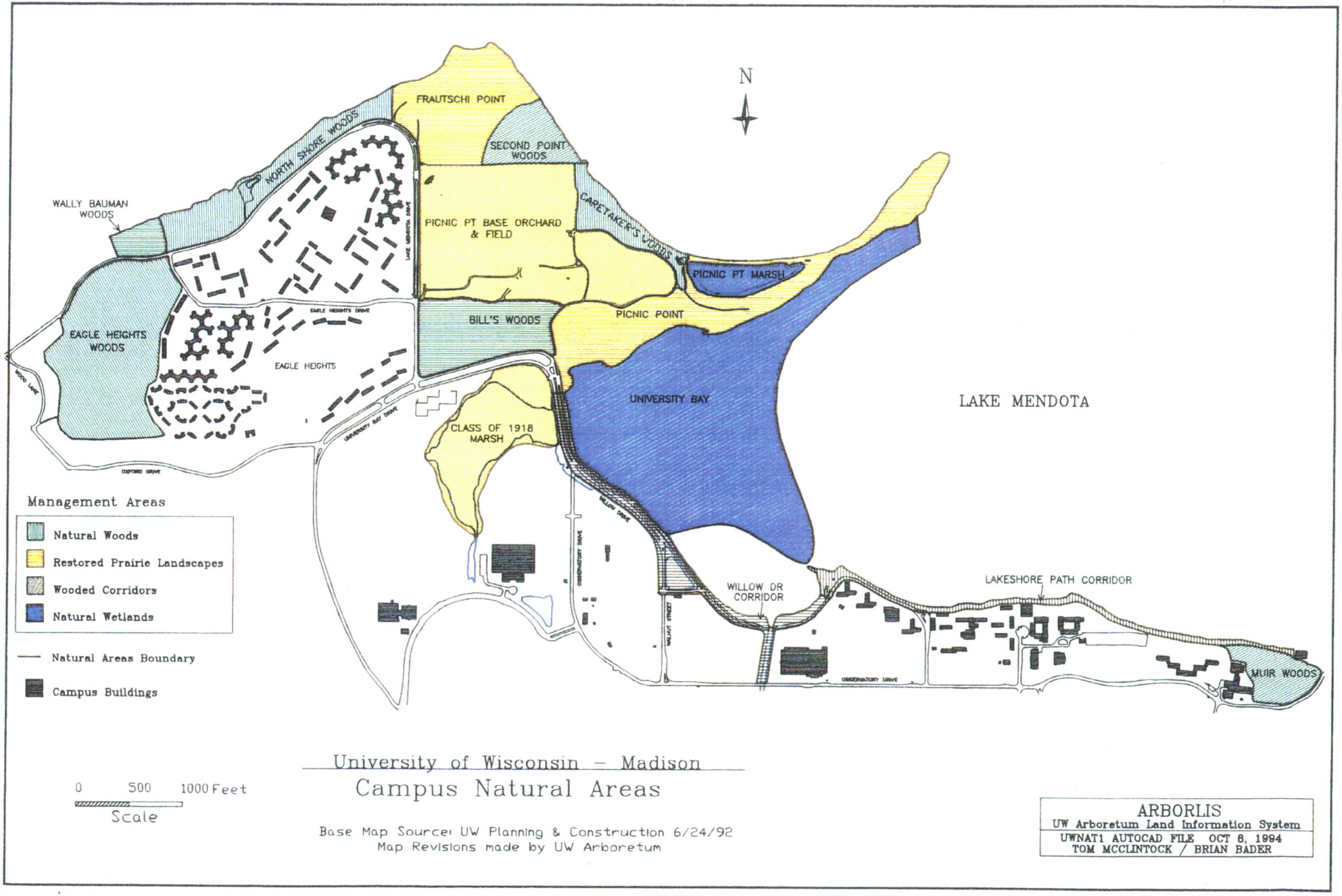
UW-MADISON CAMPUS NATURAL AREAS MANAGEMENT PLAN

1996

Virginia Kline
Brian J. Bader
UW-Madison Arboretum



University of Wisconsin – Madison

Campus Natural Areas

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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OVERVIEW

The campus natural areas

The University of Wisconsin-Madison is situated in a uniquely beautiful environment on the south shore of Lake Mendota. Near the lake, a network of areas still sustaining some of the natural woods and wetlands of Wisconsin, are designated as the Campus Natural Areas. The presence of the Natural Areas lends a special ambience to the campus. The University community and many citizens of the state derive great pleasure and pride in having 325 acres of beautiful natural areas on their campus, which symbolize the commitment of the University and the citizens of Wisconsin to the development of a mutually beneficial relationship between humans and the rest of nature. The University is committed to the restoration and effective management of the Campus Natural Areas and their environmentally-sensitive use,

In keeping with the mission of the University, the campus natural areas provide opportunities for teaching, research and outreach that take advantage of their natural qualities. They are an appealing setting for hiking, observing nature, restorative contemplation, and social interaction as well.

Management goals

1. Maintain and/or restore diverse, high quality biological communities that occurred naturally in southern Wisconsin (woods, savannas, prairies, wetlands).

2. Ensure the long-term well-being of the campus natural area network by protecting it from physical encroachment, inappropriate recreational uses, and any other activity that tends to reduce its natural appeal and its usefulness for the academic program.

3. Facilitate and enhance appropriate, environmentally sensitive human use.

Management objectives

1. Improve public perception of the campus natural area network as an official U.W. unit with defined boundaries, management goals and use restrictions, and a mission integral to the whole University.

2. Establish and/or preserve vegetation type(s) selected for each area on the basis of site characteristics, existing vegetation, providing diversity for the campus natural areas, and ease of establishment and management, and that recognize former natural vegetation and plant communities of the site.

3. Control erosion.

4. Create/maintain aesthetic views of Lake Mendota and provide places where pedestrians can approach the water's edge.

5. Designate and maintain pedestrian paths throughout and bicycle paths in selected areas.

6. Provide benches, fire pits and picnic areas in appropriate locations. Maintain a swimming beach.

7. Protect Indian mounds and other artifacts.

Management areas

Fifteen areas, covering 325 acres, make up the campus natural areas network. For management purposes they can conveniently be assigned to four groups:

1. Natural Woods:

Eagle Heights Woods
Wally Bauman Woods
North Shore Woods
Second Point Woods
Caretaker's Woods
Bill's Woods
Muir Woods

This group includes all the areas that are completely wooded, or nearly so. All are oak woods that represent the type of woods that grew up naturally in southern Wisconsin after cessation of presettlement fires. Their present condition varies, depending upon the amount of human disturbance experienced in the past. Use will be limited to hiking, nature study, research and teaching.

2. Restored prairie landscapes:

Frautschi Point
Picnic Point
Picnic Point Base Orchard and Field
Class of 1918 Marsh

A portion of each campus area in this group is suitable for restoration of prairie and/or savanna, and all will eventually be part of a diverse landscape of prairie, savanna, woods and wetland reminiscent of the presettlement landscape. These areas will be planned to accommodate use consistent with the environmental and educational objectives for the unit.

3. Wooded corridors:

Lakeshore Path Corridor
Willow Drive Corridor

The corridors are narrow strips of woods along major shoreline paths. The paths are heavily used by pedestrians and bicyclists.

4. Natural wetlands:

Picnic Point Marsh
University Bay

These are wetlands that were present naturally before acquisition by the University. Current uses include teaching and bird watching. Similar light use is expected in the future.

Management responsibilities

As outlined in the 1992 Campus Physical Development Plan Summary, "the Arboretum has jurisdiction over the management of the campus natural areas and is responsible for the development of policies pertaining to the use of and plans for those areas. Any proposed changes in the uses of the campus natural areas require review by and consent of the Arboretum Committee." Management of the natural areas has been divided between the Arboretum and the Physical Plant. Those areas deemed to have "high value for research and teaching" are to be maintained by the Arboretum. All other natural areas are to be maintained by the Physical Plant, in consultation with the Arboretum staff.

Maintained by Arboretum	Maintained by Physical Plant
Eagle Heights Woods	Muir Woods
Wally Bauman Woods	Caretaker's Woods
North Shore Woods	Bill's Woods
Second Point Woods	Picnic Point
Picnic Point Marsh	Frautschi Point
University Bay	Picnic Point Field and Orchard
	Class of 1918 Marsh
	Lakeshore Path Corridor
	Willow Drive Corridor

Arboretum staff will provide guidance for management of the areas maintained by Physical Plant on request and as indicated in the plan. Consultation will be important for setting management priorities, planning prescribed burns, and in instances where the plan indicates that a choice of management action is to be based on observations made in the field. (For example,

after clearing honeysuckle the observed invasion of ground layer species might determine whether or not to plant ground layer species, or removal of a tree species might depend on what effect it was having on more desirable species.) Consultation is required when planting is involved. (See policy statement below.)

To facilitate communication, the Arboretum Ecologist and/or other representatives of the Arboretum staff will meet annually with representatives of the Physical Plant staff to discuss appropriate management for the year.

Planting Policy Statement

All plantings require prior approval of the Arboretum Committee. Plans for planting projects are to be developed in consultation with the Arboretum staff and are to be consistent with this plan.

Bicycle Policy Statement

The advent of off-road bicycles has brought a new threat to urban natural areas. Damage to natural areas attributable to off-road bicycles include increased trail erosion, soil compaction, damage to tree trunks and roots, and the creation of new trails, all of which reduces the diversity and the aesthetic appeal of the campus natural areas. The potential for pedestrian/bicycle conflicts further reduces the appeal of the natural areas for a majority of users. Off-road bicycle use is not consistent with the university's commitment to restore and maintain quality of the natural areas and their environmentally sensitive use. Therefore, bicycles will be restricted to Lakeshore Path, Willow Drive and Bill's Woods bike trail. (See map.) On a trial basis bicyclists will also be allowed to continue using the main trail on Picnic Point and the trail circling the Class of 1918 Marsh. Continued bicycle access to these two areas will be allowed only if bicyclists demonstrate a willingness to respect the rights of pedestrians and to protect the environment by staying on the two trails.

Strategically located signs will inform bicyclists of their responsibilities and use limitations.

NATURAL WOODS

General management recommendations

1. Control erosion. North Shore Woods has suffered the most severe erosion, but Muir Woods and Eagle Heights Woods have substantial problems as well. Elimination of bicycles is important for all the woods, but other erosion control measures needed will depend on the causes and severity of the problem in each woods.

2. Remove honeysuckle (Lonicera X bella), buckthorn (Rhamnus cathartica) and other exotics. Honeysuckle and buckthorn suppress native shrubs and ground layer species. It

is particularly important to remove those species that are beginning to invade, before an infestation spreads throughout the woods. Garlic mustard (Alliaria officinalis), an herbaceous exotic, represents a severe threat to wooded areas. All woods should be monitored annually for garlic mustard and any plants found should be eradicated.

3. Improve and maintain the trail system. Carefully laid-out trails with surfaces paved with woodchips and with edges occasionally pruned will be easy to follow and will provide for a comfortable, enjoyable walking experience. This will encourage users to stay on the trail, which will in turn protect the ground layer and reduce erosion.

4. Leave standing and fallen dead trunks as they are, unless this blocks a trail or poses a risk to those walking the trail.

Eagle Heights Woods

General Site Description

A 34-acre woods on a north-south trending drumlin. The hill has a broad, gradual south-sloping ridge, surrounded by steeper slopes in all directions. The north-facing slope, rising about 100ft over a distance of 200ft, is the steepest and has some exposed bedrock. The soils are silt loams. The site is bounded on the north by Lake Mendota Dr, on the east by Eagle Heights Housing and on the south and west by the Shorewood Hills neighborhood.

General Description of the Present Vegetation

The vegetative composition varies depending on the aspect. On the north-facing slope, the dominant canopy species include red oak (Quercus borealis), slippery elm (Ulmus rubra), white ash (Fraxinus americana) and basswood (Tilia americana). The prevalent subcanopy species include slippery elm, white ash, black cherry (Prunus serotina) and basswood. There is a patch of black locust (Robinia pseudoacacia) near the top. The shrub layer consists of gray dogwood (Cornus racemosa), chokecherry (Prunus virginiana), honeysuckle and buckthorn. The ground layer includes virginia creeper (Parthenocissus quinquefolia), poison ivy (Rhus radicans), moonseed vine (Menispermum canadensis), wild yam root (Dioscorea villosa), bloodroot (Sanguinaria canadensis), early meadowrue (Thalictrum dioicum), solomon's seal (Polygonatum biflorum), false solomon's seal (Smilacina racemosa), and jack-in-the-pulpit (Arisaema triphyllum).

On the east-facing slope, the prevalent canopy species include white oak (Quercus alba), red oak, white ash, basswood, slippery elm, shagbark hickory and black cherry. The common species in the subcanopy include box elder (Acer negundo), black cherry and hackberry (Celtis occidentalis). The shrub layer consists of gray dogwood, honeysuckle, buckthorn, red-berried elder (Sambucus pubens) and highbush cranberry (Viburnum opulus). The ground layer species include virginia creeper, zig-zag goldenrod (Solidago flexicaulis), enchanter's nightshade (Circaea

quadrisulcata), solomon's seal, false solomon's seal, bloodroot, wild geranium (Geranium maculatum), early meadowrue and virginia waterleaf (Hydrophyllum virginianum).

Growing on the south- and west-facing slopes is a canopy consisting of scattered, large trees. Prevalent species include black oak (Quercus velutina), white oak, black cherry and bur oak (Q. macrocarpa). Also found are red oak, slippery elm and white ash, although these species do not attain the same level of dominance as on the north- and east-facing slopes. The subcanopy includes white ash, black cherry, box elder, slippery elm and hackberry. The shrub layer is more dense than on the north- and east-facing slopes. The prevalent species include buckthorn, honeysuckle, gray dogwood, red-osier dogwood (Cornus stolonifera), chokecherry, red-berried elder and highbush cranberry. The ground layer species include virginia creeper, mayapple (Podophyllum peltatum), solomon's seal, wild geranium, wild strawberry (Fragaria virginiana), woodland tick-trefoil (Desmodium glutinosum), sweet joe pye weed (Eupatorium purpureum) and jack-in-the-pulpit.

Some mature sugar maples (Acer saccharum) are found in three separate groups: on the upper southwest slope, near the ridge; on the upper northwest slope; and, mixed with norway maple (A. platanoides), near the bottom of the south slope. Their arrangement in rows and the presence of protective hardware cloth around some of them is evidence that they were planted. All appear to be reproducing. In addition, norway maple has been planted at the top of the east slope, and white pine (Pinus strobus) and other conifers in several locations. All the plantings have been made near trails. Black locust, another species likely to have been planted, occurs along trails at the top of the northwest slope, at the top of the east slope, and along the lower south slope near the edge of the woods. An aerial photo taken in 1950 shows a clearing made in the woods on the ridge near the top of the east slope; perhaps this clearing was the site planted with black locust.

