



# **Basics for Creating a Schoolyard Wildlife Habitat**

## **SCENE**

Southwest Center for Education  
and the Natural Environment

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## What is a Schoolyard Wildlife Habitat?

An **OUTDOOR LEARNING LABORATORY** located on the school grounds, that is constantly changing, provides essential components to sustain wildlife, and provides experiences and learning opportunities for all ages.

## What are the Educational Benefits of a Habitat?

- Provides real-life learning experiences for students
- Students see tangible results from their work
- Offers a variety of cognitive and affective learning experiences
- Provides opportunities for children with different learning styles and skills to achieve success
- Promotes cooperative learning
- Can be used to teach all subjects: environmental education is interdisciplinary and includes math, language arts, science, social science, and art
- Provides an alternative to field trips because nature is accessible on school grounds
- Students can work outdoors year-round

## The Most Important Rule

Involve students in the project from the very beginning. Student buy-in is crucial to project success. Even very young children can participate in planning and designing the habitat. Student ownership of the project will increase their motivation for learning and decrease the likelihood of vandalism.

## Step 1–Getting Started

- Talk with your school principal and district officials
- Assemble a habitat project team

A strong team includes people with different backgrounds and talents. Your team should include the following:

- Students
- Teachers of various grade levels and subject areas
- School principal or other administrator
- Maintenance personnel
- Interested parents
- Local professionals

- Identify your goals

What do you want to be able to do in and with the habitat? Consider the needs of all who will use the habitat: students, teachers, administrators, families, community members, as well as wildlife.

- Educational goals  
For example, to create an outdoor classroom, to provide a resource for on-site field trips, to integrate the habitat into curriculum
- Aesthetic goals
- Other goals  
For example, to improve community relations, to encourage parental involvement in school activities
- Incorporate student goals—they may be different from adult goals.
- Distinguish between short-term (1-5 years) and long-term (5-10 years) goals.
- Establish a time line for the project:  
Consider the best time of year for planting  
Allow time for:
  - Raising money
  - Conducting baseline studies of the school grounds
  - Scheduling work to be done by landscape professionals (grading, installing irrigation, etc.)

## Step 2—Learn about Wildlife and Habitat

- Understand basic habitat requirements
  - Food
  - Water
  - Cover (or shelter)
  - Places to raise young
  - Space
  - Corridors (undisturbed lanes of travel)
  
- Learn what animals are native to your region. Focus on native species to maximize the conservation and education benefits of the project.
  
- Identify what kinds of animals you want to attract. Be realistic. Schoolyard habitats in urban areas will attract
  - Insects
  - Birds, including hummingbirds
  - Small reptiles such as lizards
  - Aquatic life (if a pond or other water feature is included)
  - Small mammals
  
- Research the needs of the species you hope to attract
  - What plant material will provide food, shelter and nesting places?
  - What physical elements will provide cover and nesting places?
  - Are species present year-round, seasonally, or passing through on migration?
  - Do their needs change according to season?

## Step 3—Evaluate Your Campus

- Map the school grounds
  - Obtain a layout, blueprint or aerial photo of the site.
  - Have students do field measurements to verify features and identify changes.
  - Develop a base map.  
(For age appropriate mapping methods, see *Mapmaking with Children*, by David Sobel, 1998. Heinemann Publishing, 800-793-2154.  
ISBN 0-325-00042-5)
  
- Conduct a site inventory with students. Use your base map and overlays to record information about the following:
  - Built structures
  - Utilities (gas, water, electric, sewer)
  - Topography and geology
  - Sun and wind exposure
  - Soil type
  - Erosion
  - Drainage
  - Human use of the site
  - Past land use and site history
  - Traffic patterns (pedestrian, vehicular, bike)
  - Water sources
  - Existing plant material
  - Animal use of the site (don't forget insects and birds)
  - Character and use of adjacent property

For protocols to conduct surveys of insects and birds, see the Ecology Explorers Web Site at <http://caplter.asu.edu/explorers>

Baseline surveys conducted prior to installation of the habitat allow students to compare animal use of the site before and after the project.

