

Management Policies For: Christy Woods

A property of the
Ball State University Field Station and Environmental Education Center

Property Description

Christy Woods occupies an area slightly less than 18 acres on the southwest corner of the Ball State University campus. The property is bounded on the north by Riverside Avenue and extends to Tillotson Avenue on the west ([Figure 1](#)). Parking lots are adjacent to the east and south boundaries. The university heating/chilling plant buildings are located at the southeast corner of the Christy Woods.

The area is nearly flat, with a range of 8.3 feet in elevation. The soil is mainly Morley-Blount series. Approximately three-fourths of the area is covered by mature forest, dominated by a mixture of oak, hickory, ash, walnut, hackberry, and maple. An open area with various planting beds in the center of the Christy Woods property divides the forest into east and west areas.

History

Christy Woods was part of the original land gift to the State of Indiana from the Ball Brothers in 1918. Prior to the acquisition of the area by the State of Indiana, the land was given hard usage. Timber was cut, hogs were allowed to graze in the woods, and a few houses were erected in parts of the area. Two drilled wells, a brick garage, since converted to a tool shed, and a sewer line remain today as reminders of past use.

When the Christy Woods area was first given to the university there was some uncertainty about how the 18 acres should be utilized. The area was recognized as an important resource of students in Biology classes. Eventually, the land was designated as an arboretum and was called by that name until 1940 when it was given the official name Christy Woods in honor of O.B. Christy, who was the head of the Science Department. Grazing by livestock prior to transfer of the land to the university had completely destroyed the native herbaceous and small woody vegetation in the woods. Dr. Christy worked diligently with his biology classes to transplant wild flowers from around the state of Indiana into the woods. Dr. Christy also directed efforts to raise funds for an iron fence to enclose the area and reduce trespassing and vandalism.

In 1928, at the suggestion of Professor J.J. Porter of Cornell University, a system of trails was laid out in the eastern wooded portion, and garden beds were developed in the open areas. Later, the eastern wooded portion was laid out into one hundred-foot quadrants with iron posts marking them.

In the early 1950's, an 18 x 34 foot greenhouse, which had stood on the Kitselman Estate, was purchased from the Hazelwood Christian Church and placed in its present location in the southeast section of the Woods. In 1965, an 18 x 51 foot greenhouse was extended to the west end of the Kitselman structure. In 1966, still another 18 x 51 addition was placed on the west end of the existing greenhouse. A smaller north room addition in 1969 gave the greenhouse its present appearance.

During the time of greenhouse expansion, a wooden lath house was built near the greenhouse.

In 1970, a 25 x 60 foot greenhouse was built in the south-central section of the woods to house the Wheeler Orchid Collection given to the University by Mr. and Mrs. W.O. Wheeler. A small addition was added to the north end of the orchid house in 1972.

In 1973, inmates from the Indiana State Prison built five bulletin boards and an open wood shelter that was to house a nature interpretation center. Also, five nature bulletin boards were placed at various locations throughout the woods.

Several encroachments have reduced the size of Christy Woods. The erection of a chiller plant on the southeast corner of the Woods resulted in the loss of a four foot strip of land on the south east corner of the woods. In 1959, space at the southwest portion of the Woods was given to the city of Muncie for the erection of a fire station on Tillotson Avenue. In 1973, some land was lost on the northwest corner when the intersection of Tillotson and Riverside Avenues was widened.

At the request of the President's office, the greenhouse facility within Christy Woods was asked to supply greenery for University events such as commencement. This request was made during the late 1980's and expanded to include supplying greenery for several administrative offices on campus. To meet these new demands,

as well as those of an instructional nature, a new greenhouse was proposed. Plans were drafted for a replacement of the Teaching Greenhouse on campus. The plans included expanded bench space, handicap access, restrooms, office space and reception/classroom. The new greenhouse construction was approved in 1990 with major construction completed in 1991. The new greenhouse contains 1800 ft² bench space in a 40' x 100' building. Plans to provide office space, restrooms and reception area were eliminated from the construction due to financial constraints. An enclosed entryway was added in 1992. An unheated portion of the old Kitselman greenhouse remains on the east end of the Teaching Greenhouse, and is used for native plant propagation.

In 1994, space became available for an office and classroom area in the reconverted Career Services building (name changed to South Service Building in 1994) located southeast of the newly constructed Teaching Greenhouse.

Appropriate Uses of the Property

Given its proximity to the main university campus and the diverse collection of plants in its greenhouses, forest, and garden, Christy Woods is a valuable asset to the University at-large, and to the Department of Biology in particular. From its inception, the area has served as an outdoor laboratory for many biology classes such as Forestry, Plant Taxonomy, Dendrology, Ecology, Entomology, Aquatic botany, Limnology, Ornithology, and introductory biology, and for science education courses

and local schools. The area offers opportunities for research in a variety of biological fields, and many research projects have been conducted there.