Although found throughout the site, honeysuckle and buckthorn are most prevalent on the south and west slopes. In general, buckthorn tends to be distributed near the trails. Honeysuckle is found throughout.

Trails, Roads & Other Structures

Access to the trails is provided at the parking lot on Wood Lane, the truck turn around area on the northwest corner on Lake Mendota Drive, and at the northeast corner on Lake Mendota Drive (across from the berm in Bauman Woods). The main trail runs from the Wood Lane parking area to the top of the hill. Trails connect the access points on Lake Mendota Drive to the main trail. A trail parallels the edge of the woods on the east and south. A short spur connects the Wood Lane parking area with the faculty community garden at the base of the hill.

There are three Indian mounds on the top of the hill. These mounds are currently maintained by mowing. A marker containing information about the mounds is found on the mound nearest the trail. Unfortunately, the marker faces away from the official trail, making it impossible to read from the trail. A side trail leading up the mound to the marker developed,

which was used as a turnaround for mountain bikes until it was fenced off in 1991. Other Indian ceremonial artifacts may exist on the site. These have not yet been clearly identified or mapped.

Special Features and Values

Eagle Heights Woods is one of the better quality woodlands on campus. Important features are its size and shape. It is not a narrow strip along a road, but a larger block of woods. This means that the woods interior may be better protected from weed invasion and from other edge effects. The woods serves as an outdoor classroom for ecological studies, providing an easy-to-observe example of the effect of slope aspect on forest composition. Data on tree composition have been recorded each year by Botany/Zoology 460 students.

Problem Areas

Exotic tree and shrub invasion is the most important vegetation management problem. The species of concern are honeysuckle, buckthorn, norway maple and black locust. Currently the problem is not widespread, but corrective measures should be undertaken soon to prevent a larger problem.

The planted sugar maple trees appear to be spreading. Of concern is the dense shade that sugar maples produce, which can greatly reduce the diversity and cover of the ground layer in woods lacking ground layer species tolerant to low light intensity. Aside from the negative impact on the aesthetics and the value to birds and wildlife, a reduced ground layer may result in increased surface erosion.

The planted sugar maples present a special problem here because they may eventually mask the subtle differences in woods composition on different sides of the hill, which have been valuable for teaching about the importance of microclimate in determining vegetation. Sugar maples coming in naturally in such a situation would probably establish first on the cooler north slopes and invade the warmer, drier slopes very slowly, if at all. Planting maples reduces the value of the woods for making ecological observations of natural processes.

Erosion along the trails, especially on steep slopes, is a major concern. East-northeast of the Indian mound, there is a steep section of trail where erosion gullies are a safety hazard to pedestrians.

Use of the trails by bicyclists makes ruts in the trails, increases erosion and damages vegetation. Because the trails are narrow, bicyclists also pose a hazard to pedestrians.

Play structures such as tree forts have been built in the woods, and homeless people have set up summer camp; such activity can be damaging to vegetation.

Management Recommendations

1. Remove honeysuckle, buckthorn, norway maple, black locust and other woody exotics. (Removal of black locust should be followed by planting of appropriate trees unless these appear naturally.) Remove planted conifers. Remove box elder from areas where it appears to be excluding desirable species. Monitor for garlic mustard annually and eradicate immediately if any is found.

2. Limit successional changes to those that take place naturally over time. Remove planted sugar maples and any apparent offspring. Monitor cleared areas for tree reproduction; encourage reproduction of species similar to the canopy or sapling layers of nearby good quality sections of the woods. Also monitor for exotic invaders and eradicate any found.

3. Restrict activities to on-trail hiking, bird-watching and class study. Erect signs prohibiting bicyclists at main trail access points. (Enforcement is critical.) Close other trails that presently allow access. Remove structures such as tree houses promptly.

4. Build erosion control structures and steps where severe erosion has taken place on the steep trail near the top of the north slope. Use natural materials such as stone or wood. Repair other trails as needed to prevent erosion.

5. Maintain trails by paving with woodchips and by occasional pruning along edges.

6. Leave standing and fallen dead trunks as they are, unless this blocks a trail or poses a risk to those walking the trail.

7. Relocate Indian mound marker so that it can be seen from the trail. Mow the mounds once a year. If other artifacts are discovered, implement appropriate protective measures.

8. Explain the management objectives and recommendations to Eagle Heights residents and the Shorewood neighborhood.

9. Erect an information sign.

Wally Bauman Woods

General Site Description

This 3-acre woods lies between Lake Mendota Drive and the lake. It is bounded on the west by a condominium development and on the east by North Shore Woods. The east boundary is the trail originating above the berm on Lake Mendota Dr. The woods lies on a north-facing slope which ends with a steep bluff at the lake shore.

General Description of the Present Vegetation

The overstory consists of scattered large individuals of red oak, white oak and shagbark hickory (Carya ovata). The spacing between the trees and the crown structure suggest that these trees grew up under conditions which were more open. Near the southeast corner there is a group of maple trees.

Beneath the large oaks and hickory is a subcanopy consisting of basswood, black cherry, shagbark hickory, bitternut hickory (Carya cordiformis), and white ash. In the southeast corner, sugar maple is found in the subcanopy, and sugar maple seedlings are abundant. There is little or no oak reproduction on the site.

The shrub layer includes chokecherry, highbush cranberry, gray dogwood, alternate-leafed dogwood, shadbush (Amelanchier sp) and the ubiquitous exotic shrubs, honeysuckle and buckthorn. The shrub cover is estimated at 50-75%. Unfortunately, honeysuckle and buckthorn account for over half of the total shrub cover. Buckthorn appears to be restricted to the area along the trails; honeysuckle is found throughout, including on the steep banks next to the lake, where few trees are able to grow.

Common ground layer species include virginia creeper, wild geranium, virginia waterleaf, jack-in-the-pulpit, bellwort (Uvularia grandiflora), mayapple, violet (Viola sp), false solomon's seal, zig-zag goldenrod, elm-leaf goldenrod (Solidago ulmifolia), arrow-leaf aster (Aster sagittifolius) and large-leaf aster (Aster macrophyllus). Rue anemone (Anemonella thalictroides) and dutchman's breeches grow around the base of the trunks of some of the large trees near the trail that is the east boundary. Baneberry (Actea sp.), hepatica (Hepatica acutiloba) and carrion flower (Smilax sp.) are also present. There is a patch of garlic mustard along the trail near the berm.

Trails, Roads & Other Structures

Located near the southeast corner, directly across Lake Mendota Drive from the access point to Eagle Heights Woods, is a berm that was constructed to control erosion. A trail runs north from the drive, over the berm and down the hill, marking the east boundary. The shoreline trail begins at a padlocked gate at the fenced west boundary, goes through the woods and continues east into North Shore Woods. A former parking area (now closed) on the southeast corner is still evident, although vegetation is beginning to grow over it. A secondary trail from the parking area does not appear to be heavily used.

Special Features and Values

The vegetation is in relatively good shape. In terms of species diversity, this is one of the best areas on campus. It has a good oak forest ground layer.

Problem Areas

The trail below the berm runs straight downhill and is severely compacted. An erosion gully is evident near the bottom. The problem is compounded by off-road bicyclists, who use the berm as a jump. Railroad ties placed to prevent bicyclists from going over the berm have succeeded only in causing them to detour around the east end of the berm and create a new eroding trail down the steep slope. Bicycle damage can also be seen on the trail paralleling the shore.

The presence of garlic mustard, honeysuckle and buckthorn represent an immediate threat to the diversity of the community.

Management Recommendations

1. Maintain and improve the quality of the existing deciduous forest, allowing change to occur gradually over time, due to natural processes.

2. Remove honeysuckle, buckthorn and other unwanted woody species. Eradicate the existing patch of garlic mustard immediately. Monitor annually for garlic mustard and eradicate any found.

3. If the ground layer becomes sparse under the sugar maples, introduce mesic forest ground layer species in those locations. Species that are common in both oak and maple forests will probably succeed best.

4. Leave standing and fallen dead trunks and branches as they are, unless this blocks a trail or poses a risk to those walking the trail.

5. Maintain trails by paving with woodchips and by occasional pruning.

6. Restrict recreational activity to on-trail hiking. Exclude bicycles. Repair erosion gullies on trail below the berm.

7. Select two or three potential lookout points along the shoreline trail. Open the view by removing shrubs. Provide for erosion control.

8. Maintain the fence along the west boundary to prevent access from the adjacent development.

9. Erect an information sign.

North Shore Woods

General Site Description

This 15-acre woods lies between Lake Mendota Drive on the south and the lake on the north, and extends from Wally Bauman Woods on the west to Frautschi Point on the east. The gradual north-facing slope of the site ends with an abrupt bank at the shore. The soils are classified as silt loams.

During the 1950's the east section of this woods was the site of the "tent colony", provided for university summer school students and their families. The University supplied tents on platforms, showers, and a building used as a study hall.

General Description of the Present Vegetation

The western quarter of the woods (west of the large parking lot) is similar to Bauman Woods, with rather widely spaced canopy trees, but sugar maple is more prominent in the canopy and there are fewer oaks. Along Lake Mendota Drive, just west of the parking lot, there is a stand of sugar maple, which is spreading. Sugar maple saplings and seedlings are abundant. Shrubs and ground layer plants are sparse under the maples. Elsewhere the ground layer is quite diverse and includes solomon's seal, sweet-scented bedstraw, wild geranium, bloodroot, virginia waterleaf, dutchman's breeches, zigzag and elmleaf goldenrod, and arrowleaf aster.

East of the parking lot the woods is more disturbed, and the quality decreases toward Frautschi Point to the east. The canopy trees include green ash, box elder, basswood, ironwood, a few planted white pine, hemlock and juniper, and a few large sugar maple trees. A few large red oaks are found along the top of the bank. There are abundant sugar maple seedlings, including many over lm tall. Basswood is also reproducing. Honeysuckle is dense except beneath the sugar maples; some patches of honeysuckle appear to be very old. Except in the old patches, there are a surprising number of ground layer plants under the honeysuckle. The ground layer in general is quite diverse. Among the species present are dutchman's breeches, toothwort, violet, mayapple, early meadow rue, bloodroot, virginia waterleaf, columbine, wild geranium, pennsylvania sedge, solomon's seal, zigzag and elmleaf goldenrod and arrowleaf aster.

Trails, Roads & Other Structures

A large parking lot breaks the woods into two segments, with approximately 25% lying west of the parking lot. The parking lot has apparently been expanded over the years by dumping excess asphalt.

Three culverts carrying surface water from the Eagle Heights housing area cross under the road and empty into the woods. One culvert is immediately west of the parking lot, another lies just to the east of the parking lot, and the third is farther east, near the middle of the property.

The shoreline trail is continuous across Wally Bauman Woods through North Shore Woods and into Frautschi Point. Both the trail serving as the west boundary and a centrally located trail extend from Lake Mendota Drive down the slope to the shoreline trail. Several unofficial trails made by bicyclists angle down through the woods, often following gullies for part of their length. In addition, numerous unofficial short trails lead from the shoreline trail to the water's edge.

Special Features and Values

The parking lot provides easy access to the shoreline trail and its potentially beautiful views of the lake.

Problem Areas

Associated with the culverts are extensive erosion gullies. The worst of these lies immediately west of the parking lot. This erosion gully is old and deep, and there seems to be little active downcutting at present. There is a severe erosion problem, however, associated with the steep, unstable sidewalls and the numerous trails going down those steep slopes. The culvert east of the parking lot directs water across the parking lot entrance down through the woods toward the deep gully. A new gully is rapidly forming, contributing to the heavy sediment load in the water entering the lake. The third culvert is creating yet another new erosion gully, and there are also erosion problems caused by surface runoff from the oversized parking lot. Corrective action to redirect water is urgently needed! Immediate corrective action based on a comprehensive plan for handling the water on these slopes is critical to prevent an already serious problem from getting worse.

The parking lot is poorly designed and constructed. It is a major contributor to the ugly erosion gully caused by the west culvert, and to the gully immediately north of the lot. The surface is impervious to water drainage and slopes toward the lake, directing runoff down the eroding gullies.

The boardwalk and stairs leading down from the parking lot, through the gully to the lake are in disrepair, resulting in the development of side trails.

The trails receive substantial use and all show evidence of erosion. Of particular concern are the short trails leading from the shoreline trail to the lake.

Off-road bicycle activity contributes to the erosion problem. Other problems associated with bicycle use include damage to the vegetation and pedestrian/bicycle conflicts. This area is heavily used by pedestrians and bicyclists and it is doubtful whether the two can coexist without destroying the area. Vandalism to the "Please, No Bicycles" signs occurs frequently.

Management Recommendations

1. Favor the ongoing succession to a sugar maple-dominated mesic forest. The site is appropriate; many of the species are already present; and the increased shade will help control the honeysuckle and buckthorn.

2. Remove honeysuckle, buckthorn and other exotic woody invaders from the west section, managing it as a continuation of Wally Bauman Woods. If resources permit, do the same in the more disturbed east section, planting trees in cleared areas lacking natural tree reproduction. Alternatively, the east section may be managed by allowing the slow increase in sugar maple dominance to continue, eventually shading out the honeysuckle. This is already occurring in patches of the woods. The process might be speeded up by selectively cutting honeysuckle to release sugar maple seedlings that have reached one meter in height.

3. Monitor annually for garlic mustard and immediately eliminate any found.

4. If the shade tolerant ground layer species already present do not spread enough to provide good cover as shade increases, plant additional appropriate mesic forest ground layer species.

5. Leave standing and fallen dead trees as they are, unless this blocks a trail or poses a risk to those walking the trail.

6. Work with appropriate University staff to design and implement a plan to control runoff from Eagle Heights housing, preferably before it crosses Lake Mendota Drive. Studies should examine the possibility of creating dry wells, detention basins or other storm water controls to divert surface runoff from North Shore Woods.

7. Stabilize eroding steep slopes of the large gully immediately west of the parking lot. Close all trails descending the slopes. Repair or reconstruct steps and a boardwalk to allow access from the parking lot through the gully to the lake and to the woods west of the gully.

8. Design and construct a new, environmentally sensitive parking lot using only the upper half of the space occupied by the present lot. The design should demonstrate how to handle runoff without causing erosion.

9. On the remaining space, provide a picnic or rest area similar to those on Picnic Point, taking advantage of the view of the lake. Landscape with native plants, such as pennsylvania sedge, in place of lawn. Make the area wheelchair accessible.

