

Natural Resource Recommendations

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Natural resource types within Hartley Park



Introduction

As a regionally significant natural area, Hartley Park is recognized for its unusual expanse, landscape diversity and water resources. The Park's northern hardwood forests and wet meadows are among the largest of their type in the Duluth area. However, the Park's ecological importance and recreational value are diminished by three major threats:

- » The dam on Tischer Creek which impairs riparian and fish habitat on nearly one mile of Tischer Creek, a DNR designated trout stream
- » Invasive plant species which are present in nearly all areas of the Park and spreading

- » Failure to proactively thin and replant forests planted in the 1940's that are now unnaturally uniform in age and species composition

Preservation and restoration of natural resources is unusually important to the use of Hartley Park in light of the Park's City Council-declared purpose to: "Foster and enhance educational and recreational activities aimed at promoting the preservation of, learning about, and understanding of the natural environment of the Duluth area."

Because of this unique purpose, and the long tradition of nature-focused education, recreation and ecological data collection in the Park, ecological restoration is not only essential to the extensive environmental education

programming occurring in the Park, but it is integral to place-appropriate recreational use. Development and use of all Park improvements are tailored to the unique purpose of Hartley as Duluth's premier nature-based park.

Recognizing that the Park's use is as a regional laboratory, classroom and showcase for ecological restoration, the primary purpose of natural resource recommendations is to restore the natural conditions that prevailed before the land was cleared and developed. Other important resource management goals are to preserve landscapes valued for their appearance and/or history and protect property and people from harm. The recommendations in this



plan address each of the unique plant communities and water resources within Hartley Park, as well as suggest opportunities for invasive plant management, education and environmental programming. As indicated in the Native Plants report, it is important to avoid disturbance in areas of high plant community rankings. Invasives should be managed, especially buckthorn, to allow for native plant areas to become established.

