Background on Tavasci Marsh

Welcome to Tavasci Marsh, a natural wetland inholding of Tuzigoot National Monument presently owned by the Phelps Dodge Corporation and managed by the Arizona Department of Game and Fish.

Tavasci Marsh was named for the Tavasci family, which for many years had leased land from the mines for a dairy operation. During that time, the marsh was drained to provide grazing for cattle. Recently, management of the wetlands has been turned over to the Arizona Department of Game and Fish. Water control movements and the natural works of beaver in the area have helped the marsh return to how we see it today.

The marsh was originally formed thousands of years ago along with Peck's Lake from an old meander of the Verde River, which was left after the river cut through the limestone ridge south of where the Tuzigoot pueblo stands today.

The wetland areas of marsh and river, set in the midst of a desert landscape, are home to numerous species of plants and animals. Springs from under layers of limestone provide the water for a community of cattails and mosquito fish, as well as cottonwoods, osprey, beaver, and many other species of plants and animals.

The wetlands of Tavasci Marsh and its' environs are as valuable now as they must have been for the Ancestral Puebloan peoples of Tuzigoot. We can learn more by considering the value and function of wetlands in our world.

How was Tavasci Marsh formed?

Tavasci Marsh has probably existed for some thousands of years, and is an old channel of the Verde River. The Verde cut through the ridge south of Tuzigoot and left the meanders of what is now the marsh area and Peck's Lake cut off from the main stream. Today, Tavasci Marsh is fed by springs and augmented by water from Peck's Lake, which, in turn, has water diverted into the lake from the Verde River.

But the story has an earlier beginning, when the ancient Verde River began forming the Verde Valley almost 40 million years ago during the Oligocene epoch. In time, the river has eroded through many older layers of rock to form the Verde basin, now measuring some 20 miles wide by 30 miles long.

Around 6 to 8 million years ago, faulting and volcanic flows created dams across the river, resulting in a series of shallow lakes. Silt in the waters coming from highland limestone formations resulted in the creation of the Verde Formation, measuring some 3,000 feet deep in places.

Eventually, within the last two million years, the river cut through the dams and the lakes drained out to the southeast. Today, fossils of mollusks and other aquatic life, as well as bones and tracks of early elephant, horse, and other mammals, can occasionally be found in the Verde formation.

OBJECTIVES

After completing this exercise the student will be able to

1. understand how layers of earth are formed.

GRADES: 6 TO 8

AZ CURRICULUM STANDARDS:
Science Standard 1 – Science as inquiry
Science Standard 5 – Physical science
Science Standard 6 – Earth and space science

GROUP SIZE: 25 to 30

DURATION: 2 hours

SETTING: Tavasci Marsh

MATERIALS: I clear plastic storage tray per group of 3–4 students, 3 different blends/colors of earth, sand, rock, etc., 1 container of water.

Educator's Outline for

EARTH LAYERS

BACKGROUND: When observing earth layers, it is possible to imagine the forces of creation and destruction that aided in the arrangement of their present form, whether the layers are in a rock or a mountain. This exercise will enable students to see part of the larger picture drawn by geological study.

PROCEDURE:

1. Ask each student to pour a layer of their soil into the tray. Observe the layers, and compare with pictures of natural landforms.

2. Gently tilt the container to one side, and sprinkle water from the higher side down through the layers, washing the soil into piles.

3. Let dry for a while, then cut through the formation. What does it look like? Imagine rivers that cut through different age layers and deposited the material into a new layer younger than the old layers.

4. Have the students sketch/describe their findings.

Educator's Outline for

SOIL SAMPLES

BACKGROUND: Soil types vary and the different types are formed in different ways. Soil near rocky outcrops will reflect the nature of its origin. Beach soil along the river will show the polishing action of water.

PROCEDURE:

1. Select an area to gather soil samples from. Test areas should be selected with the approval of the land manager, and care taken to protect the area sampled from. Gather samples from three or more test areas; include soil from rocky ledges, sand from a river area, etc.
2. In the testing areas, have the students in each group take turns with the lens and view the samples, and then sketch/describe the material.
3. Measure and note the large particles, if possible.
4. Ask the students to consider how soil is made. What are the effects of wind and water, etc.?
5. Do the rocky layers show the same kind of rounding found in river samples?

OBJECTIVES

After completing this exercise the student will be able to

1. observe different characteristics from different soil plots
2. consider the different mechanisms of formation.

GRADES: 6 TO 8

AZ CURRICULUM STANDARDS:
Science Standard 5 – Physical science
Science Standard 6 – Earth and space science

GROUP SIZE: 25 to 30

DURATION: 1 hour

SETTING: Tavasci Marsh

MATERIALS: 3 containers per group of 3–4 students, hand lens, paper, pencil to sketch and describe findings, small measuring tape for each group.

OBJECTIVES

After completing this exercise the student will be able to

1. observe and consider water flow rates in different areas of the marsh/river environment.

GRADES: 6 TO 8

AZ CURRICULUM STANDARDS:
Mathmatics Standard 1 —Number sense
Science Standard 4 —Life science

GROUP SIZE: 25

DURATION: 1 hours

SETTING: Tavasci Marsh

MATERIALS: Paper and pencils for observation, watches with minute and second hand features, small floating objects that can be placed in water, measuring sticks/tapes, small compasses (optional)

Educator's Outline for

WATER FLOW

BACKGROUND: Marsh areas, streams, and rivers have their own rates of water flow, which can contribute to the different types of ecosystems associated with them. What kinds of plants and water life do we find in still ponds or fast streams? Students will observe objects in water to determine direction and rate of travel.

PROCEDURE:

1. Have the students get in small groups of 3 to 4 and go to designated areas to test the rate of water flow by measuring the distance a small floating object travels in a given time. Direction of flow may be noted with the use of a compass.

2. Ask questions of the students. What rate of flow for a given stream, marshy area, etc.? What types of plants and animals are observed in these different areas?

3. Discuss the differences between water flow rates and the kinds of plants and animals that are present in each area.