10. Fill in the gully north of the parking lot and stabilize the slope. Construct an observation platform to extend out over the steep bank. The platform should be wheelchair accessible.

Alternately, a level viewing area with a retaining wall might be constructed at the edge of the bank. In either case, the construction should be designed to discourage people from going down the bank to the lake.

11. Make the shoreline trail east of the parking lot wheelchair accessible.

12. Provide selected access points to the lake, and protect the short side trails to these points from erosion, using natural materials. Close unwanted side trails to the lake shore.

13. Erect an information sign at the parking lot.

Second Point Woods

General Site Description

The woods covers a north-facing slope, with a shallow ravine at the base draining into Lake Mendota. The soils are silt loams. The woods is older than those of the surrounding area, having been maintained as woods when the surrounding area was agricultural land. The site is a triangular parcel bounded on the northwest by Frautschi Point, on the northeast by the lake, and on the south by the Picnic Point Base field and the narrow north end of Caretaker's Woods.

General Description of the Present Vegetation

The canopy is heavily dominated by large red oaks. Black cherry, white oak, bur oak, silver maple (Acer saccharinum) and slippery elm are also represented. Some of the large oaks have died, creating gaps. Some of the older gaps are now filled with mature black cherry. The subcanopy consists of black cherry, box elder, hackberry, basswood, slippery elm and sugar maple; the latter may have been planted. The rather sparse shrub layer is dominated by chokecherry, red-berried elder, highbush cranberry and buckthorn. Buckthorn is most prevalent toward Frautschi Point where disturbance is greatest. The ground layer is sparse, perhaps due to past grazing. Among the species present are toothwort, trout lily, virginia waterleaf, virginia creeper, enchanter's nightshade, white snakeroot (Eupatorium rugosum), wild geranium, solomon's seal, mayapple, white baneberry (Actaea pachypoda), lopseed (Phryma leptostachya) and jack-in-the-pulpit. Buckthorn seedlings are common in the ground layer. Of particular concern is the presence of garlic mustard, which is found in several places in the woods.

Trails, Roads & Other Structures

There are three trails through the woods. The first trail parallels the shoreline, connecting the Frautschi Point shoreline trail with the shoreline trail through Caretakers Woods. The second trail cuts through the middle of the woods. The third trail originates in Frautschi Point, follows along the northwest edge of the woods, then turns east, following the southern boundary along the open field.

Special Features and Values

The stand of large red oaks is distinctive, and the woods is one of the oldest of the campus area woods. It is used as a study area for Botany/Forestry 455 (Vegetation of Wisconsin).

Problem Areas

Erosion on the trails has been exacerbated by bike use, and is particularly severe on the shoreline and middle trails. Associated with bike use are damage to tree roots and disturbance of the ground layer. Bicyclists create new trails quickly in areas such as this where there is little shrub cover.

Garlic mustard and buckthorn are threats to the biotic community.

As in most red oak stands, there is no reproduction of the red oaks. Saplings and young trees of other species that might replace the oaks are also few, and include some short-lived and less desirable species.

Management Recommendations

1. Eradicate garlic mustard, and follow up by monitoring annually to detect and eradicate any plants reinvading. Remove buckthorn and other invading woody exotics. Remove box elder from areas where it is beginning to dominate.

2. Experiment with prescribed burning as a management tool, starting by burning approximately half of the woods. The burning should be repeated and observations made of the effects of the burns over several years. Burning may increase the diversity of the ground layer, help control exotic invaders, and possibly encourage reproduction of oaks or other desirable species. The woods is located next to two areas that will be prairie or savanna, and burning will make a more natural transition between the woods and these open communities.

3. If the results of the experiment are favorable, extend the prescribed burning to the entire woods. If the effects of burning on ground layer diversity, control of exotics and tree reproduction are not favorable, an alternate plan should be developed. This might include planting of ground layer species as well as saplings of maples and other shade tolerant trees, to replace the oaks as they die.

4. Leave standing and fallen dead trunks and large branches as they are, unless they block trails or are a hazard to trail users.

5. Close the shoreline trail and the middle trail to prevent further erosion. Maintain and improve the trail on the more gradual slopes farther to the west, a route that provides a

good view of the woods interior. The woods is small and quite open, so that a single interior trail should be adequate.

6. Cover the new trail with woodchips to make it easily visible and to prevent erosion. Prune edge of trail occasionally to keep it open.

7. Prohibit/discourage bicycle use. If necessary use fencing and gates that admit pedestrians and exclude bicycles.

Caretaker's Woods

General Site Description

Caretaker's woods is one of two woods located on the base of Picnic Point. It is a triangular parcel, approximately 8 acres, bounded by an apple orchard and an alfalfa field on the south and west and by the lake on the northeast. The soils are classified as silt loams. The site slopes northeast towards the lake.

General Description of the Present Vegetation

The dominant canopy species are red oak, white oak, shagbark hickory and hackberry. The subcanopy includes sugar maple, black cherry, hackberry and slippery elm, while the shrub layer has buckthorn, honeysuckle and chokecherry. The shrub cover is dense on the western edge near the open field; elsewhere in the woods shrubs are sparse. The ground layer is best developed along the trail near the lake shore. Common species include wild geranium, yellow violet, virginia waterleaf, false solomon's seal, virginia creeper, enchanters nightshade, jack-in-the-pulpit, and goldenrods. Substantial sections of the woods have abundant sugar maple seedlings and saplings beneath a sugar maple canopy. There are few shrubs in those areas and the ground layer is sparse.

Trails, Roads and Other Structures

The south boundary is a service road bordering the orchard. A trail follows the shoreline, extending from the former change house on Picnic Point to Second Point Woods.

Special Features and Values

The shoreline trail is a pleasant place to enjoy the lake and the woods, which is aesthetically pleasing, in part because of the lack of honeysuckle and buckthorn in the areas of abundant maple reproduction.

Problem Areas

There is some honeysuckle and buckthorn along the trail and along the edge of the woods. Off-road bicycles pose a serious threat to the shoreline trail. Due to its proximity to the lake, this trail is susceptible to erosion and slumping into the lake and the bicycles exacerbate this problem. In addition, the narrowness of the trail makes it a prime place for bicycle/pedestrian conflicts.

Management Recommendations

1. Allow the natural succession to a sugar maple dominated mesic forest to proceed.

2. Remove honeysuckle, buckthorn and other exotic woody invaders. Monitor annually for garlic mustard and remove any found.

3. Leave standing and fallen dead trunks and large branches as they are unless they block trails or are a hazard to those using the trail.

Bill's Woods

General Site Description

Bill's Woods, one of the two woods on Picnic Point Base, is bounded by Lake Mendota Drive on the west, University Bay Drive on the south, and service roads on the east and north. The woods is approximately 16 acres. The soils are classified as loams to silt loams. The site is a south slope that is gentle in the west half and steeper (12-20% slope) in the east half. The oldest part of the woods is the southeast section. Like Second Point Woods, this section appears as a well-developed woods in a 1937 aerial photograph. The west section of the woods and a strip along the north have developed since 1937.

General Description of the Present Vegetation

The canopy is composed of white oak, bur oak, black oak, red oak, hackberry, black cherry, and shagbark hickory. At the southeast edge of the woods there are a few mature norway maple trees and substantial numbers of seedlings. The shrub layer is dominated by buckthorn. Ground layer species include trout lily, wild geranium, virginia creeper, white snakeroot, solomon's seal, false solomon's seal and enchanter's nightshade.

Trails, Roads & Other Structures

There are two parallel east-west service roads on the north. Another service road marks the east boundary. A paved bicycle path cuts across the southwest corner from Lake Mendota Drive to University Bay Drive. Two foot paths run north-south between the alfalfa field and University Bay Drive and one foot path parallels University Bay Drive.

Special Features and Values

Bill's Woods is the only campus natural area woods on a south-facing slope. The east section is one of the oldest woods on campus.

Problem areas

Honeysuckle and buckthorn are present. This area suffers from disturbance associated with heavy human use, including use by off-road bicyclists.

Severe localized disturbances include three open fields created in the west section of the woods to stockpile fill dirt during construction of University Hospitals, and an area along the north edge of the oldest part of the woods which was recently cleared to provide a storage area for a compost pile.

Management recommendations

1. Remove buckthorn and honeysuckle. Monitor annually for garlic mustard and eradicate any found.

2. Consider use of prescribed burns to favor continued oak dominance of the site, help control exotic shrubs, and to improve the ground layer. Start by burning the west half, including the three clearings. If the results are favorable, carry out prescribed burns in the remainder of the woods after four or five years. The woods is particularly suitable for maintenance of an oak forest because its south exposure will tend to slow invasion of sugar maple and other shade tolerant trees.

3. Burning may encourage invasion of oak seedlings into the clearings. It will be importamt to note such invasion and if and when there are enough seedlings to fill the clearings to protect them from fire until they become large enough to be fire resistent.

4. If burning does not result in a sufficiently diverse ground layer, plant appropriate species. (Any plantings in campus natural areas require approval of the Arboretum Committee. See page 4.)

5. Of the two parallel service roads at the north boundary, close the northern one and retain the southern one. The strip between the two roads includes young woods at the west and east ends and a central section without trees that is used as a staging and storage area by the grounds crew.

6. Prohibit staging and storage use of all parts of the woods south of the retained service road. Remove compost pile and encourage recovery of oak forest in the recently created clearing.

7. The non-wooded area north of the retained service road will continue to be used as a staging and storage area. Its boundaries will be marked to discourage gradual encroachment into the woods to the east and west. The Grounds staff will develop a plan for use of this area and the adjacent staging and storage area that extends into the field north of the abandoned service road, taking into account present and future needs for such space.

8. The wooded areas north of the retained road are considered part of Bill's Woods and will be managed accordingly.

9. Prevent future use of the woods for storage of construction materials. Campus natural areas are **NOT** appropriate places to store fill dirt or other construction generated waste.

Muir Woods

General Site Description

Muir Woods occupies 7 acres on the steep north-facing slope north of Bascom Hall, extending from Observatory Drive to the lake shore path and the Limnology Lab. In the early days of the university, students gathered firewood in the woods for heating their rooms in nearby South Hall. A ski jump was built and maintained for many years at the top of the steep slope, just east of the present woods. A portion of the woods at the west end was destroyed to make room for the Social Sciences Building in the late 1950's. The resultant public outcry led to an agreement by the University to protect the remainder of the woods from further development.

General Description of the Present Vegetation

The overstory canopy is dominated by large red oak, white oak and basswood. Additional canopy species include shagbark hickory and hackberry. Canopy cover is estimated at 50-75%. Sub-canopy species include american elm, basswood, hackberry, box elder, green ash, black cherry, black locust and a few planted kentucky coffee trees. Sub-canopy cover is estimated at 25-50%. Large fallen trunks lie on the forest floor, many of them oaks. There is no oak regeneration.

Shrubs are sparse except along the edges. Shrub species include buckthorn, honeysuckle, elderberry (Sambucus pubens), and chokecherry. Shrub cover is approximately 25-50%, with buckthorn accounting for about 25% of total shrub cover.

The groundlayer is sparse (about 25-50% cover) but fairly diverse. Ground layer species include hepatica, wild geranium, columbine, jack-in-the-pulpit, mayapple, enchanter's nightshade, virginia waterleaf, early meadowrue, false solomon's seal, white baneberry, white snakeroot, zig-zag and elm-leaved goldenrods. Many of these were planted in the 1950's.

Trails, roads, and other Structures

Numerous official and unofficial trails criss-cross the woods. Some official ones have been graveled. Steps were built into the steep trail near the east edge of the woods, in an apparent attempt to reduce erosion associated with the trail.

Several pipes carrying run-off water from the vicinity of Bascom Hall go under Observatory Drive and are outletted at the top of the woods.

Special Features and Values

The woods provides a pleasant natural setting in the central campus area, and a conveniently located outdoor classroom. Past plantings have enriched the flora, providing greater diversity for study and enjoyment.

Problem Areas

The most critical problems are associated with the numerous trails, which cause erosion, damage the vegetation and facilitate introduction of troublesome nonnative species.

An erosion gully has developed near the steps built into the trail. It is unclear whether the steps have alleviated the problem. Additional work redirecting the flow of water and revegetating the cut may be needed to correct the problem. The steps are also in need of repair.

Buckthorn is just beginning to invade. It would be relatively easy to eliminate now but much more difficult later.

There are substantial numbers of large box elder seedlings and little reproduction of other species of trees.

Human Use & Activities

The site is used by classes (e.g., Bot 460). Hiking, birding, or simply getting away from it all seem to be the most common uses of the area. There is some evidence of off-trail bicycling.

Management Recommendations

1. Remove buckthorn, honeysuckle and other nonnative shrubs. Remove black locust. Remove box elder seedlings and saplings.

2. Plant tree species that are shade tolerant, such as sugar maple and basswood, to provide the next generation of trees, and to shade out the box elder reproduction. (Since the

ground layer includes several species that are shade tolerant and grow in maple forests, the slope will continue to have plants to help control erosion.)

3. Leave standing and fallen dead trunks and branches where they are, unless this blocks a trail or is a hazard to pedestrians.

4. Close unwanted trails, including all those following gullies down the slope. Make the official trails more recognizable by keeping them covered with wood chips, or with gravel where heavy traffic makes it difficult to maintain chips.

5. Repair and maintain steps.

6. Redirect the flow of water away from the erosion cutout near the steps. Do what is necessary to establish plants to heal the scar. This may include filling in the gully, applying an erosion control netting to prevent further erosion and planting with appropriate woodland herbaceous species. (All plantings in the campus natural areas must be approved by the Arboretum Committee.)

7. Erect informational signs to explain the history of the site, the significance of the natural area, and why bicycles are inappropriate.

8. Erect "no bicycle" signs at all access points.

RESTORED PRAIRIE LANDSCAPES

A prairie area will be planted in each of the four Restored Prairie Landscape sites (Frautschi Point, Picnic Point, Class of 1918 Marsh, and Picnic Point Base Orchard and Field). The basic steps are listed below, but additional information should be obtained from the Arboretum staff, the Department of Landscape Architecture, or a prairie seed company. "Prairie Restoration for Schools", an Arboretum publication, is a good source of information for anyone starting a prairie.

Basic steps for planting a prairie

1. Site preparation. Reduce weed competition by careful site preparation. This can be accomplished by multiple cultivations in fall and spring, by use of chemical herbicides, or by a combination of herbicide and prescribed burning.

2. Species selection. Select species whose requirements for soil texture and moisture match those of the site. Obtain seeds of local ecotypes, which are most likely to be adapted to the local climate and which do not pose a threat to any local gene pool in the area. Where savanna trees are part of the plan, the areas under the trees should be planted with

savanna species that can grow in partial shade. (All plantings in campus natural areas require prior approval of the Arboretum Committee.)

