

THE ESTHER L. COOPER AND ROBERT H. COOPER MEMORIAL WOODLAND AREA

Ball State University Field Station and Environmental Education Center

History and Development

Dr. and Mrs. Robert H. Cooper gave this field area to Ball State University in 1969 to be managed by the Department of Biology. The field area, commonly known as the Cooper Area, is located in the SE $\frac{1}{4}$ of Section 25 and in the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 36, Township 21N, Delaware County, Indiana.

The Cooper Area includes approximately 18.00 wooded and 13.48 un-wooded acres for a total of 31.48 acres (12.74 ha). This total acreage includes 1.18 in the access lane that extends to Bethel Pike. The un-wooded portion has 3.7 acres of fescue (*Festuca* sp.) grassland along its south and east borders in addition to former cropland that has been the site of wildlife plantings. Eagle Branch of Jakes Creek flows through the extreme north end of the area from east to west. Pasture borders the area on the north end of the area from east to west. Pasture borders the area on the west. A woods is beyond the north border and beyond the east end of the south border. Cropland adjoins the rest of the area perimeter.

Dr. and Mrs. Cooper purchased the Cooper Area in 1951 as a part of their 123.3 acre farm. The farm, including the present Cooper Area, was grazed by swine and cattle prior to 1951. The U.S. Soil Conservation Service designed a management plan for the complete farm in 1957 at the request of Dr. Cooper. The area consists entirely of SCS Land Capability Classes I and II (wet). The soils of the area are Blount Silt Loam, Genesee Silt Loam and Pewamo Silty Clay Loam.

An SCS-engineered fescue grass waterway was completed in October 1958. The waterway is 12 feet wide at the bottom, has 4:1 side slopes and runs north along the west edge of the woods prior to emptying into Eagle Branch. The purpose of the waterway is to drain a wet area of approximately 1.5 acres that is on the Cooper Farm just south of the Cooper Area.

The Cooper Area was placed in the USDA soil reserve (soil bank) for five years beginning in 1959. Dr. Cooper cleared 2000 feet of footpaths in the wooded portion in 1960 and created brush piles throughout the woods. Timber, mostly white oak, was sold and removed in 1961 and 1962. Wildlife plantings in the un-wooded portions were made by various BSU classes in the springs of 1971, 1972, and 1974.

At the time Ball State University acquired the area, the south line, as well as the entire west side of the access lane was fenced with 47" number nine woven wire. Other boundary fencing is older (west line) or almost nonexistent (north and east). The perimeter of the area is posted against trespass.

In 1972, permission was granted for a water drain to be installed on the Cooper Area from south to north just inside the west boundary. The water-tight concrete drain carries effluent from the Presbyterian Retirement Center, built on the south side of Bethel Pike on what was formerly the south end of the Cooper Farm to Eagle Branch.

The drain outlet opens on the Cooper Area through an 18" corrugated metal pipe. The effluent is clear although some sudsing or foaming has been evident.

In 1993, trail clearing was ended and pathway mowing was greatly reduced in an effort to allow more of the habitat to undergo succession (see Management Policies).

Management Philosophy

The Cooper field Area offers an excellent nearby site for class field trips and research for departmental faculty and their students. Within the approximately thirty acres which is currently under departmental direction, there are a number of distinct micro-environments which constitute a rich diversity of biological habitats for field research. These include: Dr. Cooper's original wildlife plantings and plantings done subsequently, a bird flyway bounded by Dr. Cooper's plantings and the trees west of the lane, a wooded area, a small farm pond, several vernal ponds located inside the woods, a grassed waterway, a lane that traverses a forest edge, a prairie grassland, a small savannah, a marsh, a seasonal waterway which includes dredging spoil requiring reclamation and erosion control, and some semi-permanent levee ponds. In addition to these habitats, there is also the opportunity for longitudinal study of established field projects from past researchers.

Management of this area should consist of four distinct efforts. These include: careful documentation of past work done at the area and, where appropriate, follow-up evaluations of these projects; elimination of certain organisms, primarily plants, which were previously introduced and are now considered undesirable; mowing, burning, and other appropriate cultivation procedures and introduction of native organisms to enhance and maintain individual micro-environments.

Management Policies

- A. Use of Cooper Area is confined to educational activities which are compatible with the concept of the area as an outdoor laboratory. The following educational uses of Cooper Area are encouraged. Research conducted by undergraduate and graduate students and Ball State University faculty. Field trips by classes studying the ecology disciplines. Undergraduate and Graduate class field projects.
- B. Portions of the Cooper Area will be managed for the purposes of enhancing/promoting educational opportunities for Ball State University students and faculty.
 1. Natural succession will be allowed to take place in the forested portion of Cooper Area. Branches, fallen trees and other dead vegetation are allowed to accumulate in this area unless a main road is obstructed. Dead, standing trees are not to be removed.
 - a. Vernal ponds in the forested area will not be drained.
 - b. Walking trails in the forested area will not be maintained.

2. Portions of the old cropland area (non-forested area), which has been fallow since 1969 will be restored as a tall grass prairie experimental area.
 - a. Native tall grass prairie vegetation will be established.
 - b. Some of the woody plantings previously established for wildlife habitat will be removed.
 - c. All undesirable plants will be removed from the non-forested area.
 - d. The experimental prairie area will be divided into plots to facilitate experimentation using different treatments (e.g., controlled burns, herbicide applications, machine treatments).
- C. All research to be conducted in the Cooper Area that might alter the area in any way must first be approved by the Field Areas Committee. Written proposals for research in the area must be presented to the Field Areas Committee for approval.
- D. Collection, removal, or addition of plants and animals, while not forbidden, can occur only if they are consistent with the Cooper Area Management Plan and only after consulting with the Field Areas Manager, who will report the activity to the Field Areas Committee. The Field Areas Committee shall have the ultimate authority to approve or disapprove of any such activity.
- E. Cooper Area is to be kept locked and posted against trespassing. All unsupervised use of the area is prohibited. Game hunting, recreational and commercial trapping is prohibited in the area, unless approved by the Field Areas Committee.
- F. Dredging of the creek located on the north edge of the area is strongly discouraged.

