

# Vegetation and Shoreline Management Plan

Prepared for: **Ernest C. Oberholtzer Foundation Islands**  
**(Mallard, Crow, Gull, and Hawk), Rainy Lake, Minnesota, USA**

First Approved 2003  
Revised 2007, 2012, 2023

NW SE OF LOT 6 MALLARD ISLAND  
(PID# 07-019-00600, 1.89 acres)

PART OF GOVERNMENT LOT 6 CROW ISLAND  
(PID# 07-019-00630, 10.83 acres)

PART OF GOVERNMENT LOT 6 HAWK ISLAND  
(PID# 07-019-00610, 3.06 acres)

PART OF GOVERNMENT LOT 6 GULL ISLAND  
(PID# 07-019-00620, 3.06 acres)

of  
Section 19  
Township 71 North, Range 22 West  
Koochiching County



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*References to Conservation Easement articles and language in the following document are marked as (CE)*

**\*\*NOTE: This document is interactive.**

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- Click any [blue](#) heading below to return to this

# Plan Background and Vision

## Plan Background and Vision

### ***Introduction:***

This is a Vegetation and Shoreline Management Plan for the property held and managed by the Ernest C. Oberholtzer Foundation. The property now consists of four islands on Rainy Lake—Mallard, Crow, Hawk and Gull.

Mallard, Crow and Hawk were owned by Ernest Oberholtzer at the time of his death at age 93 in 1977. Mallard Island became Ober's from Wm. Hapgood on July 27, 1928. Crow and Hawk islands became Ober's from Wm. and Katherine Hamill on June 1, 1950. Gull was deeded to the Ernest C. Oberholtzer Foundation by Rody Hall in July 1995, but not managed by the Foundation until after Ted Hall's death in September 2003.

Those four islands (plus the adjacent Fawn Island not owned by Oberholtzer) are collectively known (and sometimes shown on maps) as the Review Islands.

The Foundation's Mission Statement is:

*The Ernest C. Oberholtzer Foundation fosters and maintains Ober's legacy and north woods island home as a source of inspiration, renewal, and connection to Indigenous peoples, kindred spirits, and the natural world.  
Gi-be-zhi-goo-min (We are all One)*

Peggy Smith, at the request of Jean Replinger, Program Director in 2002, was asked to work with a committee of Kent Scheer, Pam and Darrell Rundell, and Steve and Elaine Thrune, to draft a Vegetative Management Plan for submission to the Foundation Board. Peggy had not only provided that kind of advice from many work weeks on Mallard Island, she is also a Registered Professional Forester (licensed with the Ontario Professional Foresters Association in Ontario, Canada). The Foundation Board officially accepted the first draft of Peggy's plan in 2003.

Subsequently David Markwardt was added to the committee; Kent Scheer was not able to continue. Each member of the committee had spent a number of summer visits on the island working with island vegetation, including restoring gardens, tree pruning and removal, and trail development.

The plan was reviewed and updated to include all four islands in the summer of 2007. The Foundation Board approved the updated plan by email immediately following their June 2, 2007, meeting where the revised document had been distributed. The plan was revised in 2012.

# Plan Background and Vision

In 2023, Koochiching Soil and Water District Forest Resource Specialist conducted field work and updated the plan at the request of the Foundation Board. In addition to updating vegetation lists and forest conditions, five topics of special focus were identified by the Board at that time: 1) the safety of buildings and people, 2) fire suppression strategies, 3) flooding—damage and strategies for future, 4) identification of trees that are adapted to climate change, and 5) invasive species control (chemical and nonchemical).

## ***MANDATE AND DECISION-MAKING***

Recommendations for changes to this Vegetation and Shoreline Management Plan, and the ongoing tasks associated with it, will be formulated by the Vegetation Management Committee. This Committee currently consists of Peggy Smith (Chair), David Rolloff, Steve and Elaine Thrune and Tim Younquist. The Committee will consider the input of program participants, scientific and traditional knowledge, committee members and Board members. Recommendations for changes to the Plan will be approved by the Board. Copies of revised Plans must be submitted to the Minnesota Land Trust (CE s. 3.3).

## ***BACKGROUND/HISTORY***

Crow, Gull, Hawk and Mallard islands sit in the midst of the Rainy Lake watershed, "a unique meeting place of three great North American ecosystems: the boreal, the eastern pine, and the northern hardwood." The Review Islands are located west and north of Voyageurs National Park in Rainy Lake between the much larger Grassy and Jackfish islands. The border between the United States and Canada is approximately one mile northeast of the Review Islands. Latitude is approximately 48°37'10" N and longitude 93°12'16" W. The islands are small, rugged, and rocky, ranging in size from two to ten acres, collectively including more than 10,000 feet of shoreline.