3. Determine the number of seeds needed. A good approximate figure is 5 pounds of prairie grass seed and 5 pounds of forb seed per acre, but there may be areas where a higher proportion of grasses or of forbs will be desirable.

4. Planting seeds. In small areas seed can be hand-broadcast. For large areas a Nisbet, Truax or Brillion drill is recommended. For areas where steep slopes pose a erosion problem, erosion control netting or a nurse crop such as oats should be considered to hold the soils in place until the prairie plants can do the job. May or June is a good time to plant a prairie.

5. Seedling transplants. In some areas the seed planting may be supplemented with plantings of plants raised from seed in a nursery. Such plantings can increase diversity by adding species known to be difficult to start from seed; can help give a favorable impression of a new prairie; and can help to control erosion

6. Mow the weeds that come up--before they produce seeds and while the prairie seedlings are still small. The first year mow at 6-12"; the second year at 12-18". The cut material should be removed. Some hand-weeding of undesirable species may be needed during the first few years. Student volunteers might be recruited for this.

7. Prescribed burning. The prairie should be burned as soon as there is enough fuel to carry the fire, about the third year.

Frautschi Point

General Site Description

Frautschi Point was given to the University by the Frautschi family in honor of Walter Frautschiin 1990. Formerly known as Second Point, the site is located on the shore of Lake Mendota between North Shore Woods on the west and Second Point Woods on the east and south. The boundary with Second Point Woods runs northeast to southwest. There is a short south boundary shared with the open field that is part of the base of Picnic Point. Lake Mendota Drive curves across the southwest corner.

From a high (65 feet above the lake), rather level area at the south near Lake Mendota Drive, the site slopes north and northeast to the lake and east to a valley draining into the lake through Second Point Woods. In general the upper slopes are steeper than the lower, and the land is quite level at the foot of the northeast slope near the point. The soils are silt loams.

General Description of the Present Vegetation

Much of the site, including the east and northeast slopes and the level area at the top, is covered with young pioneer trees that have invaded a rather recently abandoned field. The trees include silver maple, big-tooth aspen, basswood, box elder and green ash. The young woods is thicket-like with a dense shrub layer of honeysuckle, buckthorn, and chokecherry, interspersed with many saplings and large seedlings of box elder, green ash and black locust. The largest tree on the site, a huge open-grown white oak that once stood alone in the field, is now surrounded by young box elder and green ash. The ground layer is sparse. The most common species include virginia creeper, enchanter's nightshade, violets, asters, wild strawberry and wood sorrel. Garlic mustard occurs along a trail leading to Second Point Woods. Small buckthorn seedlings are conspicuous, and there are also some small seedlings of sugar maple.

On the north slope, at the west edge of the property (adjacent to North Shore Woods), the trees are older and include oak, basswood, silver maple, and black cherry. East of this woods, between two old driveways, a heavily disturbed woods with small aspen, white birch, dense honeysuckle and weedy ground layer, occupies a former house site. The driveway marking the east edge of this woods is lined with mature planted norway spruce, red pine, red cedar and white birch, along with trembling aspen. Along the lake shore is an interesting stand of open-grown red and white oaks and an open-grown shagbark hickory. The ground layer beneath these trees includes thimbleweed (Anemone sp.), sweet-scented bedstraw, figwort (Scrophularia sp.), violet (Viola papilionacea), mayapple and trout lily.

Farther east, on the point, two small groves of open-grown red, bur and white oaks grow near the shore, one on each side of another former homesite. The grove west of the homesite has shagbark hickory, hackberry, and basswood - a single large individual of each - as well as the oaks. Shrubs in the groves include chokecherry, highbush cranberry and isolated patches of honeysuckle and buckthorn. The ground layer includes white snakeroot, elm-leaf and zigzag goldenrod, mayapple, false solomon's seal, trout lily, virginia waterleaf, virginia bluebells, virginia creeper and carrion flower. Much of the ground in the west grove is covered with a species of sedge (Carex sp.). The homesite between the groves is heavily disturbed; the disturbed area extends from the lakeshore into the woods across the drive.

Trails, Roads & Other Structures

Two old driveways begin a short distance apart on Lake Mendota Dr. and curve down the slope toward the sites of former buildings near the lake. They are joined at the foot of the slope by a segment that parallels the lakeshore. The more heavily used East drive angles east and northeast down the slope, making a series of sharp turns before it reaches the level area near the point. The route of the west drive is shorter and less easterly. The boundary line with Second Point North Shore Woods begins approximately at the west edge of the entrance to this drive and goes due north; it is marked by an old fence. The shoreline trail continues from the fenceline east through Frautschi Point into Second Point Woods. There are several unofficial trails leading

to the water from the shoreline trail. Upslope from the shoreline trail two other trails enter Second Point Woods.

A test well housed in a shed is located on the point. This well is used to monitor contamination from a leaking fuel oil tank which was found buried at an old house site and has since been removed. There are trash piles along the shoreline trail toward North Shore Woods.

Special Features and Values

Frautschi Point is a key unit in the complex of restored prairie landscapes that will be the recreation core of the campus natural areas. It has the potential to be a model restoration, and can provide recreational opportunities for the campus community and for the public similar to that provided by Picnic Point, but with its own unique character. The features that give this site such potential include:

The point extending into Lake Mendota is aesthetically pleasing and provides easy access to the lakeshore.

The site has topography steep enough to be interesting and to provide views of the lake, along with level areas where people can gather comfortably and without causing erosion, if reasonable care is taken.

Public access from Lake Mendota Drive will be easy to develop. The site is also easily accessible from other campus natural areas via the trail along the shoreline.

A substantial part of the site is appropriate (in terms of soil, slope position, ease of site preparation, ease of maintenance, etc.) for restoration of savanna and prairie, which will add diversity, interest and educational value. This savanna/prairie restoration will be the north section of a large savanna/prairie that will continue southeasterly across the adjacent alfalfa field, the orchard and the entrance section of Picnic Point to the main trail on Picnic Point. (See map.)

There are several majestic open-grown oaks. The largest one is beautifully situated to become the focal point of a savanna and prairie restoration of the old field. With a modest amount of shrub removal, the open-grown shapes of those on the point and farther west along the shore will be striking and will complement the nearby savanna restoration.

Problem Areas

The contamination caused by the once buried, leaking fuel oil tank will require on-going attention.

There is some shoreline erosion in places where banks are steep.

Heavy bicycle use has damaged trails and vegetation.

The presence of exotic species, including garlic mustard, buckthorn, honeysuckle and black locust, is a threat to the community.

The open-grown oaks are threatened with loss of branches if they are not rescued soon from the vigorous tree invaders.

Children have built a treehouse in the large open-grown white oak.

Management Recommendations

Savanna restoration

1. Remove the young trees and shrubs that have invaded the former field, from the high level area near Lake Mendota Drive to the foot of the east and northeast slopes. Protect the majestic open-grown oak, and remove trees crowding it as soon as possible. Remove the treehouse.

2. Plant the cleared section with prairie/savanna species, using the basic steps listed on pages 21-22. If the planting takes place over several years, keep the cleared area open by mowing or burning. Plant a cover crop to control erosion during the interim.

3. Use fire as a management tool for the restored savanna, and also for the oak groves along the shore.

4. Encourage the development of a gradual edge between Second Point Woods and the new restored savanna. If both areas are managed with prescribed burns this should happen naturally. If Second Point Woods is not burned, the edge should be softened by encouraging the growth of a few young oaks in the restored savanna near the edge of the woods.

5. Remove honeysuckle and buckthorn from the oak groves along the shore. This should have high priority because the infestation is still sparse enough to be easily controlled and because a diverse ground layer is still present. Add appropriate savanna ground layer species.

Woods

6. Eliminate buckthorn, honeysuckle, black locust and box elder from the parts of the site that will not be cleared when Recommendation 1 is implemented. Annually monitor all treated areas for reinvasion and re-treat if needed.

7. Eliminate garlic mustard throughout the site.

8. Allow natural succession to occur in the west section of the woods on the north slope. This area should be managed with North Shore Woods.

9. Leave dead snags or downed trees in wooded areas unless obstructing trails or presenting a safety risk.

10. Remove planted conifers lining the drive.

Provisions for recreational use

11. The old homesites on the point are particularly suitable for development of picnic areas and places to sit and enjoy the view. The disturbed, level area across the drive should be included to handle overflow without threatening the vegetation in the oak groves. These heavy use areas may be planted to lawn grasses and/or paved with woodchips or fine gravel. Use of the groves should be limited to walking on well-defined (woodchip-paved or boardwalk) trails.

12. Provide an overlook on the high level area near the south boundary and Lake Mendota Drive and keep the view of the lake open. Discourage the development of a row of trees at the water's edge. (Remove all except a few selected individuals.)

13. Develop/maintain an integrated trail system that provides access to the overlook, the lakeshore picnic area, the large open-grown oak in the savanna and the lakeshore oak groves. (Trails nEar the open-grown trees must be located and constructed to protect these trees, including their roots.) The system should connect with appropriate trails in adjacent natural areas. It should be universally accessible as much as possible.

14. Use of wood chips on the trails in the wooded areas, and mowed grass or plank walks in the prairie are recommended. Keep the edges of all trails pruned for easy passage. If the east driveway is incorporated into the trail system the crumbling asphalt should be removed and a new surface applied.

15. Provide benches or logs for seating at interesting points along the trails.

Entrances

16. Construct a small parking area at the Mendota Drive entrance. Include parking for bicycles. Install information signs at this entrance and also at each end of shoreline trail. Landscape parking area and entrance with native plants.

17. In an appropriate setting near the entrance, possibly at the overlook, install a sign commemorating the gift from the Frautschi family.

Picnic Point

General Site Description

The Picnic Point peninsula extends east and then northeast into Lake Mendota. The northeast-trending segment, referred to as the "tip" of the peninsula, is linked to the middle section by a low, narrow isthmus. The highest elevation on the tip is about ten feet above the lake level and the banks sloping down to the shore are steep.

The "middle section" contains Picnic Point Marsh, treated in this plan as a separate wetland management unit; see page 42. A narrow berm separates the marsh from the lake on the north; upland areas lie mainly south, east and west of the marsh. The four Indian mounds on Picnic Point are all located in the middle section. The largest of the mounds, a conical mound, is located on a small hill approximately 20 feet above the lake.

The general area where the peninsula joins the mainland is referred to as "the base of Picnic Point". Included are Caretaker's Woods and Bill's Woods, described in the "Natural Woods" section of this plan, and a field and orchard that are treated separately (page 32). The remaining area of the base, which lies south of the orchard and extends east from the Picnic Point entrance gate to the beginning of the midsection, is included in this (Picnic Point) unit of the plan, in which it will be referred to as the "entrance section". The boundary between entrance and middle sections is arbitrarily defined as a north-south line extending from a building once used as a changing house for swimmers. Much of the entrance section is on the south and east-facing slopes of a hill which ascends to over 40 feet above lake level near the north boundary, and reaches slightly higher elevations in the orchard beyond. The total area of the tip, middle section and entrance section is 30 acres.

General Description of the Present Vegetation

In the western two-thirds of the entrance section, the lower slope and the more level area at the foot of the slope are presently mowed lawn. Near the top of the slope a grove of planted red cedar (Juniperus virginiana) is interspersed with american elm, green ash and box elder. Farther down the slope there is a combination of planted groves of red and white pine (Pinus resinosa and P. strobus), and of sugar maple, along with naturally invading black cherry, shagbark hickory, and red and white oak. Along the edge of the woods, a robust growth of shrubs includes honeysuckle, buckthorn, red osier dogwood, and staghorn sumac. Views of the marsh and lake from the top of the hill are almost completely obscured by the trees. Below the mowed area, close to the lakeshore, there is a fringe of wetland trees, including silver maple, green ash, cottonwood (Populus deltoides) and black willow (Salix nigra); some of these have invaded the slope as well. There is considerable honeysuckle and mulberry (Morus alba) in the shrub layer and the ground layer consists mostly of disturbance species. Farther east, the lawn ends and the mixture of planted conifers, sugar maples and naturally invading species abuts the trail. A small section of woods along the east boundary is an extension of the more natural woods found in the middle section.

Most of the middle section is wooded, and the woods is of better quality than the entrance section woods. Very large red oak, white oak, and shagbark hickory trees dominate the canopy, along with some american elm. Hackberry, green ash, basswood and sugar maple are prominent in the subcanopy. Also found are black cherry, silver maple, box elder, black locust and black willow. The shrub layer is dominated by honeysuckle and buckthorn. The ground layer lacks diversity. Among the species present are white avens, virginia creeper, enchanter's nightshade, false solomon's seal, violet and trout lily. There is some garlic mustard along the path, but the infestation is not yet widespread. There is a grove of open-grown bur oaks between the main path and the shore and a small lawn area has been maintained in part of it. The unmowed part of the grove has been invaded by young trees and shrubs. A small lawn area is also maintained at the site of the conical mound. The lawn ends abruptly where a massive growth of shrubs begins and extends down the steep bank to the shore.

In the tip section, sugar maple, basswood and hackberry are the dominant canopy trees. A few large hackberry and oak trees emerge above the other canopy trees. Sugar maple and basswood saplings and seedlings are abundant. Honeysuckle and buckthorn were removed from the woods (but not from the steep banks) in 1980-82 as part of a project funded by the Brittingham Foundation. They have not reinvaded. There is in fact very little shrub cover, probably because of the shade cast by the abundant sugar maple reproduction. The ground layer is sparse in summer, but in spring there are masses of trout lily, along with smaller numbers of other spring wildflowers . A large clearing at the end of the point is kept mowed. It is bordered by the dense growth of honeysuckle, other shrubs and a few trees that cover the steep banks.

Trails, Roads & Other Structures

A wide, level, gravel trail from the entrance to a turnaround on the tip serves as the primary access. Several steep trails go to the top of the hill in the entrance section. In the middle section, the shoreline trail follows the berm between the lake and the north edge of Picnic Point Marsh. The trail continues into Caretaker's Woods at the west end. At the east end it merges with the main trail just before it reaches the isthmus. On the tip there are trails that parallel the shoreline on both sides of the main trail.

Several picnic areas with firepits are provided in the middle section. A swimming beach is located on the isthmus, also a water pump and a memorial stone bench with a view of Madison and the capitol across the lake. The beach was formerly located closer to Caretaker's Woods; a change house designed by local architect William Kaiser marks the former beach location. The building is used for storage at present, although other uses, such as a field research laboratory have been suggested. A segment of a fitness course traverses the entrance section near the west end.

Special Features and Values

Picnic Point is a key unit in a complex of restored prairie landscapes that will make up the core of the campus natural areas.

