Riparian Zone Demonstration

Presented by: Hands On! Discovery Center In partnership with: TVA

This demonstration explores the flood-buffering, erosion minimizing, and filtering effects of riparian zones. Riparian zones are not only beneficial to pollinators but to the water systems which support those pollinators.

Materials

- metal paint pan
- sponges
- small amount of dirt (not included)
- colored powder
- spray bottle
- water (not included)
- "pollutants"-cocoa powder, lemon lime drink mix, sprinkles

Instructions

1. Wet the sponges and cut them so they go across the width of the pan. **Set them aside for now until step 6.**
2. Sprinkle a thin layer of dirt and "pollutants" across the slope of the pan.
3. Pour water in the base of the pan to simulate the river.
4. What do you think will happen to the water in the river after it rains? Spray the soil and watch what happens to the river/bay in the base of the pan. When it rains, the pollutants will seep into the soil and then enter the river as a dirt-pollutant mixture.
5. Pour out the dirty water and rinse out your pan (if needed).
6. Now we're going to "restore" the wetlands! Put the sponges in at the bottom of the slope of the pan. Make sure they go across the whole width of the pan.
7. Sprinkle a thin layer of dirt and "pollutants" across the slope of the pan.
8. What do you think will happen to the water in the river after it rains? Spray the soil and watch what happens to the river/bay in the base of the pan. The sponge is simulating the root systems of a healthy wetland. Wetlands act as a filter to absorb and store chemicals so they don't enter the water system.

Why Protect Riparian Areas?

The buffer zones surrounding riparian areas are sometimes the last defense for reducing the adverse impacts sustained by a watershed where disturbances have caused accelerated runoff, sediment, pollutants, and erosional losses. These areas provide increasingly critical habitats for wildlife, including pollinators, in urbanizing areas.

Key Terms

- **Watershed-**The geographic area where surface waters drain to reach a stream, lake, or other body of water.
- **Riparian zone-**The transitional area between aquatic and terrestrial ecosystems.
  - Riparian Zones can be damaged in many ways including catastrophic flow fluctuations, operation of heavy equipment in or near a stream, pesticides/pollutants, streambank disturbance, and vegetation removal.
- **Buffer zone-**An area of undisturbed, natural vegetation having species and structural diversity which occurs adjacent to a stream and its riparian area. The buffer zone protects the integrity of the stream system.
  - Buffer Zones provide many benefits including aesthetic/recreational values, streambank stabilization, habitat maintenance, flood reduction, water quality improvement, pollution reduction, erosion control, and more!

Tennessee Science Curriculum Standards addressed:

6.LS2.1, 6.LS2.6, 6.LS4.1, 6.LS4.2, 6.ESS2.4, 6.ESS3.3, 6.ETS1.1, 7.LS1.6, 7.LS2.1, 8.LS4.4, 8.ESS2.1