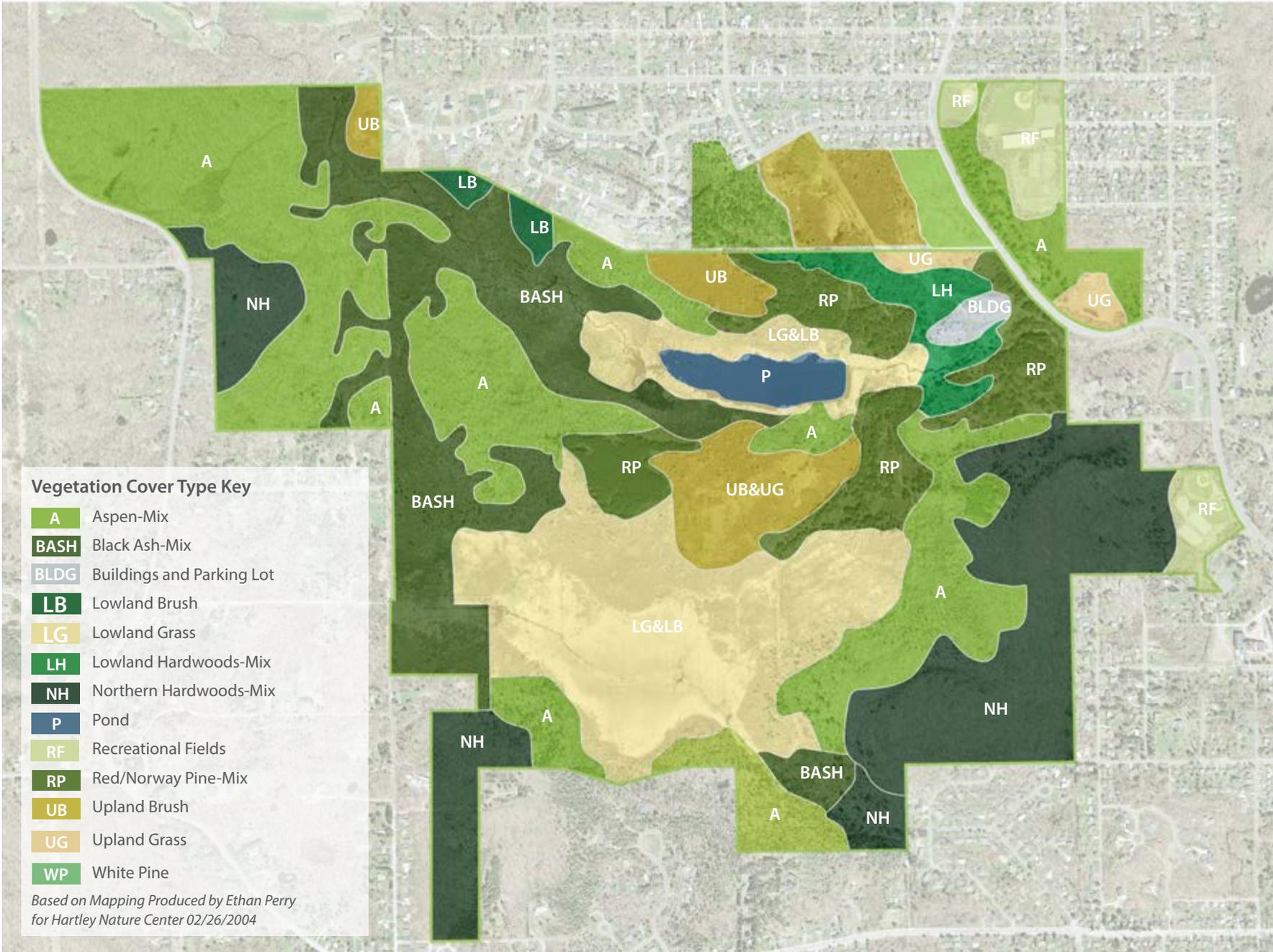
Management Recommendations

Existing plant communities were mapped into vegetation cover types as seen on the map on page 22. Cover types were then consolidated into the following vegetation groups based on their specific needs and management recommendations.

- » Red/Norway Pine
- » Aspen Mix
- » Northern Hardwoods
- » Lowland Hardwoods
- » Lowland Brush and Grasses
- » Upland Brush and Grasses

Management recommendations also include methods to avoid potential risks to vegetation and describe the benefits of selective thinning.

Management Recommendations



Existing vegetation communities





Thinned Aspen stand at age 44 near Grand Rapids, Minnesota



Thinned Hardwood stand in northern Minnesota

Benefits of selective thinning and small selected group removal

- » Create openings, which will enhance wildlife habitat and woodland diversity
- » Create better tree spacing and reduce competition, which will enhance tree and overall forest health
- » Encourage diverse natural plant regeneration, optimum tree growth and health, and canopy layering, which enhances both woodland and wildlife habitat diversity
- » Reduce tree stress due to competition and, in the red pine stands, reduce the potential infestations of and mortality due to pine bark beetles
- » Reach the desired future forest conditions faster and the forest will be healthier overall

Red/Norway Pine

- » The purpose of red pine management in the Park shall be to increase the species and age diversity of the red pine plantation in a manner that also preserves the survival of mature red pines and the stand's cathedral-like feeling
- » Thin the pine stands that have not been thinned to date by removing approximately 1/4 to no more than 1/3 of the stand. If possible, "snake" rows to create a more natural appearance and also randomly select trees from each side of these rows to create gaps for planting
- » After thinning, plant a variety of seedlings in openings in order to increase forest diversity and sustainability and to protect forest health. Suggested species for planting include white pine, white spruce, paper birch, balsam fir, northern white cedar (in moister areas) and native berry or nut-producing shrubs. Due to browse pressure, all trees will need to be protected
- » To illustrate the ecological consequences of various forest management practices, the City and Hartley Park partners may consider designating some adjacent areas to "leave alone"
- » Selectively thin these stands two more times and approximately 5-7 years apart, again removing approximately 1/3 of each stand in each of the thinning sequences



