

# MANAGEMENT PLAN

for

## W.R. BAGLEY NATURE AREA

University of Minnesota, Duluth

Updates and Compilation by the Bagley Nature Area Management Committee  
and Students from 2004 REC 4315: Recreation Management

February 2005

*"A jewel of nature in the heart of campus"*

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## **INTRODUCTION**

Bagley Nature Area is approximately 59 acres of forest and trails owned by the University of Minnesota Duluth. Bagley has one and a half miles of trails for running, hiking, and groomed cross-country skiing. Many groups and organizations use Bagley on a daily basis. University classes use Bagley for its diversity in wildlife, flora/fauna, and old-growth forest. Bagley has many unique features including Rock Hill, which has a lookout/observation deck overlooking the campus and Lake Superior. At the foot of the hill is Rock Pond. There are a number of trails that weave around the rest of the area and provide great contouring and cross-country trails. Bagley's purpose is to serve as an education resource to the UMD community, a recreation site, and arboretum for UMD and the Duluth community.

## **VALUE**

The W.R. Bagley Nature Area is an important resource to the UMD community and the City of Duluth. The area is currently used for instruction in canoeing, camping, nordic skiing, recreation, recreation management design, special populations in recreation, aquatic biology, plant taxonomy, ecology, mapping, art, geography, and outdoor education interpretation.

In a co-curricular function, the BNA is used as a focal point for natural history interpretation and outdoor skills instruction by the Outdoor Program as well as activity based functions with the Recreational Sports Department. In addition, the site is constantly used by clubs and individuals from UMD and the Duluth community as simply a quiet park to visit and enjoy the natural habitat.

## **MISSION**

The W.R. Bagley Nature Area will provide educational and recreational experiences emphasizing year round conservation, environmental education, and

outdoor recreation to University of Minnesota Duluth students, faculty, staff, and Duluth community members.

## **VISION**

The Vision of BNA is to be a resource to its visitors as a teaching tool of outdoor education, recreation and natural sciences. The scope of this plan is to manage the site as an outdoor learning laboratory.

### Significance

- Educational tool
- Recreational opportunity for UMD students, staff, and Duluth community members
- Urban green-space within walking distance of UMD buildings

## **OBJECTIVES**

- Manage for educational and recreational purposes
- Maintain trails and waterways
- Public environmental awareness

## **HISTORY**

The W.R. Bagley Nature Area (BNA) is located on the northwest corner of the campus of the University of Minnesota, Duluth. This approximately 59 acre parcel includes the well known Rock Hill and Rock Pond, as well as a portion of West Tischer Creek (a designated trout stream). Trails for hiking and skiing wind through an old-growth forest of maple, basswood, and oak, as well as past seven distinct habitat areas, each with unique plant and wildlife species.

Much of the land, now known as Bagley Nature Area, was acquired through a variety of land donations and purchases by the University. In 1951 the City of Duluth donated 13.8 acres of tax-forfeited land that was in conservation status to the University for what was to be “a recreation area for winter sports and biology

field work...”. Elizabeth and William Bagley donated approximately 16 acres north of the existing Rock Pond in 1953. Mr. Bagley indicated that he and his family wished the land to “add to the welfare of the UMD student body” and indicated that “the use of the acreage as a nature center would be appropriate.” Additional acres were purchased by UMD through the years.

In 1957 a rope tow for downhill skiing was installed. In 1967 a master plan was created that focused on developing the area as a demonstration multi-purpose recreational facility with an emphasis on opening the area to the “handicapped, elderly, and underprivileged”. Desired management of the area was to focus on native species plantings and retaining the site in its natural environment. As a result of this plan, the University invested \$57,000 which was matched by the U.S. Department of the Interior. These matching funds are known as Land and Water Conservation funds (or LAWCON). Land affected by monies from the LAWCON fund must allow for recreation for the general public. Because boundaries of the land affected by this fund are unclear, it should be assumed that all land within the BNA must remain open to recreation for the general public. The project to dig out and create what is now known as Rock Pond, and to develop trails, ski hill, and bridges was completed in 1971.