On April 27, 2000, the Minnesota Historical Society entered the Foundation's property on the National Register of Historic Places. Shortly after, the Foundation began the process to establish the islands as a Conservation Easement through the Minnesota Land Trust. The Easement was granted on June 18, 2008. Any conditions set by the Easement related to vegetation and/or shorelines are incorporated into this plan.

Oberholtzer described the area:

*This is one of the rarest regions of the continent, if not the world. Nowhere else is there to be found so precious and picturesque a combination of water, rock, and forests, all linked together in a single maze of bewildering beauty.*

## Plan Background and Vision

Oberholtzer had a special tie to the Anishinaabe (Ojibwe) people living in the watershed and in some ways shared their beliefs in the sacredness of the land and the connection between all living things. Ober documented much of the traditional lifestyle of the Anishinaabe on Rainy Lake through audio interviews with local Anishinaabe people, journal descriptions and photographs. This historical record is invaluable in understanding the area's early 20th century natural history. In his own romantic way, Ober acknowledged the management of these forested lands by the Anishinaabe:

*Myriads of moccasined feet, leading far back into the dim past, have worn them [portage trails] smooth. They are the only monuments of a race as free, as evanescent, as the birds and the flowers. Nature made the border Lakeland—a maze of delectable lakes, interspersed with islands like some inland archipelago; man—ancient Americans—made the trellis of portages. (Oberholtzer, “Portage Philosophy”, American Forests, n.d.)*

Anishinaabe people who knew Oberholtzer continued to visit the islands and new generations now deliver programs to promote the protection of their language and culture. The Foundation Board continues to find ways to renew their connection to and learning from the Anishinaabe people, including incorporating ceremony and an Elder-in-Residence for summer programming. For many, although considering all forest land as sacred, Mallard Island is a special sacred place on Rainy Lake.

# Islands and Landscape Descriptions

## Islands and Landscape Descriptions:

### ***Border Lakes Ecological Subsection and Voyageurs Bedrock Complex Land Type Association***

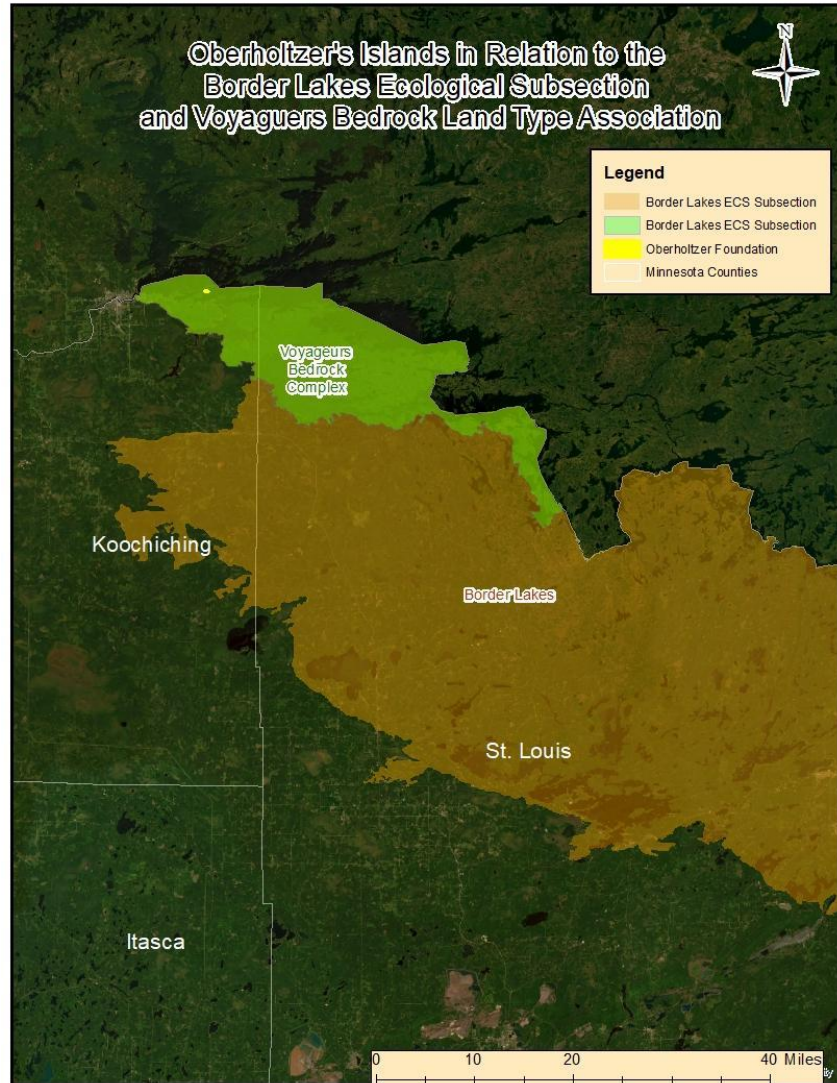
The Minnesota Department of Natural Resources and the U.S. Forest Service have developed an Ecological Classification System (ECS) for ecological mapping and landscape description. Ecological land classifications are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The system uses associations of biotic and environmental factors, including climate, geology, topography, soils, hydrology, and vegetation.