It is officially part of the E-way, and has long provided urban greenspace.

The peninsula offers access to Lake Mendota and aesthetic views of lake and capitol not found elsewhere.

Indian mounds are located in the midsection, and artifacts but no mounds have been found in the tip section along the trail that runs parallel to the lake on the east side of the main trail.

Outings on Picnic Point are fondly remembered by generations of U.W. alumnni.

With the addition of the prairie, four of the major natural communities of southern Wisconsin (prairie, marsh, deciduous woods and oak savanna) will be represented on Picnic Point. This diversity will enhance the experience of people hiking the trails and provide a convenient outdoor laboratory for classes.

Problem Areas

Four of the most troublesome nonnative species are present: honeysuckle, buckthorn, norway maple and garlic mustard.

Potentially beautiful views are obscured by growth of trees and shrubs. (Many of the trees blocking the views were actually planted.)

The shoreline is essentially unstable, and severe erosion problems have developed. Heavy shrub growth (mainly honeysuckle) on the steep banks reduces ground layer cover, which may further increase erosion. The heavy shrub growth also obstructs views of the lake and restricts lakeshore access.

Erosion is also severe on the hill in the entrance section, where people have created trails that go straight up the hill. The planted junipers as well as honeysuckle and buckthorn prevent ground layer species from growing and protecting the ground. Mountain bikes on and off the trails make the situation even worse.

Some areas suffer damage to vegetation, erosion and littering where human use is heavy. Among these are the juniper grove at the top of the hill in the entrance area, areas with firepits, especially those near steep lakeshore banks and near open-grown bur oaks, and the area between the change house and the lake.

The Indian mounds are not sufficiently protected from traffic.

There are conflicts among trail users, particularly between pedestrians and bicyclists.

Human Use & Activities

Picnic Point receives heavy recreational use. Walking, jogging, swimming, picnicking, bicycling (including mountain biking off the trails) are all popular. Users may include solitary joggers, couples seeking privacy, families on weekend hikes, groups gathering for festive occasions, university students entertaining parents from out-of-town, amateur birding groups, or canoeists taking a break.

Management Recommendations

Entrance Section:

1. Close the present parking lot and develop a new entrance using the design proposed by Planning and Construction.

2. Eliminate most of the present mowed lawn, retaining a small section as a sunning and lounging area (see map).

3. Prairie restoration. Restore mesic and dry-mesic prairie on the remainder of the south slope, from the path along the foot of the slope to the orchard at the top of the hill. Restore wet-mesic prairie in selected segments of the strip between the path and the lake. To begin the restoration, remove all trees and shrubs, including the planted red cedars, pines and maples, from the designated area. Plant prairie forbs and grasses, following the steps listed on pages 21-22.

4. Woods. Improve the quality of the existing woods on the east slope, close to the middle section, while allowing it to change naturally over time due to natural processes. Remove honeysuckle, buckthorn, other nonnative shrubs, Norway maple and box elder from the woods. Leave red cedar trees at the edge of the woods on the higher slopes to provide winter cover for birds. Leave standing and fallen dead trunks as they are, unless this blocks a trail or poses a risk to those walking the trail. Discontinue mowing strips of lawn between the woods and the path and allow woods species to invade. Pull unwanted invaders.

5. View maintenance. Remove selected trees from the edge of the lake to open up views of the lake fromthe top of the entrance section hill and from the high point in the orchard above. Open a view of the marsh from the lounging lawn also.

6. Trails. Close the steep trails going up the hill. Fill the gullies and stabilize the soil using suitable erosion control measures while the prairie plants are becoming established. Construct new paths that will ascend the hill on the more gradual slopes farther east and west. Select three or four of the trails leading from the main trail to the shore and make improvements to control erosion. Close all other trails leading to the shore.

Middle section:

1. Woods. Improve the existing woods by removal of Norway maple, honeysuckle, buckthorn and other nonnatives. Natural change to a woods dominated by basswood and sugar maple is likely; this will discourage reinvasion. Leave standing and fallen dead trunks as they are, unless they block trails or threaten the safety of hikers on the trail. Inspect all woods annually for garlic mustard; eliminate any found. Encourage/plant appropriate ground layer species.

2. Savanna grove. Remove trees and shrubs growing near the open-grown bur oaks. Plant savanna ground layer.

3. Erosion control. Select 3 or 4 trails leading from the main trail to the lake and make improvements to reduce erosion; close all others. Heavy use of the west firepit in the savanna grove has caused compaction and erosion of soil around the roots of a large bur oak. Relocate the firepit to more level ground closer to the trail. Stabilize the eroded area, replace soil around tree roots and plant appropriate ground layer species.

4. After the experiment on the tip to determine the best method(s) to replace honeysuckle and other nonnative shrubs on banks is completed (See item 2 below), use what is learned to replace these shrubs with native species of shrubs and herbaceous plants on steep middle section banks.

5. Indian mounds. Mow the Indian mounds once a year to control brush; do not use a heavy mower, and do not maintain lawn. If possible, relocate main trail to be farther from the mounds. Install information sign. Remove shrubs and trees to open a view of the lake from a point near, but not on the mound. (Opening a view from the top of the mound would encourage traffic on the top of the mound.)

6. Beach. Maintain the beach, and keep the isthmus open to prevent trees from shading it. The firepit should be removed; the beach is too small to accommodate it.

7. Changehouse. Physical Plant should decide whether to continue to use the building for storage, remodel it for use as a laboratory or for some other purpose, or remove it. The building is of some architectural interest. However, its presence appears to attract activities that result in damage to the vegetation and some littering. It would not be desirable to put it to a use that would encourage more traffic. Whether the building remains or not, the area should be kept cleaned up. and planted with native trees, shrubs and herbs, keeping the view of the lake open. If the building remains on the site, its exterior should be maintained.

Tip section:

1. Woods. Remove any remaining buckthorn and honeysuckle. Check for presence of norway maple and other woody exotics; remove. Check for garlic mustard annually and eradicate any found.

2. Bank improvement experiment. In consultation with Arboretum staff, set up trial plots to determine the most successful technique for replacement of the honeysuckle on the banks with native species without causing soil erosion. Consider use of mechanical barriers, mulch, leaving honeysuckle roots and crowns to hold soil temporarily, etc. Plant with a combination of seeds and plugs of native species selected to go with the varying sun exposures along the bank.

3. Bank improvement. Use one or two of the best methods to replace all exotic woody plants on the banks with native species of shrubs and herbs. Where views are to be preserved, use low growing species such as pennsylvania sedge.

   Provide steps to get down to the water in one or two places at the end of the tip section. Design these access points to minimize erosion.

4. In the clearing at the end, plant widely spaced bur, white and swamp white oaks, strategically located to preserve views, while providing patches of shade. Locate benches or logs where people can enjoy the views. Provide lawn where heavy use makes it desirable, and plant the remainder of the opening with native ground layer plants, using low growing species such as pennsylvania sedge where views are to be preserved. The plantings on the sunnier banks should be extended up onto the level clearing in several places to create a more natural transition.

6. Trails. Design the turnaround loop at the end of the main trail so that it encourages bicyclists to go back the way they came - on the main trail. Post a "no bicycles" sign where the west pedestrian trail leaves the main trail. Move the entrance to the east trail from the edge of the clearing to the main trail, and have both trails leave at right angles. Use woodchips on the pedestrian trails; prune edges once each year.

7. Use a generous layer of woodchips on the entire east trail to protect Indian artifacts that are thought to be in the ground there.

Picnic Point Base--Field & Orchard

General Site Description

The field is bounded by Lake Mendota Drive on the West, Frautschi Point and Second Point Woods on the North, Caretaker's Woods and the orchard on the east and Bill's Woods on

the south. From a high point near the north boundary the land slopes gently west and south, and more steeply east toward the lake. The soils are classified as loams and silt loams.

The orchard is south of Caretaker's Woods, east of the open field and north of the entrance section of Picnic Point. It lies on the upper south slope of the hill, above the entrance section. There is a potential view of the lake from the top. The soils are described as silt loam.

The field and orchard cover 53 acres.

General Description of the Present Vegetation

Most of the open field is currently maintained in alfalfa. The southwest quarter of the open field is used as a community garden for residents of Eagle Heights.

Old apple trees grow in the orchard. It does not appear that the trees are maintained, or that the orchard is used. The ground cover is mowed grass.

Trails, Roads & Other Structures

In the field, near the east boundary, the Grounds Department has staging areas for storage of woodchips, topsoil, mulches, and for winter storage of docks. The Archaeology Department has an outdoor experimental lab along the edge of the field near the southwest corner. A network of trails and roads, some of them redundant, is mostly concentrated along the south and east edges of the field.

Special Features and Values

The locations of the open field and the orchard makes these two areas a critical link between the prairie restorations planned for Picnic Point entrance and for Frautschi Point. Restoring substantial parts of these open areas to prairie would make it possible to have a long, undulating sweep of prairie instead of two unconnected patches.

Both areas are high and rolling--good topography for a prairie.

The high point in the orchard has a good potential view of the lake.

Years of cultivation have kept the field almost free of woody vegetation, which will reduce the labor required for prairie restoration and early management.

Representatives of CALS and the Agricultural Research Stations have indicated that their interest in the field is temporary, and that after several years there would be no objection to converting the field to prairie. Their use of the field for this interval would help to keep the field open while the Picnic Point and Frautschi Point prairie units are being restored.

These areas offer the only good possibility of expanding the amount of natural recreation area available to users of Picnic Point, as a means of reducing pressure on that popular facility.

Problem Areas

An area of the field adjacent to east edge of the community gardens is used for storage of excavation materials including asphalt, sand and gravel piles which are apparently left over from the hospital construction. On the east end, bordering the orchard, there is a topsoil pile which was to be used to refill the temporary parking lot by the WARF Building once the hospital construction was completed. There are also piles of fill dirt. Aside from detracting from the aesthetic character of the area, these piles represent an erosion hazard, and a removal cost to the university that should have been avoided.

Legitimate space needs of the Grounds Department for storage for woodchips, sand, and other landscaping materials as well as winter storage of docks have been met in scattered locations. This increases the number of roads that must be maintained, is aesthetically unpleasing, and may interfere with the establishment of a large uninterrupted prairie management unit.

Human use and activities

Current use is primarily by those using the community gardens and by the Grounds crew. The alfalfa field is harvested once a year. Bicyclists use the area and hikers pass through occasionally.

Management Recommendations

1. Designate an appropriate location that can provide space for efficiently organized and unobtrusive storage of landscaping materials needed by the Grounds Department. Transfer all needed materials to the designated location. Remove all remaining stored materials and vacate storage sites. Do not allow "temporary" storage of construction waste material in any campus natural areas in the future; **this is not an appropriate place.**

2. Provide access to the storage area selected and to the gardens. Close unnecessary roads.

3. Continue to provide garden space in the southwest quarter of the field.
   Allow for modest expansion. The storage shed proposed for the use of the gardeners should be located in the adjacent Grounds storage area.

4. Establish mesic prairie in the remainder of the field, and in the old orchard, following the steps listed on page 22.

5. Provide mowed trails through the restored prairie. Integrate with trails in Second Point Woods, Caretaker's Woods, Bill's Woods and trails going to Picnic Point. During the

interim while the alfalfa field will be maintained, provide a trail along the edge of the alfalfa to connect with the trail to Second Point Woods and Frautschi Point.

6. Preserve the outdoor laboratory of the Archeology Department.

Class of 1918 Marsh

General Site Description

The marsh occupies a basin dredged in a former wetland that had been drained for agricultural use and subsequently used as a landfill. It was restored in response to strong objections by students in the 1960's to the abuse of the marsh. The dredged materials were used to create a berm around the pond. Water enters the basin through an inlet at the northeast and leaves via an outlet at the southeast. A dam at the outlet controls the water level. Since the water level in the marsh is lower than that of the lake, water flowing over the dam at the outlet must be pumped uphill to reach the lake. A pump located in a small pumphouse below the dam accomplishes this. A pipe from the lake to the pond, which is normally closed, makes it possible to raise the water level of the pond when needed. The area is adjacent to the Neilson Tennis Stadium and across University Bay Drive from Picnic Point. The management area, including basin and upland is 19 acres.

General Description of the Present Vegetation

Cattails (Typha sp.), bulrushes (Scirpus sp.) and other emergents grow in the shallow water bordering the deeper, open water areas. Reed canary grass, a nonnative species, forms dense stands that begin in very shallow water at the edge and continue up onto the berm. Purple loosestrife (Lythrum salicaria), an extremely aggressive nonnative invader of wetlands, has been found in the southeast section of the marsh, but thus far control measures have been effective at preventing its spread.

A mixture of planted and naturally invading shrubs and trees grow on the berm. Common shrub species include elderberry (Sambucus canadensis), hazelnut (Corylus americana), sandbar willow (Salix interior), red-osier dogwood (Cornus stolonifera), mulberry, honeysuckle and buckthorn. Trees include black willow (Salix nigra), cottonwood and planted river birch (Betula nigra).

Several prairie plantings have been made in the strip of upland between the path and the marsh. The most successful of these was the first one, a seed planting made on the west side. Common species found include big bluestem (Andropogon gerardi), switchgrass (Panicum virgatum), new england aster (Aster novae-angliae), yellow coneflower (Ratibida pinnata), goldenrods (Solidago spp.), purple coneflower (Echinacea purpurea) and silphiums (Silphium spp.). The primary weed problem is reed canary grass. A second seed planting suffered from severe drought, and later attempts using transplants were unsuccessful, at least in part, because

the species chosen were inappropriate for the site. Weeds in abundance have invaded, and there is also bare ground. No plantings have been made on the south side; this area is heavily infested with reed canary grass.

One of the early plantings made in the upland strip was of several plants of crown vetch (Coronilla varia). Each individual plant of this nonnative species grew to cover many square feet of ground, completely eliminating competing species. The Grounds crew has treated the patches with herbicide several times without eradicating it completely.

A large area of mowed lawn extends from the parking lot to University Bay Drive.

Trails, Roads & Other Structures

The circular parking lot at the northeast corner was made large enough to provide parking for visitors to Picnic Point as well as to the marsh.

A gravel trail provides a nearly complete circuit of the marsh. At the pond outlet, the trail is deflected to the road, and hikers and bicyclists must use the edge of the road to complete the loop. A wide foot bridge has been built across the inlet stream at the south end. An observation platform extends into the water from the north shore, and rest areas with benches have been devloped at several points around the marsh. These rest areas are maintained with woodchips to keep weeds under control. The dam and pumphouse are near the road at the southeast end.

Special Features and Values

The site is an easily accessible and pleasant recreation area offering good opportunity to observe birds and other wetland life.

It is an excellent example of a restored wetland, one that provides habitat for an impressive diversity of birds.