Ball State University Wildlife Research and Demonstration Plantings COOPER AREA

R. Kirkpatrick, Project Coordinator - March 1993

Research and demonstration wildlife food and cover plantings are needed by students and faculty studying in the areas of wildlife biology, botany, ecology, ornithology, and mammalogy. Information is needed to determine plants of value in the management of specific avian and mammalian species. Wildlife plants known to be of value in other geographic regions need to be evaluated while growing under East Central Indiana soil and climatic conditions. These plantings can also be used to demonstrate, in the field, species discussed in lecture, textbook and laboratory.

These research and demonstration wildlife plantings are in the un-wooded portion of the Robert H. and Esther L. Cooper Area (see attached map). Herbaceous plants are seeded in plots and woody species are planted in rows as shown on the map. Planting stock was obtained from the US Soil conservation Service, Indiana Department of Natural Resources nurseries and Sharp Brother's Seed Co. of Healy, Kansas.

Herbaceous Plant Materials

The herbaceous plant materials were seeded in 20' by 20' plots separated by 10' barriers. Row 1, Plot 1 is in the SE corner of the plot area, plot numbers increase from S to N. The plot numbers and species planted are as follows:

<u>ROW</u>	<u>PLOT</u>	<u>PLANTING DATE</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
1	1	4/71	emerald crown vetch	<i>Coronilla varia</i>
1	2	4/71	daurica lespedeza	<i>Lespedeza daurica</i>
1	3	4/71	woody lespedeza	<i>Lespedeza tomentosa</i>
1	4	4/71	perennial pea	<i>Lathyrus latifollus</i>
1	5	4/71	Wagner flat pea	<i>Lathyrus sylvestris</i>
1	6	4/71	Indian grass	<i>Sorghastrum nutans</i>
1	7	4/71	(Wildlife food packet)	
2	1	4/74	reed canarygrass	<i>Phalaris arundinacea</i>
2	2	4/74	western wheatgrass	<i>Agropyron smithii</i>
2	3	4/74	prairie sandreed	<i>Calamovilfa longifolia</i>
2	4	4/74	sand dropseed	<i>Sporobolis cryptandrus</i>
2	5	4/74	switchgrass	<i>Panicum virgatum</i>
2	6	4/74	blue grama	<i>Bouteloua gracilis</i>
2	7	4/74	bluestem mixture	<i>Andropogon</i> spp.
3	1	4/74	big bluestem	<i>Andropogon gerardii</i>
3	2	4/74	little bluestem	<i>Schizachyrium scoparium</i>
3	3	4/74	switchgrass	<i>Panicum virgatum</i>
3	4	4/74	sideoats grama	<i>Bouteloua curtipendula</i>
4	1	8/78	white proso millet	<i>Panicum miliaceum</i>
4	2	8/78	Korean lespedeza	<i>Lespedeza stipulacea</i>
4	3	8/78	sericea lespedeza	<i>Lespedeza cuneata</i>

Woody Plant Materials

Initial row plantings of the following woody plants were made on April 2, 1971 beginning at the SW corner of the area. Row 1 is 34 feet from the West boundary fence with all succeeding rows planted at 20-foot intervals. **Note: All of these woody plantings either failed or were destroyed in 2004 to eliminate invasive exotic species.**

<u>ROW</u>	<u>PLANTING DATE</u>	<u>BETWEEN PLANT SPACING</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
1	4/71	8'	northern white cedar	<i>Thuja occidentalis</i>
2	4/71	3'	medium purple willow	<i>Salix purpurea</i>
3	4/71	8'	blue arctic willow	<i>Salix</i> sp.
4	4/71	8'	Amur honeysuckle	<i>Lonicera maackii</i>
5	4/71	12'	midwest crabapple	<i>Malus baccata</i>
6	4/71	12'	radiant crabapple	<i>Malus radiant</i>
7	4/71	8'	whitebell honeysuck (propagated by cuttings)	<i>Lonicera belle albide</i>
8	4/71	12'	Zumi crabapple	<i>Malus zumi</i>
9a	4/71	12'	Sargent's crabapple	<i>Malus sargentii</i>
(south end)		(has lobe on each side of leaf, shrub-type apple, up to 8' tall)		
9b	4/71	12'	radiant crabapple	<i>Malus radiant</i>
10	4/71	9'	red pine	<i>Pinus resinosa</i>
11	4/72	3'	japonica lespedeza	<i>Lespedeza bicolor japonica</i>
12	4/72	9'	shrub dogwood	<i>Cornus</i> sp.
13	4/72	9'	autumn olive	<i>Eleagnus umbellata</i>
14a	4/72	12'	red oak	<i>Quercus rubra</i>
(south)				
14b	4/72	12'	sycamore	<i>Plantanus occidentalis</i>
15	4/72	12'	tulip poplar	<i>Liriodendron tulipifera</i>
16	4/74	9'	silky dogwood	<i>Cornus amonum</i>
17	4/74	9'	Cornelian grey dogwood	<i>Cornus mas</i>
18	4/74	3'	pink lady winterberry	<i>Euonymus bungeanus</i>