



## Environmental Education Field Study

### Advanced Ecosystem Discovery Grades 9-12

**Description:** Ecosystem Discovery

Explore the diversity of life in riparian and desert ecosystems through guided, hands-on exploration. Students use binoculars and hand-lenses to make observations and work together to understand the interrelationships between plants and animals and the environment.

**Linked to Arizona Academic Standards:** Science S3, C3, HSPO1; S4, C1, HSPO4.

**Duration:** 2 hours

**Objectives:**

- Identify the biotic and abiotic components of the riparian and desert ecosystem at Agua Caliente or Feliz Paseos Park and construct an ecosystem model.
- Understand the concept of riparian habitats and their critical role in Sonoran Desert conservation.
- Identify adaptations of desert and riparian plants and animals that allow them to live in a specific environment.
- Use observation skills to identify selected plants and animals, and understand their ecological role.
- Make a detailed sketch of a plant or animal.

**Conceptual Framework:**

- All living things are interrelated; they are a product of their environment which includes non-living resources and an integral part of it.
- Food webs are pathways through which energy flows from the sun to plants and subsequently to herbivores, omnivores, carnivores and decomposers.
- Species and habitat diversity are the foundation for a stable Sonoran Desert ecological system.

**Sonoran Desert Conservation Plan Element:** Riparian Restoration

**Vocabulary:**

Abiotic  
Adaptations  
Biotic

Buffelgrass  
Consumers  
Decomposers

Diversity  
Fountain Grass  
Exotic Species

Revised 7/14

Interrelationships                      Riparian  
Invasive  
Native  
Producers

**Equipment and Materials:**

Ecosystem components worksheet  
Clipboards and pencils  
Organism illustration worksheet  
Hand lenses, binoculars, spotting scopes, binocular scopes

**Description of Activity:**

- Through field observations of riparian and desert habitats students identify and list the living and non-living components of the two habitats (cottonwood, Gooding's willow, sedges, cattails, California fan palms, mesquite trees, cholla, saguaros, prickly-pear, creosote, desert marigold, barrel cactus, palo verde, ironwood, jojoba, desert mistletoe, buffelgrass, seasonal mammals {evidence of javelina, bobcat, mule deer}, hackberry, lizards, reptiles, seasonal birds)
- Compare and contrast adaptation of riparian and desert plants and animals
- Students construct a model of the riparian/desert ecosystem including biotic and abiotic components. Include the water cycle, carbon dioxide/oxygen cycle, nutrient cycles. Use arrows to show the flow of energy and materials.
- Students make a detailed sketch of a riparian or desert plant or animal. Note adaptations (physical and behavioral) that allow them to survive in their habitat and label parts.
- Riparian restoration is a central element of the SDCP. In most of Tucson's watercourses stream flow has disappeared due to groundwater pumping and development. Today, we have an opportunity to repair riparian corridors as a gathering place for people and wildlife.