The capability of raising and lowering the water level is an unusual feature that will greatly facilitate management and research.

It is a nesting site for black terns, which are a rare species in Wisconsin.

Problem Areas

Several troublesome plant species are present, including reed canary grass, purple loosestrife and crown vetch.

The prairie restorations have been generally disappointing, and may have been damaged by the flooding that occurred in 1993.

The gravel path surrounding the pond has experienced some subsidence. Puddles form and cause hikers to leave the trail, damaging trailside vegetation.

The observation platform was damaged by the flooding of 1993. It is not wheelchair accessible.

The use of the pond by either a single mute swan or a pair each year for the past 4-5 years is cause for great concern. This nonnative species has become a serious problem in Wisconsin wetlands. It is aggressive toward other waterfowl, harassing them constantly, and has been known to behave aggressively toward people as well.

Snow removed from campus parking lots is piled on the lawn south of the pond, where it melts in spring, carrying salt into the pond (and eventually into the lake) and leaving behind a lot of debris.

Human Use & Activities

The site is used by birders and classes, primarily in the spring of the year. People can be seen strolling around the pond throughout the year. There is considerable bicycle use of the gravel trail.

Management recommendations

Pond

1. Allow the water level to fluctuate seasonally and from year to year, but on the average, keep the area of open water about equal to the area of emergent vegetation.

2. Monitor for purple loosestrife; if any is found, dig it out and/or treat with herbicide. This is a top priority management item.

3. Control reed canary when methods are available to do so. Meanwhile use herbicide to eliminate any isolated clumps that appear.

4. If mute swans appear, consult with the Department of Wildlife Ecology and/or DNR and attempt to conform with the 1995 DNR mute swan management plan.

5. Encourage the Grounds staff to find an alternate location for disposal of snow.

Trees and shrubs

6. Eliminate most of the trees around the marsh edge; trees can discourage use of the pond by migrating waterfowl. Leave the planted river birches, bur oaks and some of the willows. Eliminate box elder, green ash, black locust, and elms.

7. Leave most of the red osier dogwood around the pond, but prune it back to the ground or burn it every 5 years or so to keep it short. Encourage a mass of native shrubs along the pond on both sides of the inlet. These too can be cut back occasionally. Eliminate all buckthorn and honeysuckle.

Prairie restoration

8. Follow the steps for establishing prairie, listed on pages 21-22, to establish prairie in all sunny areas between the path and the marsh. Some of the prairie species, such as pennsylvania sedge and wild strawberry, can also be planted in lightly shaded areas.

9. Replace the lawn between the parking lot and University Bay Drive, also the median strip across from that lawn, with mesic prairie, following the same steps.

10. Implement a prescribed burn schedule to maintain the prairie areas and to help control shrub growth.

Trails and observation areas.

11. Continue to maintain trails, overlooks and rest areas. Continue to apply wood chips to side trails and gravel to main trail. Build up wet stretches.

12. Erect information sign by parking lot to commemorate gift by the Class of 1918 and explain management as a natural area;

13. Repair the observation platform and make it wheelchair accessible.

WOODED CORRIDORS

Lakeshore Path Corridor

General Site Description

The 6-acre corridor consists of a narrow strip of woods along the lakeshore extending from the Limnology Lab on the east end to Willows Beach on the west end. For most of its length it is restricted to the north side of the Lakeshore Path, but occasionally the woods extends across the path. From the east end of Elizabeth Waters Hall west to the east end of Tripp Hall

there is a continuous strip of woods south of the path, referred to here as the "dormitory green space".

General Description of the Present Vegetation

The common tree species found along the shoreline are green ash, box elder and black willow. Most of the trees are young; however, there are a few large individuals of white oak, black walnut and basswood. Black locust is present, but the individuals are small. The shrub layer is dominated by honeysuckle, buckthorn, chokecherry, and viburnum. Honeysuckle and buckthorn account for approximately 50% of the total shrub cover on the east end and 75% toward the west end near the dorms, where there is more disturbance. The sparse ground layer consists of asters, goldenrods, lopseed and wild grape. Much bare ground is evident.

The trees in the dormitory green space are fairly young and include red oak and shagbark hickory in addition to green ash and box elder. The shrub layer is similar to that described above for the Corridor. The ground layer, while sparse, is fairly diverse, with virginia creeper, goldenrods, virginia waterleaf, poison ivy (along the bike path), solomon's seal, false solomon's seal, jack-in-the-pulpit and enchanter's nightshade.

Trails, Roads & Other Structures

The Lakeshore Path, a graveled path for bicyclists and pedestrians, parallels the lake shore and connects the west and east ends of the campus. There are numerous trails to the lake, especially near the dorms. An asphalt trail leads from the Commerce Building to an observation platform overlooking Lake Mendota. There are several culverts under the bike path. A storm sewer with a steady flow of water empties into the lake near Lot 37.

Special Features and Values

This unique greenspace corridor enhances the experience of hikers and bicyclists using the Lakeshore Path, andprovides access to the lake.

Problem Areas

The numerous side trails to the lake are causing erosion problems. Some attempts have been made to control erosion (placing concrete slabs, or treated lumber to control flow) but the problem has not been systematically addressed.

Many potentially beautiful views of the lake are blocked by the vegetation.

Human Use & Activities

There is heavy use of the path by joggers, hikers and bikers. Some of this spills over into the adjacent wooded strip. Many people cut through the woods to get closer to the lake to sit

and/or admire the view, etc. Use intensifies near the dorms, resulting in greater disturbance and erosion.

Management Recommendations

1. Remove honeysuckle and buckthorn. Reduce the amount of box elder by removing individuals that crowd other, more desirable tree species and by selecting box elder-dominated locations for creating views.

2. Provide more observation platforms and create openings in the vegetation to provide aesthetic views of the lake.

3. Make the location of official lake access spurs clear and block those that are not official. Construct steps of stone, logs or railroad ties where access is down a steep bank. Use woodchips for spur trails.

4. Encourage a robust ground layer of native species such as wild strawberry and zigzag goldenrod to hold the soil and reduce overland runoff. Plant native shrub species in selected areas to replace removed honeysuckle and buckthorn, but avoid blocking desired views.

Willow Drive Corridor

General Site Description

Willow Drive Corridor is a 12-acre strip that lies between Willow Drive and the shore of University Bay and extends from Willows Beach on the east to the entrance to Picnic Point on the west.

General Description of the Present Vegetation

Near Willows Beach there are large individuals of silver maple, cottonwood, green ash and black willow. Box elder is well represented as small trees and saplings. The shrub layer includes viburnum, red-osier dogwood and buckthorn. The ground layer is sparse; among the species are cattail, reed canary grass, sedges, and jewelweed (Impatiens capensis)

Closer to Picnic Point, the woody vegetation becomes younger and more shrubby. In addition to nonnative planted willow trees, there are box elder, green ash, black willow, and cottonwood trees. Common shrubs include honeysuckle, mulberry, buckthorn and red-osier dogwood. In the ground layer are jewelweed, enchanter's nightshade, white snakeroot and virginia creeper.

Trails, Roads & Other Structures

Willow Drive, used as a hiking and bicycling trail, follows the shore.

Special Features and Values

There is an extraordinary view of the capitol and Lake Mendota. The site provides lake access for boaters.

Problem Areas

Honeysuckle, buckthorn and other exotics are present.

Vegetation blocks views. Unesthetic tree forms occupy conspicuous places.

Dozens of boats are stored on the ground along much of the shoreline. Dragging them up from the water has gouged out strips of the vegetation, leaving the bare scars susceptible to erosion.

Human Use & Activities

The shoreline is heavily used by boaters for lake access and boat storage.

The drive is heavily used by joggers, hikers and bicyclists.

Management Recommendations

1. Remove honeysuckle and buckthorn. Monitor for invasion of other undesirable exotic plants and remove immediately.

2. Remove exotic trees, including planted willows. Remove additional selected trees to improve views.

3. Plant native trees and shrubs where appropriate, but avoid blocking desired views.

4. Seek alternatives to use of the shoreline for boat storage.

NATURAL WETLANDS

Picnic Point Marsh

General Site Description

Picnic Point Marsh is a 6-acre wetland located in the middle section of Picnic Point. The soils are poorly drained mineral soils. There is frequently standing water, especially in the spring of the year and during wet years.

General Description of the Present Vegetation

The marsh is being invaded by lowland forest trees, including silver maple and black willow trees. Seedlings and saplings of box elder are abundant. There is a dense shrub layer dominated by red-osier dogwood. The groundlayer is dominated by cattails, sedges and bittersweet nightshade (Solanum dulcamara).

Trails, Roads & Other Structures

There are no apparent trails leading into the area. The nearest trail follows the shore on the berm that separates the marsh from the lake on the north.

Special Features and Values

A relatively secluded area supporting a high diversity of birds, it is known as a favorite place for bird watching.

Problem Areas

There are no significant problems associated with human use, probably due to the lack of accessibility, dense shrubs, and seasonally high mosquito populations.

The site will require considerable monitoring for potential invaders such as purple loosestrife and reed canary grass. Buckthorn and honeysuckle along the nearby lakeshore trail are a potential source for invasion. Bittersweet nightshade, a nonnative perennial vine, is abundant. Box elder, a native but weedy tree, is widespread in several size classes.

Management Recommendations

1. Annually monitor for invasion of troublesome exotic species, such as honeysuckle, buckthorn, purple loosestrife, reed canary grass, garlic mustard, etc. Remove offenders immediately upon discovery. Bittersweet nightshade is likely to decrease in importance as forest succession proceeds, but should be monitored and removed if it appears to be threatening native species.

2. Remove honeysuckle and buckthorn along the nearby sections of the shoreline trail, to reduce the seed source.

3. In areas in which box elder threatens to dominate, use herbicide to kill box elder seedlings and saplings. Otherwise allow natural successional changes to proceed.

4. Allow dead snags and fallen trees to remain unless posing a safety risk.

5. Reduce shrub cover in key locations along the lakeshore trail to open up views of the marsh and increase bird watching opportunities from the existing trail along the edge. Do not put a trail through the wetland. Protect the wilderness quality.

6. Discourage off-road bicycle use through signs, and by encouraging shrubs in strategic locations.

University Bay

General Site Description

The site is a shallow water bay of Lake Mendota, sheltered on the north by Picnic Point.

General Description of the Present Vegetation

Emergent vegetation, including cattail and pickerel weed (Pontederia cordata) occupies much of the bay. This group gives way to submergent plants in the deeper water farther from shore. Reed canary grass is colonizing the wet soil along the shore.

Trails, Roads & Other Structures

None in the bay. A paved bike and pedestrian path parallels the shore on the upland. This is included in the Willow Drive Corridor, page 42.

Special Features and Values

The bay is valuable for research and teaching. It is used by Biocore classes for ecology studies.

It provides habitat for wildlife.

It was once one of the best places in the Madison area to observe the spring migrating waterfowl.

Problem Areas

A band of reed canary grass along the edge of the marsh excludes native species that are adapted to that habitat.

A drainage ditch coming from the parking lot across the road appears to be aiding reed canary grass invasion where it empties into the bay. This problem may be remedied with the proposed new entrance to Picnic Point.

Fewer ducks and other waterfowl have been observed on the bay in recent years; this may be due, in part, to increased boating activity.

Human Use & Activities

Classes occasionally make observations in the marsh and collect samples of small marsh organisms.

The bay has been an important site for the study of macrophytes.

Wind protection makes it especially attractive to boaters and water skiers.

Most of the activity consists of people on the adjacent upland enjoying the spectacular view of the bay and the capitol.

Management Recommendations

1. Monitor for invasion of purple loosestrife and eradicate any found.

2. When control measures become available, eradicate reed canary grass.

3. Investigate the desirability of a no wake zone, and what its boundaries should be in order to protect the Bay's fragile features and values.

IMPLEMENTATION

High priority management items for all woods

1. Control of garlic mustard - top priority

2. Control of most severe erosion (Eagle Heights, North Shore, Muir)

3. Control of woody exotics, starting with areas having least invasion

Suggested sequence for prairie/savanna restorations in Prairie Landscape Areas

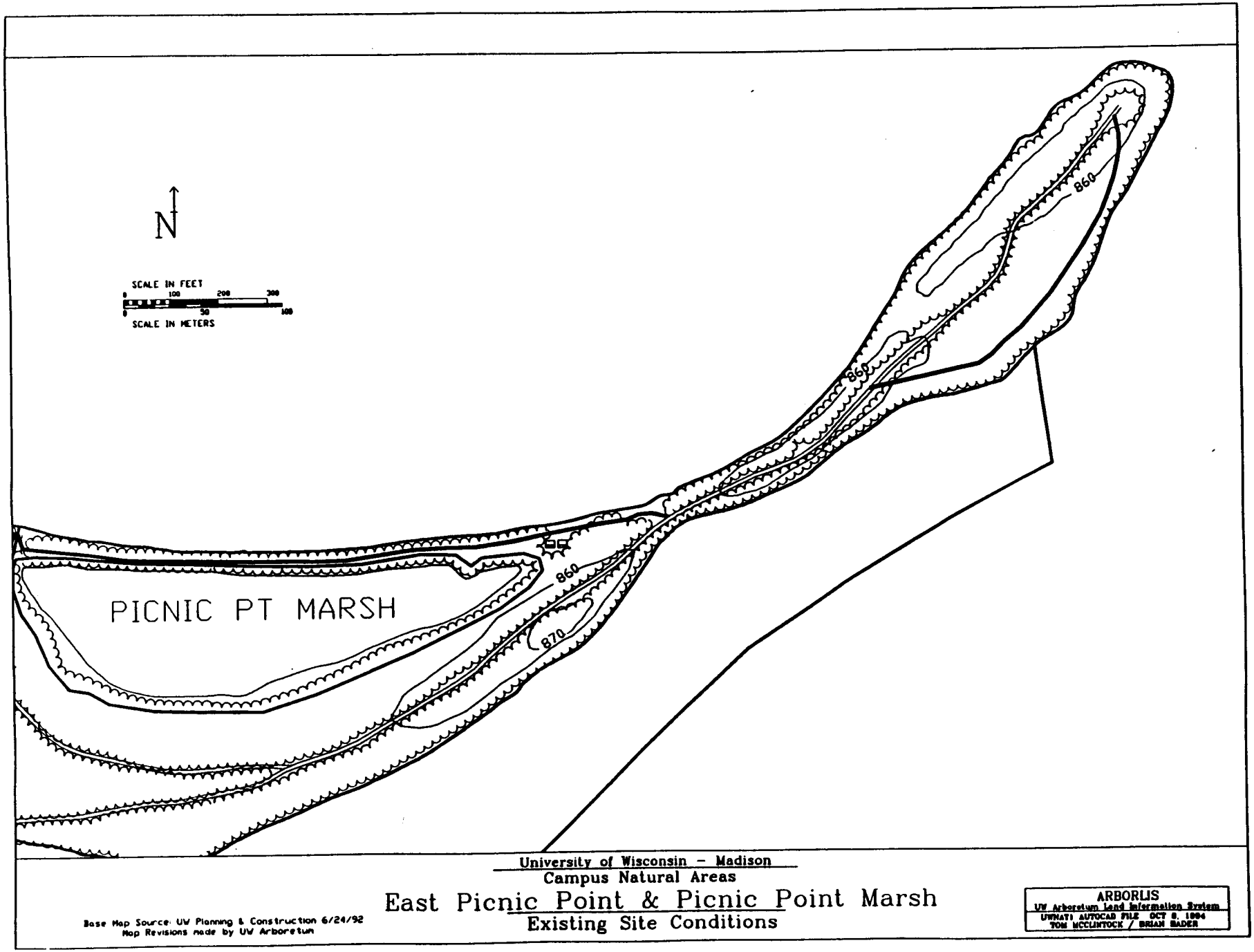
1. Orchard
2. Frautschi Point
3. Picnic Point Base
4. Class of 1918 Marsh
5. Field

Resources needed

1. A full-time supervisor is absolutely essential.
2. Labor, herbicide for exotic plant control
3. Labor, herbicide to clear trees and brush in prairie/savanna areas
4. Seeds for prairie/savanna restoration, labor to plant seeds

Ways to obtain resources

1. Organize a Friends group to provide support.
2. Solicit gifts for particular projects with U.W.Foundation help.
3. Persuade instructors in restoration courses to develop class projects to implement parts of the plan.
4. Use student volunteers. Recruit through existing student organizations.