Plant conservation has been a part of the Christy Woods mission since 1919. O.B. Christy's publication of Outdoor Laboratories at Ball State Teacher's College (1932) and R.H. Cooper's 1960 revision illustrate both an original and ongoing commitment to the manage this area to conserve biodiversity and to use natural resources in support of the university's educational mission. Significant events in the development of this concept include: (1) O.B. Christy's designation of the campus wooded area as an arboretum, concurrent with the publication of the first species list; (2) the gathering and establishment of native wildflowers and other flora in the woods by early Botany classes; (3) the designation of a portion of Christy Woods as a tree nursery; and (4) H.R. Vernon's designation (at a national meeting of the American Association of Botanical Gardens and Arboreta) of the Wheeler Orchid Collection as a species bank.

The development of Christy Woods should be consistent with its established missions of education and conservation. It should remain an arboretum, a place where trees, shrubs, and herbaceous plants are cultivated for scientific and educational purposes. The greenhouse collections should be managed as a species bank, with a specialization in the propagation, cultivation, and dissemination of specific plant species. The majority of plants chosen for the species bank should be native Indiana plants. The Wheeler Orchid Collection and Species Bank should retain its collection of

tropical orchids and continue the species bank activity already associated with it. In addition, new development should favor the collection, cultivation, and propagation of orchid species native to Indiana. Specific microenvironments within Christy Woods should be identified and managed to meet the requirements of chosen species.

Consistent with the overall mission of the Ball State University Field Station and Environmental Education Center, Christy Woods should function, first, as an outdoor learning laboratory in support of the Field Station and Environmental Education Center's educational mission. This emphasis on the educational use of the area should be promoted to include educational uses by many departments in the University such as Biology, Natural Resources, Landscape Architecture, Geology, Geography, English, Art, and Architecture. A second priority of use should be to support research by faculty, graduate and undergraduate students, and applied research intrinsic to the management of Christy Woods and other properties within the Field Station. The third priority of use should be community education, including development of tour programs that focus on seasonally specific educational programs. The fourth priority should be to maintain an aesthetically pleasing display of plantings of native plant species. In the words of O.B. Christy:

, "Here...it is possible for the college student to form with an organism an acquaintance which he can enjoy and use throughout life. Not only is there subject matter, but there can be inspiration and mental refreshing by study in these areas."

Management Guidelines

Christy Woods is an example of an area where small populations of native species are surrounded by an otherwise highly altered environment. Such areas are particularly susceptible to native species extinction and invasions of exotic species. Also, high use and close proximity to a large human population inevitably are associated with vandalism and theft. Finally, developments around and within Christy Woods have impeded drainage, and periodically portions of the woods are temporarily flooded. Active management is therefore necessary to maintain biodiversity and educational resources within Christy Woods.

General Management Guidelines

1. The following educational use of Christy Woods are to be encouraged:
 - a. School and community groups are encouraged to visit the woods, under supervision, for educational purposes only. Advanced notice is to be given to the Field Station Director.
 - b. The use of greenhouse facilities by Ball State University students is recognized as desirable and compatible with the function of Christy Woods.
 - c. Nature interpretation for educational purposes is to be continued through the use of nature trails, classroom presentations, distribution of publications, and the construction of displays.

2. Only pedestrian traffic is allowed in the Woods. Rapid and excessive traffic (running and bicycling), is detrimental to the area and should be discouraged.
3. Only authorized vehicles may enter Christy Woods. Routine parking of personal cars belonging to staff within the Christy Woods fence line should be discouraged.
4. Visitors must remain on the paths in the wooded areas, although students and faculty may access all parts of the woods for collection and research activities.
5. Picnicking is discouraged.
6. Unleashed pets are forbidden in the area.
7. Erection of structures, construction of paths, and other activities that may affect the condition of the woods or garden areas may be done only with the approval of the Field Station Director and Executive Council.
8. Use of Christy Woods for scientific research is strongly encouraged. A proposal should be submitted to the Field Station Director prior to initiation of any research. Such proposals will be reviewed to insure that the research is consistent with management guidelines, and whether the proposed research would conflict with existing research projects or the educational function of the property.

9. A copy of any publication, thesis, or final report derived from research conducted within Christy Woods should be filed with the Field Station Director.

Given the very different characteristics and uses of the Christy Woods forested area, open garden area, and greenhouse facilities, specific management guidelines for each these areas are warranted.

