trust
- Clipboards
- A camera (optional)
- Waders and/or rubber boots, or old pairs of sneakers

Activity - Conducting a Transect

Procedure

1. Using the stakes and string, the students should lay out a transect line perpendicular to the shoreline (see diagram on page 3). The transect line should extend from a point in the water (stake A) where underwater plants can be seen to another point (stake B) where upland vegetation is present. The distance will vary depending on the nature of the mangrove wetland. (In large wetlands, it may not be practical to lay out string because of the distance involved.) Make sure that the students push the stakes or plastic pipe deep into the ground to prevent them from being pulled over.

2. Starting from the first stake, or stake A, have one student walk approximately 3 m (9 ft) along the transect line toward the upland area. At this point insert a third stake (stake C)

3. The transect line and stakes A and C form a “window” that will assist you in drawing a profile of the wetland vegetation. The markings on the stakes will assist you in showing the different plant species to (approximate) scale.

4. Students will sketch the vegetation in this first window on their on their transect sketch sheet in their science journals. Identify and label the different plant forms. For each plant form, have them count the number of different species present, and identify and label as many plant species as they can. Students will also observe evidence of wildlife using the plants—for instance, insects eating leaves, crabs burrowing in roots, and birds nesting in bushes.

5. Describe the conditions along the transect line for this “window”: wet soils or dry? Sunny or shaded?

6. When students have finished studying and drawing in this first window, start from stake C, walk another 3 m (9 ft) , and insert the fourth stake, or stake D. Stakes C and D form a second window.

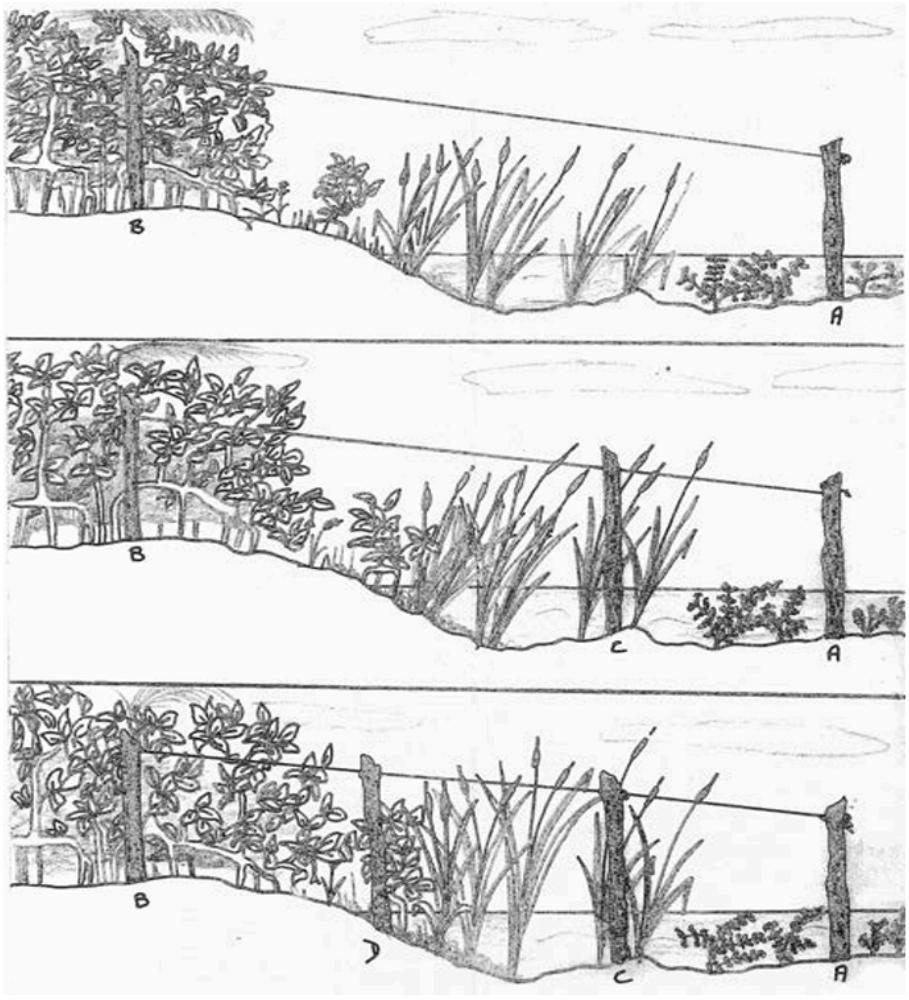
7. Sketch the vegetation found in this second window. Identify and label the different plant forms. For each plant form, count the number of different species present. and label as many plant species as you possibly can. Describe the conditions along the transect line for this “window”: wet soils or dry? Sunny or shaded?

8. Repeat the procedure until you come to the end of the transect line. (You will need to “leapfrog” stakes C and D until you complete the transect.)

9. Identify any exotic (introduced) species observed in the wetland, and describe how each appears to be changing the wetland.

10. Speak to field-naturalists or biologists about the plant life found here, and ask them if it is vulnerable/rare, threatened, or endangered. Why is it important? Is it changing or threatened? Are there any invasive species?

11. Look for evidence of disease, insect damage, etc., by examining leaves, stems, trunks, and roots of the various plants.



Discussion/Reflection

- Ask students what role vegetation plays in this wetland.
- Speak to people who live nearby and ask if they have seen any recent changes to plant life in the wetland.
- Look for evidence that indicates that the wetland might be changing or threatened. For example, the chemical balance of the water might be changing, siltation might be taking place, and the water level might be changing. How will this affect the wetland, the surrounding area, and the local community?
- Record all your observations and deductions for later class analysis.

Extensions

- Students can make a formal copy of their plant species profiles for their science journals or future science displays.
- Students could research and describe how one plant species they have identified has adapted to life in a wetland.
- Students could prepare a report on the plant life in this wetland: description, kinds, diversity, presence of exotic plants. Are there rare, threatened, or endangered species? Why is plant life important, and what wildlife uses specific plants? Use drawings and photographs, as well as the transect work, to substantiate the report. The report should also look at any threats or changes to the wetland plants: what are the causes and consequences? The report could be presented to the local agency responsible for the health of the wetland.
- Brainstorm possible solutions to any threats to the wetland.
- Take measurements of all plants, and plan to visit the same location and conduct the same measurements (with the same or different classes) at a later date. This way you will build up a bank of information on the mangrove wetland area you have selected.

References

- Mangrove Action Project, Marvellous Mangroves - A Wetlands Education Resource Book for the West Indies

Acknowledgements

- Mangrove Action Project gratefully acknowledges the contributions and support of our past partners, staff members, contractors, and funders in the creation and refinement of these materials, including Marnie Lang and the former director of the Marvellous Mangroves program, Martin Keeley.

Transect Sketch