University of Wisconsin – Madison

Campus Natural Areas

East Picnic Point & Picnic Point Marsh

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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UW Arboretum Land Information System
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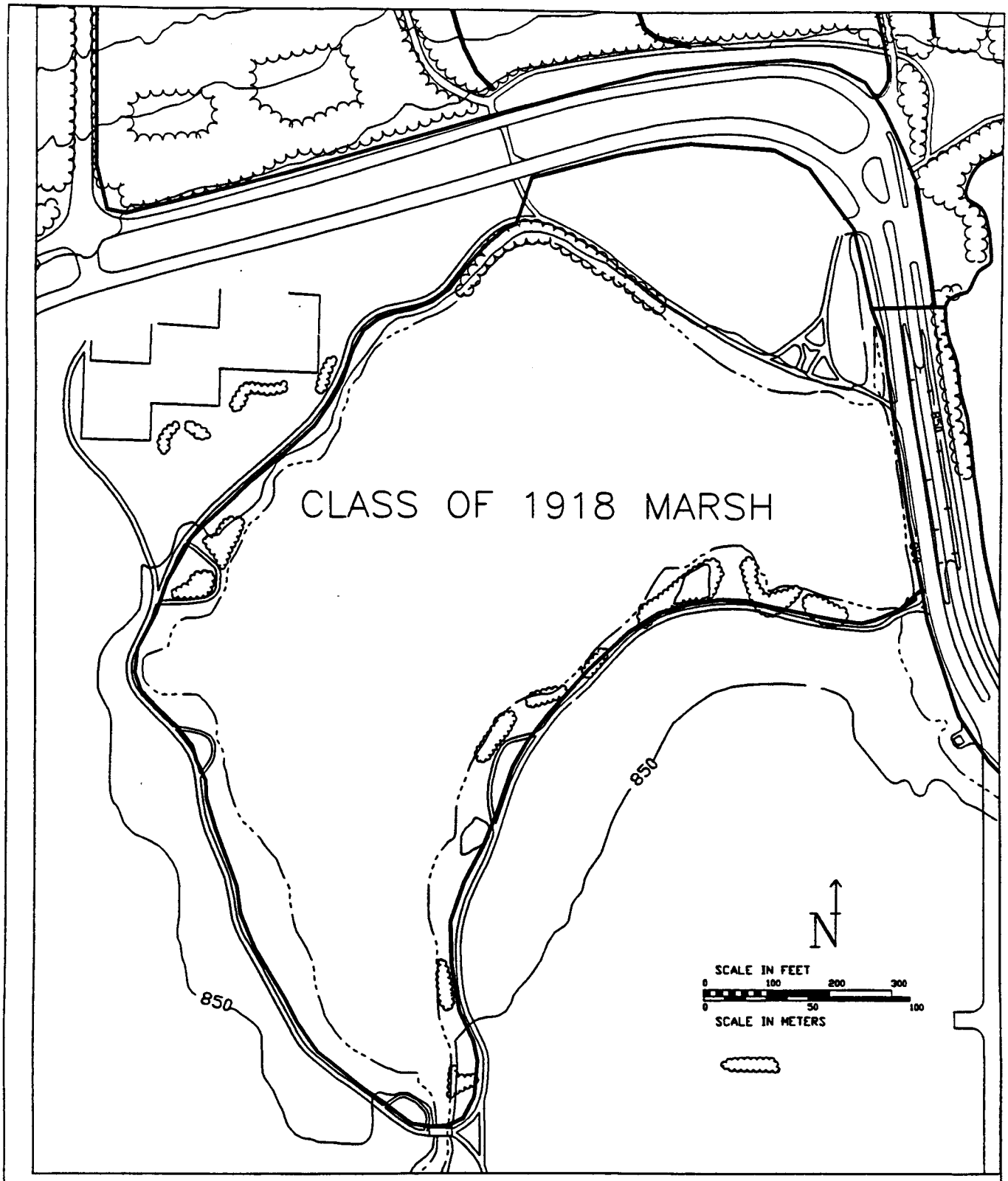
TOM MCCLINTOCK / BRIAN BADER



University of Wisconsin - Madison

Campus Natural Areas

Class of 1918 Marsh

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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UW Arboretum Land Information System
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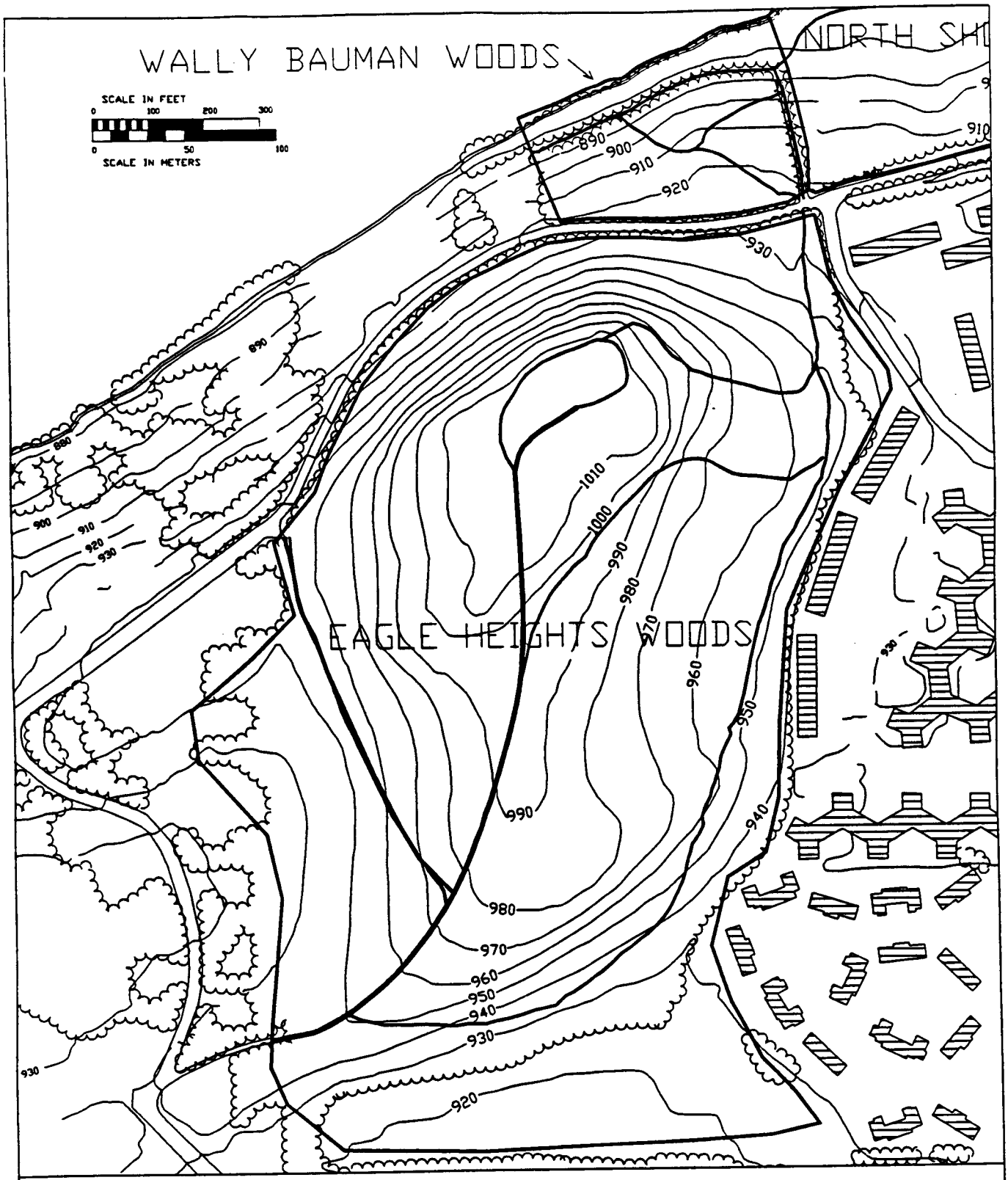

University of Wisconsin - Madison

Campus Natural Areas

Eagle Heights Woods & Wally Bauman Woods

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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UW Arboretum Land Information System
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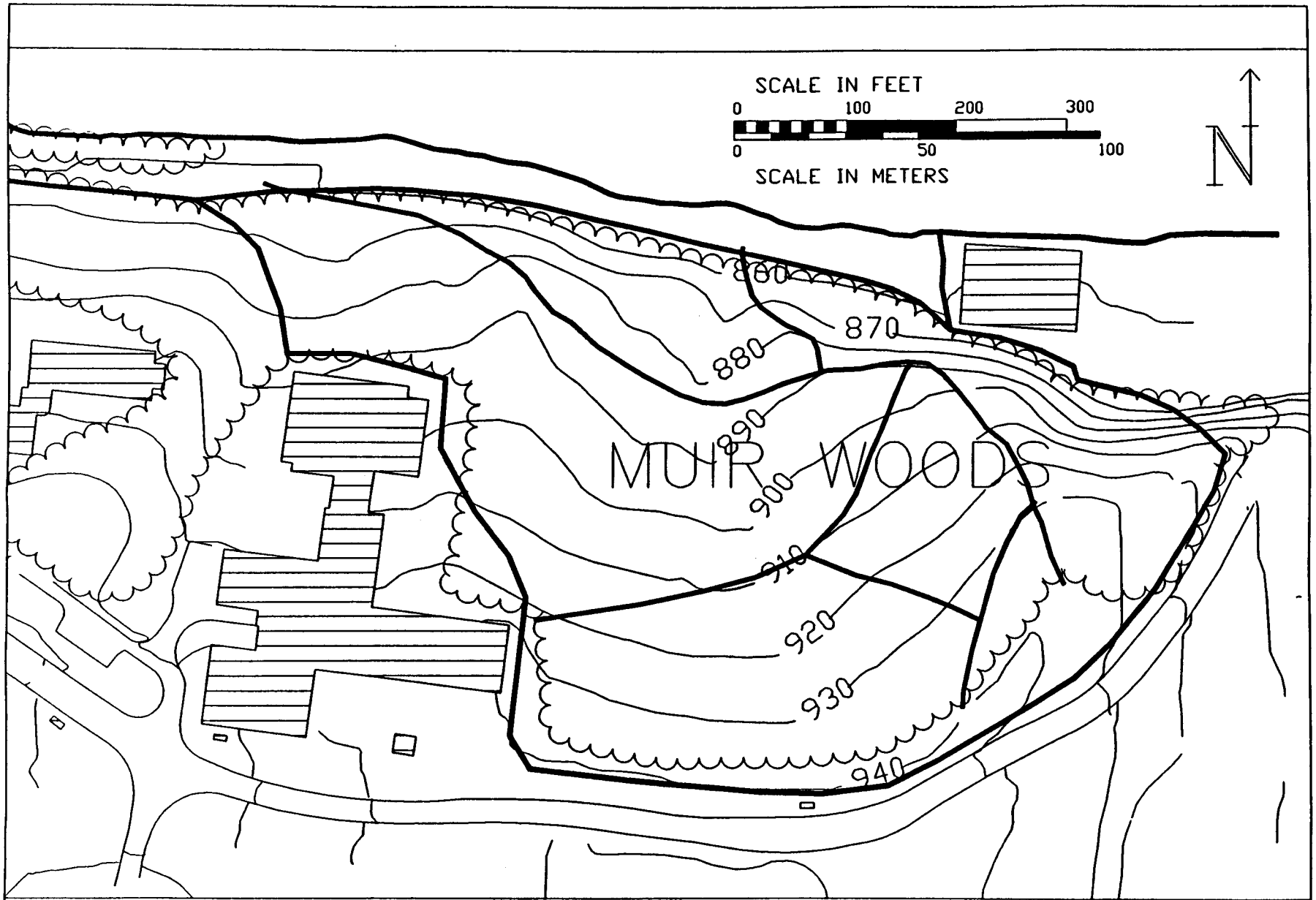