Management Guidelines for Forested Areas

Appropriate uses of the wooded areas are confined to educational activities that are compatible with the concept of the woods as an outdoor laboratory and scientific research. Hence, the natural aspects of the area are to be maintained in such a manner that its values as an outdoor laboratory and research area will not be compromised.

1. Branches, fallen trees and other dead vegetation should be allowed to accumulate within the woods in a natural manner, except in as much as these materials present excessive barriers to access the woods, both on and off trails. In such cases as deemed necessary to maintain access, some or all of downed trees may be removed. However, dead-wooding of live trees and the removal of standing dead trees (snags) will be done only with the advice and consent of the Field Station Director and Executive Council.

2. Vegetation within the wooded areas may be manipulated to maintain a diversity of native woody and herbaceous plant species. These vegetation management activities may include:
 - a. Removal of exotic shrubs (e.g., Amur honeysuckle (*Lonicera maackii*) and European buckthorn (*Rhamnus cathartica*), with replacement using shrub species native to Indiana (e.g., Spicebush – *Lindera benzoin*).
 - b. Removal of exotic woody ground cover (e.g. Periwinkle (*Vinca minor*), English Ivy (*Hedera helix*), and exotic herbaceous species (e.g. Garlic mustard (*Alliaria peteolata*), Daffodil (*Narcissus spp.*), etc.).
 - c. Planting tree saplings into large canopy gap areas created by blowdown of overstory trees where natural regeneration is not evident, or to maintain a diversity of tree species within the forested areas. Current species composition of overstory and understory trees indicates ongoing successional change from an overstory dominated by oak, walnut, and ash species to a potential future dominance by sugar maple. This has implications for both vegetation species diversity and animal species that rely on oak, hickory, and walnut for food.
 - d. Increase the diversity of tree and herbaceous species within the woods through judicious transplanting.

- e. Manage vines (grape and poison ivy) that are damaging small trees.
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- 3. Collection of plants, insects, herptiles, and small mammals (i.e., rodents and insectivores) from Christy Woods by students in Ball State University courses is permitted. Likewise, live trapping of birds and large mammals is also permitted with appropriate State/Federal licenses. Collections by groups other than BSU faculty/students will be by permission of the Field Station Director only.
 - 4. Addition of new plant or animal species to Christy Woods, while not forbidden, should be done only with approval from the Field Station Director, who will report the activity to the Field Station Executive Council.

Management Guidelines for the Open Garden Area

- 1. Various planting beds should be established to display a diversity of plant species native to Indiana, including but not limited to: prairie plants, fen plants, wetland plants, dune plants.
- 2. The arrangement and displays of these planting beds should be aesthetically pleasing, and may include benches and interpretive signs to enhance public appreciation.

3. Prescribed fire may be used to maintain planting beds as necessary, but only with appropriate arrangements with university and city public safety offices and with permission of the Field Station Director.

Management Guidelines for the Teaching and Orchid Greenhouses

1. A wide diversity of plants species, both native and from around the world, should be maintained in this greenhouse as part of the permanent teaching collection. A computer database of all plants in the teaching collection should be established and regularly updated. For those plants in the teaching collection that require a specialized watering and/or fertilization regime (e.g., cacti), a chart wherein date and nature of such treatments are recorded must be kept attached to the plant. This is to facilitate proper treatment and enhance plant survival when untrained student workers are assigned to care for plants in the collection.
2. Research plants placed in the greenhouse by faculty and students must be clearly labeled with regard to owner name/contact information, and any specialized care instructions. If plants require a specialized watering and/or fertilization regime, a chart wherein date and nature of such treatments are recorded must be kept attached to the plant. Owners of research plants are to be notified immediately of circumstances that indicate declining vigor of the plant, including presence of insect pests, foliar discoloration, leaf drop, etc. Such notification should be in writing or via e-mail.

Long-Term Management Goals

1. Maintain iron and chain link fences in an aesthetically pleasing appearance.
2. Develop a plan for planting beds in the open garden area that will provide for both the educational mission (i.e., diverse collection of native plant species) and the aesthetic appeal of Christy Woods that the university and city communities have come to expect. This planning process should take full advantage of expertise in the Landscape Architecture department.
3. Drainage continues to be a concern in Christy Woods, which is aggravated by water runoff and pollution from the athletic field, chiller plant, and the parking lot to the south. The damming effect of the east parking lot and the widened gravel paths contribute to the drainage concern. Although a drain in the northeast section was connected to the city sewer in 1966 or 1967, it has not completely alleviated the drainage concern in the Woods along Riverside Avenue. Recent construction of a parking lot south of the west portion of Christy Woods has diverted even more water into this area, resulting in more frequent temporary flooding in this area. It is possible that this may result in tree decline and mortality. These internal flooding problems should be addressed by establishing drains that are connected to the municipal storm drain system.