Another important step in the history of Bagley occurred in 1990 when the Bagley Nature Area Management Committee was established to organize the management of the area. Through the years this committee has been an ad hoc group of people with representatives from various users of the area. The committee primarily acts as an advisory body to the University, often through the Facilities Management Department (which is funded and responsible for maintenance of the area).

## **FEATURES**

The geographic, geologic, and ecologic features of Bagley Nature Area play a significant role in fulfilling the mission of educational and recreational experiences for UMD students, faculty, staff, and community members.

### **Geographic Features**

Bagley Nature Area can be found on the northwest corner of the UMD campus. Buffalo and St. Marie Streets separate the BNA from the scholastic buildings of UMD on the south side; Arrowhead Road and residences are the Northern boundary. Residential homes and Brainerd Avenue designate the East boundary. Bagley has 1.8 miles of hiking and groomed cross-country ski trails (along with numerous side trails), an abandoned ski hill, and a pond. Evidence of the ski slopes can still be seen.

Bagley Nature Area is a significant part of the UMD campus, not only for its aesthetic values and beauty, but also as a learning tool because of the varied habitats that are found within.

### **Geologic Features**

The geomorphology of Bagley Nature Area consists of hills, creeks, plateaus, a man-made pond, and valleys. Bagley Nature Area is composed geologically of gabbro and basalt rocks. Glaciers created the unique characteristics like Rock Hill as evidenced by the glacial till found on the back side. Natural springs feed into the southeast side of Rock Pond. The north side of the pond feeds into “Bagley Creek” which feeds into West Tischer Creek (a DNR designated trout stream). Throughout history, West Tischer Creek has changed its course through Bagley. Eroded banks and dried creek beds wandering through the Nature Area show evidence of this. Evidence can also be found of agricultural activities: barbed wire, wind-rows of trees. A depression in the land near Field #6 suggests an old house, as well as the planted non-native trees that created wind blocks and decorative landscaping.

## **Ecological Features**

Bagley Nature Area is made up of a Northern Mixed Hardwood Forest. (A sample tree listing is in the Appendix). It is important to manage this land for the various stages of forest succession within Bagley. These stages include new growth, mature forest, and a few old growth stands. Bagley is also known for the plethora of animals that can be found throughout. The majority of animals include small mammals and birds, and a variety of other animals (a list of animals is in the Appendix).

## **ZONE OF USE**

Within the “Recreational Opportunity Spectrum”, Bagley Nature Area is considered to be a Roded Natural Area. Developed roads are not visible from all areas within Bagley; however, they surround it and are less than one half a mile from any spot in Bagley. A second criterion to being Roded Natural is the use of access roads. Bagley has two of these roads, which are used for maintenance access throughout the area. Lastly, there must be clear evidence of human use in the natural area. Bagley meets this criterion through in the form of benches, bridges, stairs, and picnic table, fire-pits, garbage cans and portable toilet.

## **CURRENT USES AND USERS (2004)**

Along with designating its zone of use, knowing the uses and users of an area lets a management team evaluate whether or not the mission and objectives are being met. If it turns out that the unintended users are making up the majority of the users, reevaluation of the mission, or management of the area needs to be completed.

## **Uses**

Bagley Nature Area is unique in that it attracts a wide variety of users. Some of activities are intended and the land is managed to promote them; yet, others are

unintended and could cause damage to the environment or the actual user. To make clear which activities are appropriate in Bagley and which are not we have separated them into two categories.

#### Intended Uses

- Running
- Hiking
- Nordic Skiing
- Nature Observation
- Environmental Classes
- Photography
- Star Gazing
- Maple Syruping
- Leashed Dog Walking
- Snowshoeing (not on groomed ski trail)

#### Unintended Uses

- Biking
- Camping
- Sledding
- Snowboarding
- Alpine Skiing
- Release of Exotic Species\*

\*The release of goldfish/koi into Rock Pond has caused major disruption in the watershed. There are a few main concerns with the goldfish: they can carry a disease called spring viremia which can be transferred to other species, they can hybridise with carp and multiply rapidly (laying 2,000 eggs every 8-10 days), they are bottom feeders that consume a lot of the organisms thereby lowering the diversity, and damaging aquatic vegetation in Rock Pond. The Bagley Management Committee, MN Sea Grant, UMD Facilities Management, and the UMD community addressed the goldfish problem in 2004 by draining the pond

and treating the remaining fish with rotenone. Details on this project can be found at [www.duluthstreams.org](http://www.duluthstreams.org)

The issue of exotic species is not limited to Rock Pond. Rusty Crayfish, and plants such as Japanese Knotweed and Common Buckthorn are also prominent and endangering the diversity of the area.