University of Wisconsin - Madison
Campus Natural Areas

Muir Woods

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

ARBORLIS
UW Arboretum Land Information System
UWNATI AUTOCAD FILE OCT 8, 1994
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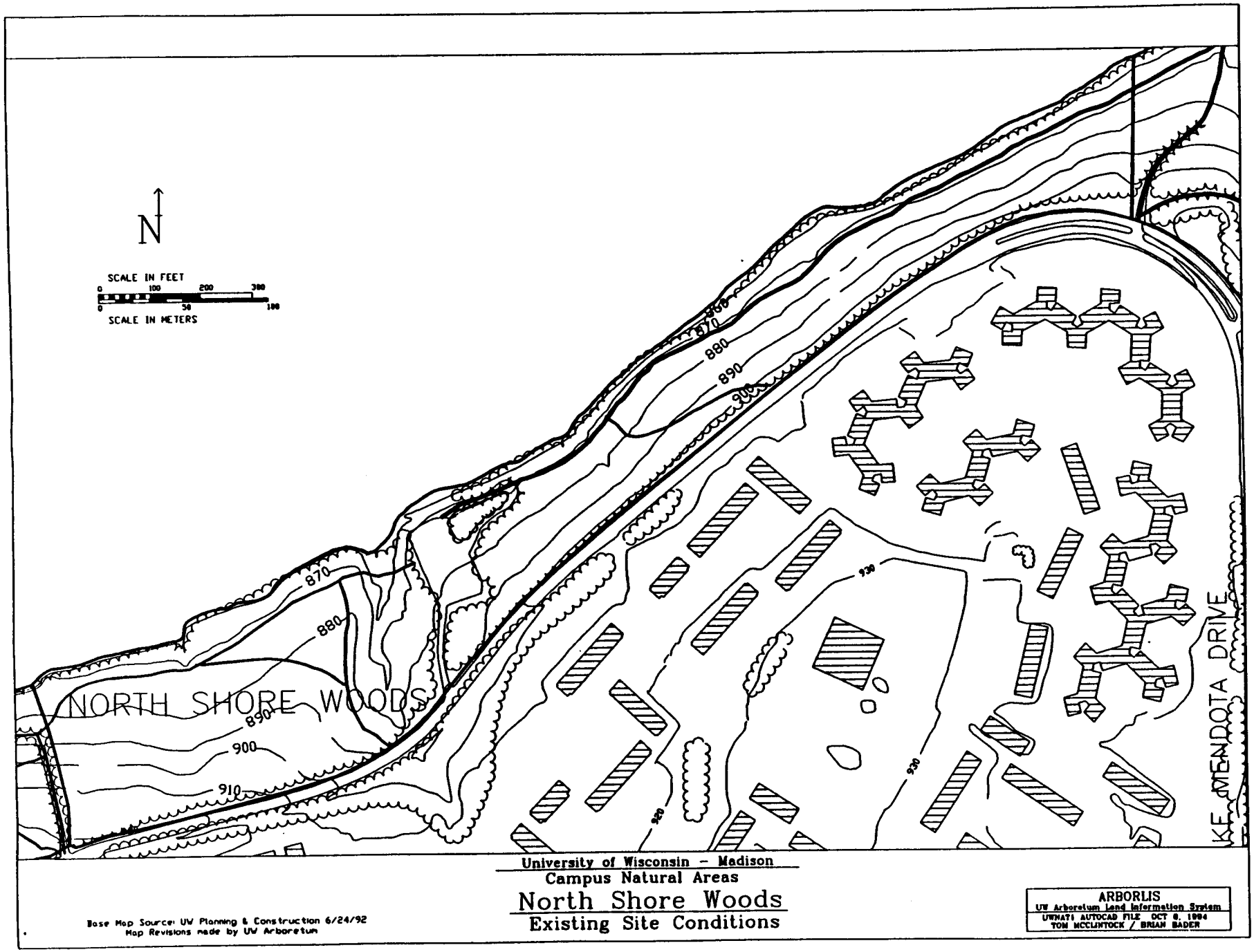

University of Wisconsin - Madison

Campus Natural Areas

North Shore Woods

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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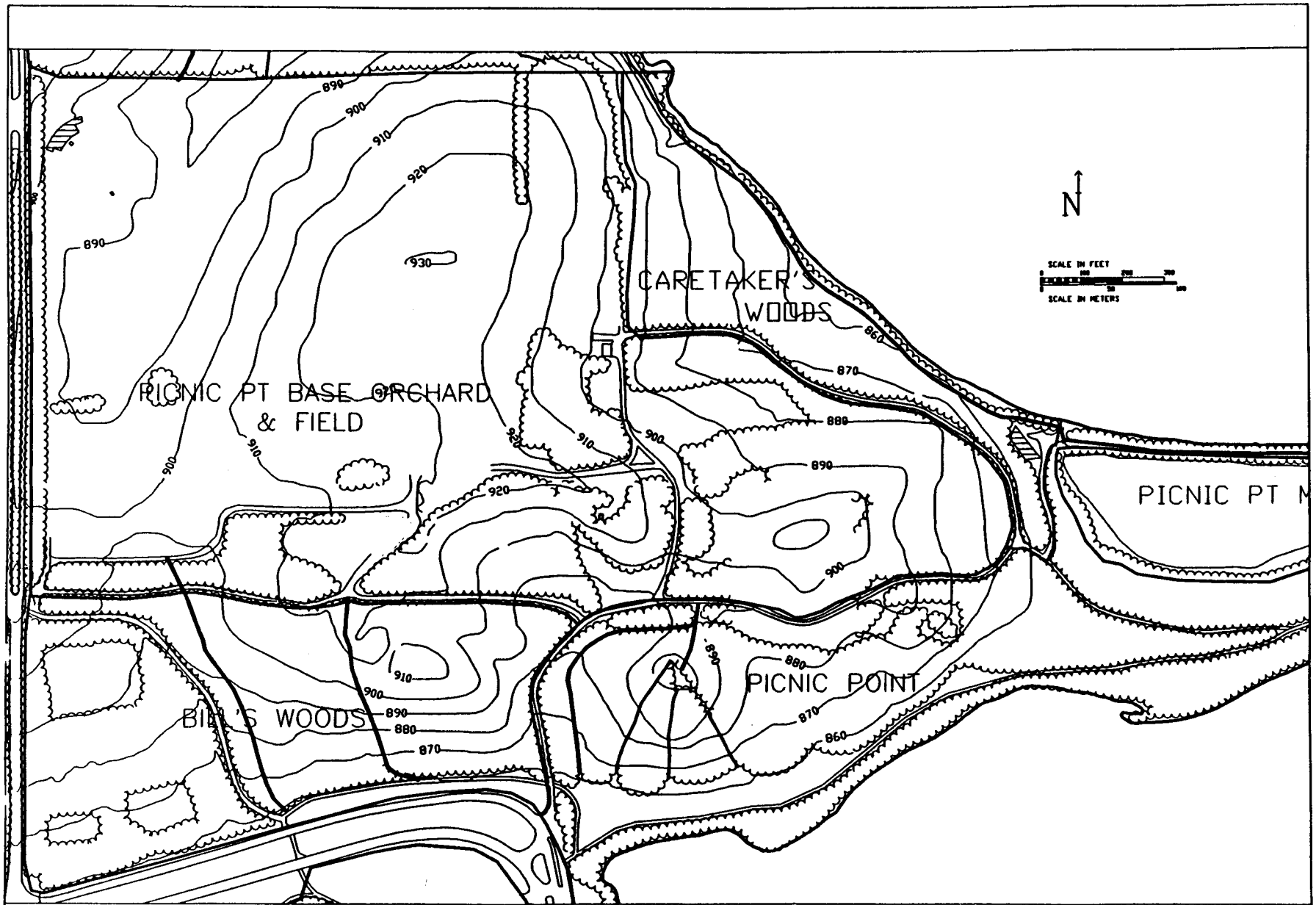

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Campus Natural Areas

Picnic Pt Orchard & Field / Bill's Woods / Caretaker's Woods

Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
Map Revisions made by UW Arboretum

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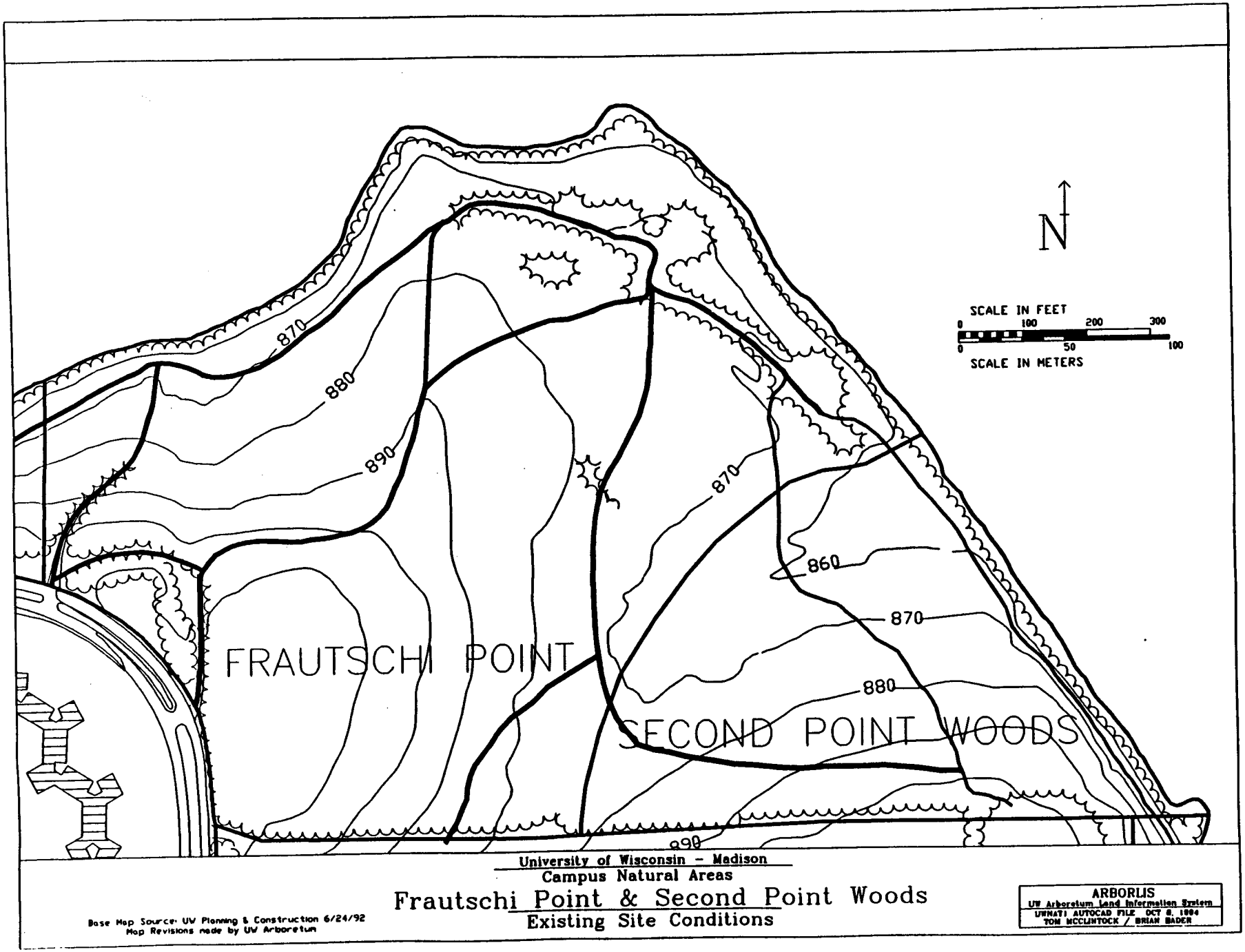

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Frautschi Point & Second Point Woods
Existing Site Conditions

Base Map Source: UW Planning & Construction 6/24/92
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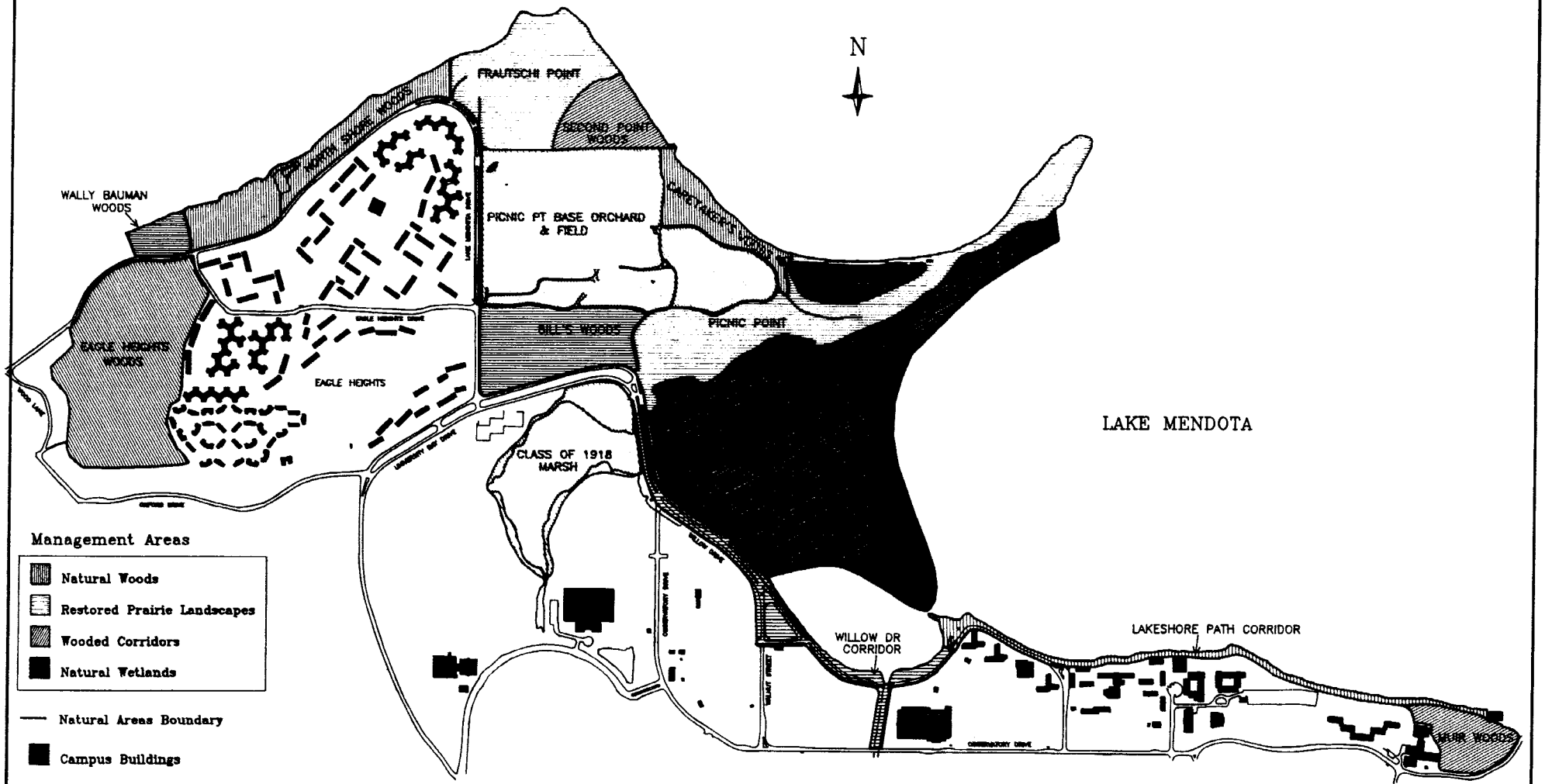

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Campus Natural Areas

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