4. Whenever possible dedicate student employment, as well as, volunteer help to the task of physical removal of unwanted, non-native plant species.

5. Occasionally, white-tail deer find their way into Christy Woods and take-up residence. Browsing by these deer causes substantial damage to forest understory and planting beds in the open garden area. A contingency plan for rapid removal of deer should be established through cooperation with Indiana Department of Natural Resources, Wildlife Division.

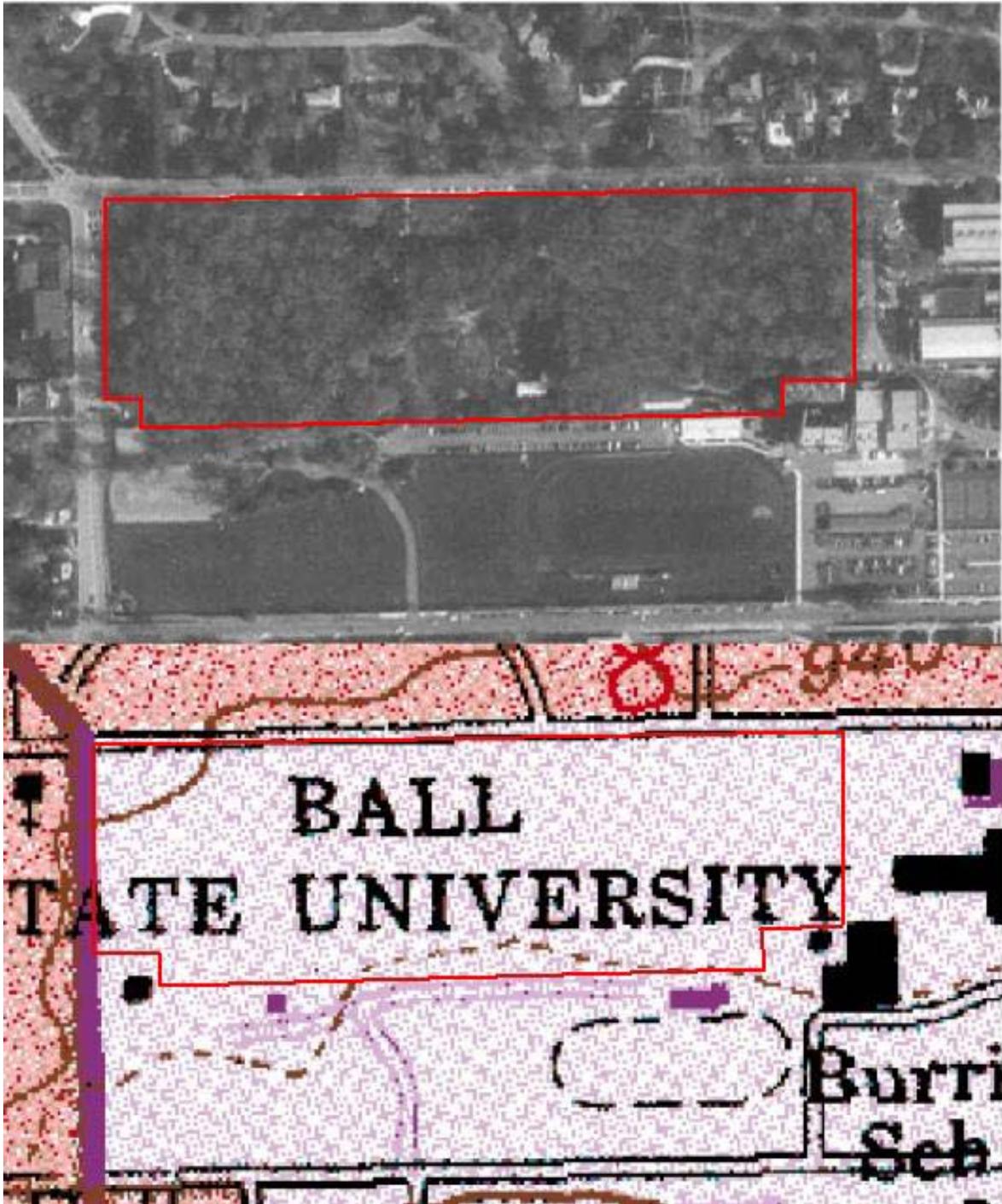


Figure 1 – Christy Woods. Location of approximate boundaries in red on topographic map (below) and an aerial photograph of same area (above)