Red Pine stands at the Cloquet Forestry Center (managed stand)



Red Pine stands at the Cloquet Forestry Center (ice storm damage)



Red Pine stand in Hartley Park invaded by Glossy Buckthorn



Red Pine Stand in Hartley Park



Aspen Stand in Hartley Park



An Aspen Stand at age 45, Brule River State Forest, WI DNR



Thinned Aspen Stand; Grand Rapids, MN



An Aspen "left to grow" to age 56 years, Brule River State Forest, WI DNR

Aspen Mix

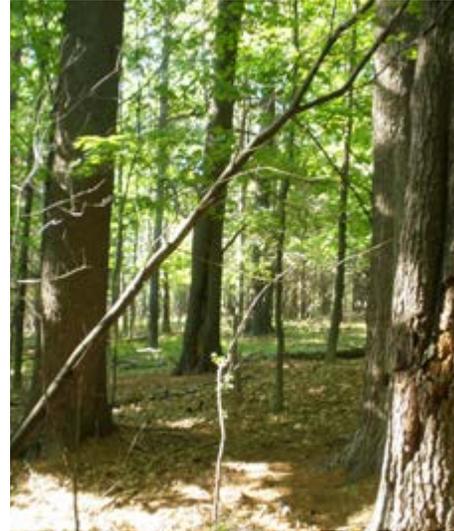
This type is an early successional forest type, which relies on disturbances such as pasturing, land clearing, thinning or fire. The species growing within this type require full sunlight to reproduce and grow well.

- » Conduct selected group removal in order to enhance tree growth and health as well as to create tree age-class and species diversity. Thin these areas in conjunction with other types or stands in the Park
- » Allow openings to naturally regenerate or plant these areas with suitable and desirable species

Northern Hardwoods

A Northern Hardwoods type is a late successional forest type, which means that there has been a lack of recent or very minimal disturbances in these areas. The plant species growing in this type are generally shade-tolerant species, which will naturally reproduce and grow well in shadier conditions.

- » Conduct thinning or selected group removal in order to enhance tree growth and health as well as to create tree age-class and species diversity. Thin these areas in conjunction with other types or stands in the Park
- » Allow openings to naturally regenerate or plant and protect these areas with suitable and desirable species



*Northern hardwoods stand in northern Minnesota
unknown location*



*Thinned hardwood stand in northern Minnesota
unknown location*



Lowland hardwoods in Hartley Park

Lowland Hardwoods

Located near the drainages in the wetter areas within the Park.

- » Conduct thinning or selected group removal in order to enhance tree growth and health as well as to create tree age-class and species diversity. Thin these areas in conjunction with other types or stands in the Park

Lowland Brush and Grasses

- » Reintroduce native shrubs and grasses in these areas
- » Manage invasives, especially buckthorn, to allow for native plant areas to become established



Upland Brush and Grasses

- » Reintroduce native shrubs and grasses in these areas
- » Manage invasives, especially buckthorn, to allow for native plant areas to become established



Brush and grasses in areas throughout Hartley Park



Tree Risk Management for Building, Parking Lot, and Trail System Corridors

- » Assess all trees for hazardous risk removal
- » Mitigate risks by pruning or removing trees
- » Conduct assessments within high risk zones after large storm events
- » Allow for fallen trees that do not pose a risk to the general public to remain for wildlife habitat

Ensure that high risk trees along trails or facilities are assessed regularly to ensure public safety.

“Leave it Alone” Vegetation Management Option

This option may be suitable for areas of high quality plant communities; however, doing nothing in other areas may have the following ramifications:

- » Risk the long term health of the entire forest, especially the pine stands
- » Will not necessarily improve and may hinder the biodiversity of plant and wildlife species within the Park



Large Red Pine stand with Glossy Buckthorn understory in Hartley Park



Northern hardwood stand near Woodland Recreation Area