

SUGGESTIONS FOR DEVELOPMENT OF OUTDOOR ENVIRONMENTAL LABORATORIES

Whenever possible, the site for an outdoor classroom should be easily accessible to the potential users. It should be at least five (5) acres in size although the natural or developed features will be more important than size. A variety of soils and variable topography will make the site more desirable. Sites for a small water impoundment will improve the teaching potential.

A few outdoor laboratory development suggestions follow:

- I. Develop an arboretum of native or adapted plants
 - A. On existing areas.
 1. Inventory and label representative plants.
 2. Identify past land use history of area, changes which have occurred, and predict change which may occur in the future.
 3. Bring in additional plants to supplement those already present.
 - B. Establish new areas.
 1. If landscaping of the site (school, camp headquarters, etc.) is contemplated, use plant materials that are not only aesthetically pleasing but suitable for teaching conservation lessons (seeds, foliage, flowers, erosion, etc.).
 2. Limit the numbers of a single species of plant in preference to a greater variety unless a specific purpose can be served.
 3. Establish plots or rows which show the genetic adaptability of plants.
 - C. Label all representative plants by name or, if by number, keyed to a guide sheet.
 - D. Provide for maintenance of vegetation. This can be an expensive item depending on objective of classroom area. A wilderness or prairie situation may require only slight maintenance.
 - E. Utilize existing area with a minimum of disturbance necessary to accomplish the desired purpose.
 - F. Provide for examples of plant succession.

II. Wildlife habitat management.

A. Improve existing cover.

1. Evaluate cover as to quality for intended purpose (nesting, escape, winter, etc.).
2. Indicate plants of special value as food for particular animal species.
3. Refer to land management guides for individual species. (Technical Note - Biology KA-7, revised.)
4. Fence wildlife areas to exclude domestic livestock, preferably with "living fence" planting.

B. Develop wildlife habitat.

1. Protect area from traffic and grazing.
2. Establish desirable plant community by plantings or natural succession for species of animals desired.
3. Observe communities of plants and animals and their interrelationship.
4. Establish brushpiles on areas where natural cover is sparse or lacking.
5. Where available, develop wetland areas as suitable habitats for waterfowl, aquatic mammals, reptiles, and/or amphibians.
6. Establish native and cultivated food plots.
7. Erect artificial nest sites and feeding stations.

III. Other projects of interest.

A. Study factors which contribute to erosion.

1. Wind
2. Water
3. Mechanical

B. Study engineering and vegetative practices used to combat erosion.

C. General and specific adaptation of plants.

1. Annuals and perennials.
2. Abundance of seed production.
3. Special adaptations.
 - a. Protection - thorns, toxins, nettles, etc.
 - b. Seed distribution - hooks, barbs, wings, hairs, etc., by wind, water animals, man.
4. Dryland versus aquatic plants.

- D. Study and make for display soil profiles of various soils.
- E. Study soil - plant - water - fertility relationships.
- F. Study initial plant species on bare rock, rotting trees, bare ground, etc.
- G. Study plant galls and diseases.
- H. Make a seasonal checklist of plants and animals on an area.
- I. Make a list of poisonous plants to man, animals, and their antidotes.
- J. Make a list of medicinal plants and their uses.
- K. Show by example all types of plant leaves, grass, and flower inflorescence.
- L. Make a list of edible plants.
- M. Compile a list of books, films, charts, and other library references on various ecological subjects.
- N. Make plant and seed mounts and use for identification.
- O. Inventory by "snap" or live traps the small rodent population and calculate the total population by species and numbers.
- P. Make a seasonal checklist of birds. Checklist may be obtained from Museum of Natural History, University of Kansas, Lawrence, Kansas.
- Q. Make a simple plant and animal key to identify common plants and animals.

For further ideas and suggestions refer to Technical Note - Biology KA-14 and to the attached bibliography of environmental references.

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