## Step 4–Plan the Habitat

- Plan how to keep students involved
  - Research animal needs
  - Investigate funding sources
  - Inform the community of the project
  - Compile a plant list
  - Design different segments of the habitat
  - Raise money with a bake sale or car wash
  
- Plan how to keep team members involved
  - Assign specific tasks
  - Target deadlines
  - Monitor progress with regular meetings
  - Network with others who have done similar projects
  
- Plan how to provide for wildlife needs
  - Food (trees, shrubs, grasses, flowers)
    - Fruits, including berries
    - Nuts and seeds
    - Nectar
    - Leaves
    - Bird feeders (provide supplemental food)
  
  - Water
    - Small pond or stream
    - Elevated bird bath
    - Shallow dish
    - Drip irrigation emitter
  
  - Cover (variety of heights, sizes and densities)
    - Dense shrubs
    - Tall grasses
    - Brush piles
    - Trees
    - Rock piles
    - Concrete block and sand
  
  - Places to raise young
    - Natural and man made
    - Nesting boxes or platforms

Bat houses  
Shrubs, trees, cactus

- Additional features to consider
  - Snags (dead trees)
  - Wood piles
  - Water features (pond, stream, marsh, water wall)
  - Animal tracking plot
  - Viewing blinds
  - Butterfly, hummingbird or lizard gardens
  - Native American garden
  - Sensory garden
  - Art features—sculpture, mural wall, tiles, etc.

## ■ Plan for human use of the habitat

- Paths/trails
- Shade
- Seating
- Study areas
- Amphitheater/performing area
- Signs
- Storage (for art supplies, scientific equipment, gardening tools, etc)
- Handicapped accessibility

## ■ Plan for practical considerations

- A formal [MAINTENANCE PLAN](#) ensures continuation of your efforts, deters vandalism, and can be a vehicle for learning. You need:
  - A general plan covering 5-10 years
  - A detailed schedule covering 1 year
  - A plan that assigns responsibility for specific tasks to specific people
  - A plan that includes students, school and district staff, and/or volunteers
  - Participation of custodial staff in creating the plan
- Costs
  - Initial construction costs
  - Long-term costs (for maintenance)
- Phasing
  - You may not have the time, money or personnel necessary to implement all of your ideas at once. You may need to break your project down into smaller components that you can implement in phases.

## Step 5–Draft the Design

### ■ Create a written plan

- Be inclusive—get input from students, teachers, staff and administrators.
- Brainstorm
  - Use 3 x 5 cards to record ideas for the habitat. Then categorize the ideas according to whether they are goals (statements of vision), facts (known problems, concerns, or information), or concepts (solutions or design ideas).
- Create an “idea wall” at the school where everyone can record answers to the question, “What do we want in our schoolyard habitat?”

The written plan includes goals and objectives, requirements (what do we want to see and do in the habitat?), activities and activity settings (how will we use the habitat?), design features, and curriculum ideas.

### ■ Create several conceptual designs

- A conceptual design is a loose arrangement of zones and spaces identified according to how the areas might be used, and indicating probable and/or appropriate levels of human use of each zone.
- A conceptual design should be drawn as a “bubble diagram.”

### ■ Identify zones

“Zones are large areas within the landscape designed for a specific function or experience.” (School of Landscape Architecture, University of Arizona. *Schoolyard Habitat Design*.)

### ■ Create a site layout

A site layout arranges zones, spatial sequences and design elements into a single composition. Consider circulation patterns when preparing the layout.

### ■ Prepare several alternative preliminary designs. A preliminary design:

- Shows the general geometry of the site and includes zones, spaces and features
- Identifies general characteristics (hard or soft surface, shade trees, shrubs, ground covers) rather than specific plants and materials
- Is still open for modification

- Prepare a final master plan

- The final plan may draw on more than one preliminary design.
- The plan is a blueprint for implementation of the project; it should be a clear set of drawings and perhaps a model. Accurate measurements are essential. Label all zones, spaces and features. Identify plants and other materials by name.

For a step-by-step guide to the design process, see Chapter 2, *Schoolyard Habitat Design*, by the University of Arizona School of Landscape Architecture (available in the SCENE library).