## **Users**

Users of Bagley are numerous and come from a variety of backgrounds. A large percentage of the users come directly from UMD classes taught in Bagley. Other users enjoy it simply for recreational purposes. We have created a few simple lists categorizing the major groups who frequently use Bagley:

### UMD Classes

- Biology
- Ecology
- Outdoor Education
- Environmental Studies
- Geography
- Education
- Art
- Photography
- Geology

### Recreational Sports Outdoor Program

### UMD Athletics

### Duluth Community Members

### UMD Students, Staff and Faculty

### Surrounding Schools

### Local athletic teams (cross-country running, nordic skiing, track)

## **BAGLEY NATURE AREA MANAGEMENT COMMITTEE**

The W.R. Bagley Nature Area (BNA) has a wide variety of users participating in a wide variety of activities. It is therefore important that the original purpose of this site be maintained while striving to meet the management needs of the users.

To follow through with the mission of the site, it is necessary to bring together the stakeholders in the use of this site to provide direction on specific objectives for use and maintenance of the BNA.

The purpose of the Bagley Nature Area Management Committee (BNAMC) is to serve as an advisory management team for the University and Facilities Management. The BNAMC will be comprised of people who are either directly involved in educational programs using the area, responsible for planning and/or operations of the site, and/or who possess specialized knowledge pertaining to the area, such as its geological significance, biological diversity, and educational potential. In addition, participation should include any person who has a working knowledge of the area including: Community representative, Student representative, Other departmental representatives.

Suggested membership includes:

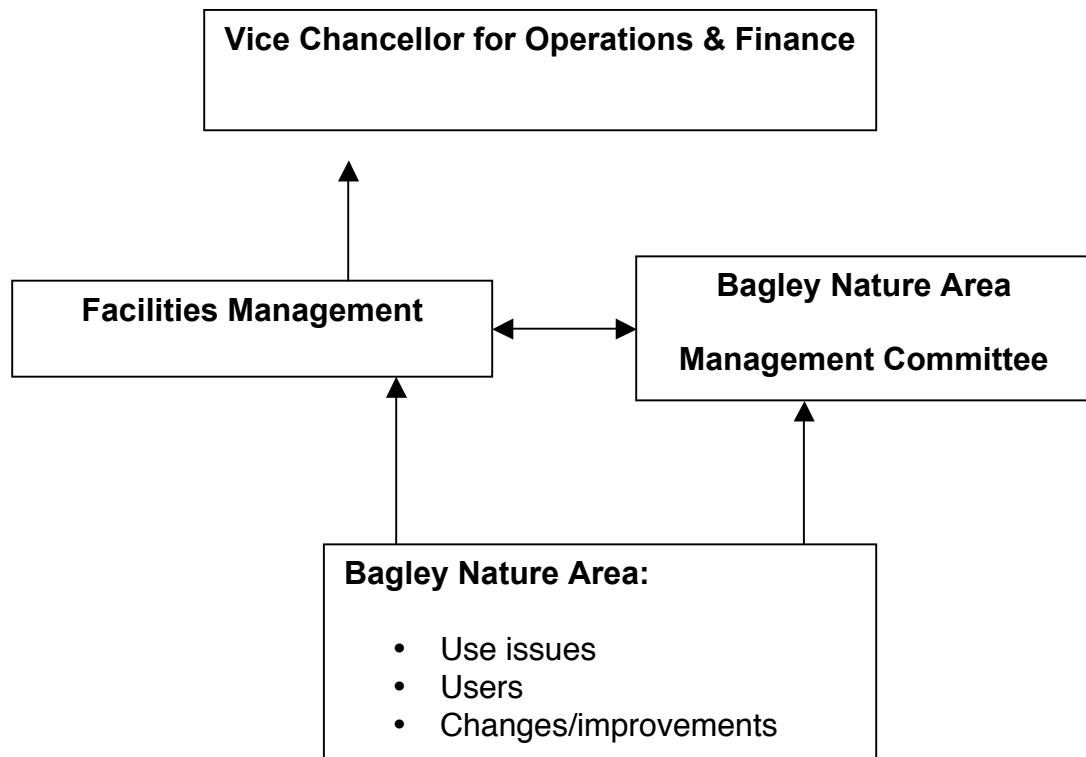
- Director and Assistant Director of Recreational Sports Outdoor Program
- Professor of Outdoor Recreation (H.P.E.R. Department)
- Associate Director of Facilities Management
- Professor of Biology and/or Geology (Biology Dept./ Geology Dept.)
- Housing Administrative Staff member
- Community/neighborhood Representative
- Student Representatives

Any development occurring within the boundaries of the Bagley Nature Area shall be directed to the BNAMC for advisement on direction or appropriate land use pertaining to environmental quality and to maintain a cohesive policy regarding how the area is used.

The BNAMC will serve as advisors to maintain a land use that is appropriate and consistent to the quality of the area.

It is important that the committee continue a position that is neither self-serving to individual members nor is politically influenced.

**Structure:**



**MANAGEMENT OBJECTIVES**

- Maintain use of the BNA that is most conducive to preserving its present state with minimal environmental alterations.
- Provide a natural classroom to serve the needs of the University and the community in environmental education and recreation
- Comply with sound conservation practices and environmental protection with existing and future uses.
- Comply with local, state, and federal legal requirements regarding land use.

- Promote user safety.
- Maintain a philosophy of education of, about, and for the outdoors in this area.
- Maintain a concern and respect for neighbors adjacent to the BNA.
- Protection of the natural state of this site by prohibiting non-compatible activities.

## **RULES**

The general guiding principles for addressing use within Bagley Nature Area are:

- 1) No motorized vehicle use except for service vehicles
- 2) Minimum environmental and social impact
- 3) Minimize conflict with other users

Overall, appropriate or inappropriate use will be based on the mission and purpose of UMD and Bagley Nature Area.

Based on these principles, the following are specific rules:

- Biking/Mtn. Biking is not allowed
- Campfires are allowed only in 2 designated fire rings (top of Rock Hill & near 2nd bridge/bench on walking trail)
- Classic skiing is the priority
- People and dogs need to stay off the ski track
- No bonfires

## **POTENTIAL FUTURE PROJECTS**

### Teaching Nodes

A teaching node is an open grassy area suitable for groups of people to meet and possibly teach a class. Currently, Bagley has two main teaching nodes: the Learning Tree, and Rock Hill. We recommend a few more nodes are created to spread out the human impact away from these already heavily used areas.

Possibilities for locations include next to Field Six softball field and the grassy

area near the trail intersections near the 2<sup>nd</sup> bridge. A picnic table or benches would be helpful.

Impacts:

1. Distributes human impact from the Learning Tree
2. Increases educational carrying capacity

### Pavilion/Shelter

Our recommendation for creating a pavilion at Bagley Nature Area stems from the need to disperse impact from the Learning Tree as well as the need to shelter classes from inclement weather. It is recommended that a pavilion made of non-destructible material be placed at a centrally located site. Picnic tables and a fireplace could be incorporated within it.

Impacts:

Allows classes to commence in increment weather

### Scheduled Use

In order to utilize the recommended teaching nodes, and to minimize classes overlapping use at Bagley, we recommend a schedule be developed to alert instructors as to when certain areas are occupied. To do this, we suggest initiating an email alias that includes all instructors who use Bagley as an educational tool. Scheduling Bagley would not mean that only one class could be out there at a time; it would mean that instructors could plan accordingly if the Learning Tree node was occupied and plan to teach their lesson from a different teaching node. More direction from BNAMC is needed.

Impacts:

1. Better communication between users and the BNAMC
2. Some groups may not want to take the time to schedule a teaching node and therefore would not continue to use Bagley.