## Step 6—Funding

- Develop a budget
  - Include costs for:
    - Plant and other landscaping materials
    - Irrigation materials
    - Professional services (such as grading, installing irrigation system, installing pond pump)
    - Gardening equipment needed for students to install and maintain the habitat
    - Materials and supplies for maintenance of the habitat
    - Educational materials and equipment for use in the habitat
  - Make a wish list of items or services that could be donated.
- Inform your local community and invite help
  - Establish a fund-raising auxiliary or make it a subcommittee of your project team.
  - Create a community newsletter or fact sheet.
  - Have students make presentations to your district, PTO, local businesses and civic groups.
  - Ask for donations of materials, services and/or money.
  - Let your local news media know about the project.
- School funding
  - School discretionary funds
  - PTO
  - District funds
  - Eisenhower funds
- Other sources of funding
  - Corporate sponsorship
  - Government agencies
    - Arizona Game & Fish Department Heritage grants
    - U.S. Fish and Wildlife Service Partners for Fish and Wildlife program
    - US EPA environmental education grants
  - Other grants
  - Events
    - Bake sale, car wash, craft sale, benefit dinner, etc.

## Step 7–Installing the Habitat

### ■ First, Blue Stake

- Before you do anything, you **MUST** have your site “blue staked.” Blue staking is marking the location of underground utility lines. **ACCIDENTLY HITTING AN UNDERGROUND POWER LINE WHILE YOU ARE DIGGING CAN RESULT IN DEATH.**
- In Maricopa County, call the Blue Stake line at (602) 263-1100 to arrange for blue staking.

### ■ Hire, or secure donation of, contract services

- Things that require heavy equipment:
  - Grading
  - Planting large trees
  - Installation of major irrigation equipment
- Things that require special know-how:
  - Installation/connection of pond or stream pumps
  - Installation of electrical or water sources
  - Installation of electronic irrigation components

### ■ Install irrigation system, pond or stream, paths, trails, walls and other hardscape features prior to planting

### ■ Install plant material

Consider the best times to plant. Late spring and summer are not good times in the Sonoran desert. Be aware that newly installed plants require frequent watering, and some require daily watering.

### ■ Install feeders, nesting boxes, water dishes, etc.

### ■ Sources of help

- Students, teachers and other school personnel
- Families
- Volunteers
- Scout groups
- School community members
- Shop classes
- Corporations with employee volunteer programs
- Volunteer Center of Maricopa County (602) 263-9736; (480) 461-3198
- Master Gardeners, Maricopa County Cooperative Extension (602) 470-8092

## ■ Ways of organizing the installation

- Create a special event, one day or weekend during which all participants will assemble at the same time to install the habitat.
- Establish a schedule of work days in the habitat during which students, volunteers and/or families will complete specified tasks over a longer period of time (several weeks or months).
- Assign tasks as class projects to be completed over a specified period of time.

**NOTE** that all of these ways require clear assignment of tasks and deadlines.

## Resources for More Information

We recommend the following books, all of which are available in the SCENE library

National Wildlife Federation. *Schoolyard Habitats Planning Guide*. 23 pp.

Sobel, David. *Mapmaking with Children*. Heinemann Publishing, 1998. 164 pp.

Wyzga, Marilyn C. *Homes for Wildlife: A Planning Guide for Habitat Enhancement on School Grounds*. New Hampshire Fish and Game Department, 1998. 237 pp.

Johnson, Lauri Macmillan, et al. *Schoolyard Habitat Design*. Arizona Game & Fish Department, 1999. 145 pp.

Dannenmaier, Molly. *A Child's Garden: Enchanting Outdoor Spaces for Children and Parents*. Simon and Schuster, n.d. 192 pp.

## Useful Web sites

Southwest Center for Education & the Natural Environment (SCENE)  
<http://aspin.asu.edu/scene/>

Extensive resources for those wishing to create and use a habitat area on school grounds. Includes hands-on science investigations of schoolyard ecology.

Ecology Explorers <http://caplter.asu.edu/explorers>

Protocols for surveying bird and insect populations in your schoolyard, and for investigating plant-insect interactions. Instructions for mapping your schoolyard and gathering information about past use of your site.

National Wildlife Federation Schoolyard Habitats Program  
<http://www.nwf.org/schoolyardhabitats/>

Information on how to design a schoolyard habitat and examples of what other schools have done.

Wild Ones Handbook <http://www.epa.gov/glnpo/greenacres/wildones/>

Guide to natural landscaping rich in helpful information, how-to instructions, diagrams and illustrations.