### Scheduled Garbage Pick-Up

Seeing trash along the trails, in the parking lot, and heaping over the garbage cans is not a pleasant sight to see when trying to observe the natural beauty Bagley has to offer. One option is to have campus groups such as MPIRG, BSA, Chi Alpha, or any other recognized group adopt parts of Bagley Nature Area to do the pick-up as part of a community service project. Another option would be to have Residents that receive sanctions for violating Housing policies work to pick up trash in the Bagley area as a part of their service hours.

Impacts:

1. Cleaner trails, more aesthetically pleasing
2. Users recognize the impact they have on Bagley Nature Area

## **Public Awareness Education**

### Interpretive Trail

Hikers make up a significant percentage of Bagley Nature Area Users. There are currently plans to include the trails within Bagley into the Superior Hiking Trail. Having an interpretive trail is a passive way to educate the public about what they are hiking through. It gives them a sense of place and makes an experience they can share with others through the knowledge they gain on the trail. We recommend either creating pamphlets at the trailhead, or posting signs along the trail.

Impacts:

1. Guided Discovery for Community and UMD Students
2. Educate the user

### Bagley Nature Center (Draft – not yet approved by BNAMC)

Bagley Nature Area is becoming recognized as a learning laboratory more and more each year at UMD. The idea of creating a Nature Center in Bagley is not a new one. It was first brought up with the Bagley donation back in 1953. The 1968 “Proposed Development Plan” included a “Chalet” with a visitor orientation area, tour center, and picnic shelter. Another proposal was put forth in 1988 for an Interpretive Center, complete with site selection and architectural plans (this

was not built due to costs). In 2001, a Student Representative on the Bagley Board again brought up the idea. Having a center in Bagley would mean a centralized location for programs to start. The Audience would not have to walk from campus to Bagley to finish a lesson that requires indoor lessons as an introduction. Options discussed as possible locations include the volleyball court area behind Oakland Apartments, the grassy area northwest of Rock Pond, and the acquisition of the private land within the boundaries of Bagley Nature Area.

Impacts:

1. Centralized meeting place for programs
2. Classroom for UMD Students

## **Kiosk Education**

### User signage

The kiosk is located at the entrance to Bagley Nature Area. This is an excellent place to promote public education about issues affecting Bagley such as the release of exotic species, why mountain biking is not allowed on Bagley trails, and why dogs need to be kept on a leash and picked up after.

Impacts:

1. Decrease in unwanted activities
2. Increase in user knowledge

### Updated Trail Map

The current trail map does not show easily which trails are groomed for cross-country skiing and which are for hiking. It also does not do a good job of informing the public that mountain biking is not allowed. Updating the sign would also allow the recent joining of Recreational Sports Outdoor Program to be noted on the map.

Impacts:

1. Less confusion with users
2. Visually stimulating

## **Miscellaneous**

### Enforcement

It may be a good idea to have a member of Campus Police on the proposed Bagley email alias so that communication between the Board and the police improves. Currently, there is confusion about what is and isn't allowed in Bagley, such as the issue of bonfires and picking up after dogs as well as how enforcement would occur. The BNAMC needs to get clarity from campus police on this.

Impacts:

1. Better communication
2. Users feel safer knowing the area is being enforced by the authorities

### Bagley Management Committee

We recommend that the Committee become a recognized committee on campus instead of just an ad hoc committee that meets whenever there is an issue to discuss.

Impacts:

1. Better management of Bagley Nature Area
2. Cooperation and organization increases

## **Other Possible Projects**

- Removal of exotic, invasive plant species including buckthorn and purple loosestrife. A high priority should be in the removal of mature, seed bearing buckthorn. Purple loosestrife in Eric Clark Pond should be dealt with to prevent spreading into Rock Pond.
- Development and follow through of a forest management plan
- Widen buffer zone around Rock Pond and plant with native trees/shrubs
- Install semi-permanent observation blind adjacent to Rock Pond
- Install waterfowl nesting platforms and turtle platforms on Rock Pond

- Develop a wheelchair accessible loop around Rock Pond – limestone
- Improve the water quality of Rock Pond through various research and lakescaping projects

#### **NECESSARY ANNUAL/REGULAR MAINTENANCE & RESPONSIBILITY**

- Mowing of area east of Rock Pond, between pond and 1st bridge, top of Rock Hill (weekly or every other week) - Facilities Mgmt.
- Wood chipping of ski trails - yearly - Facilities Mgmt.
- Removal of deadfall from trails - as needed - Facilities Mgmt.
- Ski trail - clearing of encroaching brush - yearly - Outdoor Program
- Installation and removal of ski trail signs - Outdoor Program
- Cleaning of site at top of Rock Hill - Facilities Mgmt.
- Trash can pick up - Facilities Mgmt.
- Law enforcement - Campus Police

## APPENDIX

### Trees

The trees within the boundaries include:

- Paper Birch (*Betula papyrifera*)
- Yellow Birch (*Betula alleghaniensis*)
- Quaking Aspen (*Populus tremuloides*)
- Large Tooth Aspen (*Populus grandidentata*)
- Balsam Poplar (*Populus balsamifera*)
- Sugar Maple (*Acer saccharum*)
- Red Maple (*Acer rubrum*)
- Mountain Maple (*Acer spicatum*)
- Boxelder (*Acer negundo*)
- Red Oak (*Quercus rubra*)
- Speckled Alder (*Alnus rugosa*)
- Ironwood (*Ostrya virginiana*)
- Elm (*Ulmus americana*)
- Black Ash (*Fraxinus nigra*)
- Red Pine (*Pinus resinosa*)
- White Pine (*Pinus strobes*)
- Jack Pine (*Pinus banksiana*)
- Scotch Pine (*Pinus sylvestris*)
- Balsam Fir (*Abies balsamea*)
- N. White Cedar (*Thuja occidentalis*)
- American Basswood (*Tilia americana*)
- Kentucky Coffeetree (*Gymnocladus dioica*)
- Common Buckthorn (*Rhamnus cathartica*)
- Apple (*Malus*)
- Crab Apple (*Malus*)

### Wildflowers

Native and non-native wildflowers can be found through out the year. Commonly seen species include:

#### Native Wildflowers

- Large-leaved Asters (*Aster macrophyllus*)
- Wood Anemone (*Anemone quinquefolia*)
- Nodding Trillium (*Trillium ceruum*)

- Jack-in-the –Pulpit (*Arisaema*)
- Marsh Marigold (*Caltha palustris*)

#### Non-native Wildflowers

- Valerian (*Valeriana officinalis*)
- Bull Thistle (*Cirsium vulgare*)
- Common Tansy (*Tanacetum vulgare*)
- Cow Parsnip (*Heracleum maximum*)
- Nightshade (*Solanum dulcamara*)
- Tartarian Honeysuckle (*Lonicera tatarica*)

### **Animals**

The following have been identified throughout the BNA, some are native, and some have been brought here from other areas around the globe:

- |                          |                     |
|--------------------------|---------------------|
| ○ Red and Gray Squirrels | ○ White-tailed Deer |
| ○ Flying Squirrels       | ○ Bullheads         |
| ○ Chipmunk               | ○ Field Mice        |
| ○ Red Fox                | ○ Red backed Vole   |
| ○ Cottontail Rabbit      | ○ Pine Martens      |
| ○ Snowshoe Hare          | ○ Fisher            |

### **Edible Plants**

The following list is compiled of plants that may or may not have been previously mentioned. All are considered wild edibles of Bagley.

- Red Elderberry
- Cattail
- Burdock
- Staghorn Sumac
- Acorns
- Pine Needles
- Wild Onion
- Jack in the Pulpit
- Red Clover
- Sweet White Clover
- Japanese Knotweed
- Mountain Ash
- Mullien
- Plantain
- Balsam Fir
- Spruce
- High-bush Cranberry
- Spiny-leaved Sow Thistle
- Bull Thistle
- Crab Apple
- Basswood Bud
- Skunk
- Raccoon
- Earthworms
- Rusty Crayfish
- Black Bear
- Moose
- Painted Turtle
- Green Heron
- Beaver