The Oberholtzer property is situated within the Border Lakes landscape region and more precisely the Voyageurs Bedrock Complex Land Type Association. The purpose of providing this "landscape region" is to help assemble a picture of how Ober's islands and activities conducted there fit into the larger landscape. It is likely that at least some activities will affect these larger scale issues.

#### *Discussion*

The extent of this subsection was determined primarily by the extent of the bedrock-controlled landscape. The southern and western boundaries were based on LTA-level boundaries on the Superior National Forest.

Lakes and rocky ridges characterize this landscape of glacially-eroded bedrock and poor soils. Historic forest types on uplands were mostly aspen-birch, aspen-birch-conifer, and on dry sites, jack pine barrens. Much of this subsection consists of the BWCA, which is an



# Islands and Landscape Descriptions

internationally known wilderness area. Recreation, tourism, and forestry are the major economic land uses.

## *Landform*

This subsection consists of scoured bedrock uplands or shallow soils on bedrock, with a large numbers of lakes. Glacial ice moved from west to east across the subsection, deepening stream valleys in the bedrock. Long, east-west oriented lakes now occupy these enlarged valleys (Dept. of Soil Science, Univ. of Minnesota 1981b). Topography is dominantly rolling with irregular slopes and many craggy outcrops of bedrock. Eagle Mountain, topping out at 2301 feet, is the highest point in Minnesota.

## *Bedrock geology*

Thin glacial drift covers much of the subsection and bedrock exposures are common (Dept. of Soil Science, Univ. of Minnesota 1981b). The subsection has Precambrian-age (Late Archean and Early Proterozoic) bedrock, including gneiss, undifferentiated granite, and metamorphosed mafic to intermediate volcanic and sedimentary rocks (Sims et al. 1970c, Morey 1976).

## *Soils*

The soils are derived from a mantle of acid, cobbly, and gravelly glacial till of variable depth. Coarse-loamy to coarse soil textures are most common. There are small areas of sandy and clayey lacustrine soil in the western portion of the subsection. About 5% of the unit is occupied by organic soils. The soils are classified as Ochrepts, with localized Aquents and Hemists (Anderson and Grigal 1984).

## *Climate*

The subsection has a cool continental climate, with short warm summers and long winters (Heinselman 1973). Annual precipitation averages 28 inches and the mean annual temperature is 2 degrees C. Growing season length ranges from 108 to 123 days (Dept. of Soil Science, Univ. of Minnesota 1981b).

## *Hydrology*

There are over 300 lakes larger than 160 acres; these cover about 13% of the subsection's surface (Dept. of Soil Science, Univ. of Minnesota 1981b). The drainage network is very angular due to development in shallow sediments over bedrock. Rivers traversing this subsection include the Vermilion, Sioux, Moose, Portage, Kiwishiwi, and Brule.

## *Pre-settlement vegetation*

Using 150-year-old surveyor's notes and bearing tree identification, F.J. Marschner's (1974) forest species reconstruction project mapped much of the subsection as jack pine forest, white pine-red pine forest, and hardwood-conifer forest. The latter community was dominated by balsam fir (*Abies balsamea*), white spruce (*Picea glauca*), paper birch (*Betula*

# Islands and Landscape Descriptions

papyrifera), and quaking or trembling aspen (*Populus tremuloides*). Fire dependence characterizes these forest types. Jack pine is most prevalent in the two areas where the landscape is least dissected by small lakes, north of Vermilion Lake and within and north of the Sawbill Outwash Plain. Areas most dissected by lakes are where white pine-red pine forests are most common, probably as a result of partial fire protection (Albert 1993).

## *Present vegetation and land use*

Most of the subsection remains forested, with most forest types persisting with stand composition and structure similar to that present when Oberholtzer occupied the islands. Logging occurred within the subsection, but large areas remain unlogged. Heinselman (1973) maintained that this was because of the relatively sparse densities of forest stands, particularly white and red pine. Grigal (personal communications), however, maintains that the lack of logging was also partially the result of two other factors. The first of these was inaccessibility. The second was that by the time timber harvesting began here, public sentiment for preservation had begun to be heard.

## *Natural disturbance*

The average interval between significant fire years was about four years in pre-settlement time and a natural fire rotation of about 100 years was characteristic of the area (Heinselman 1973). Lightning caused many fires; the importance of Indigenous people's fire management in the area has not been established. Heinselman's work indicated that major fires occurred during drought years. Major drought years occurred 2-3 times per century. The timing of the fire—spring or fall—determined how severely soils burned and which tree species regenerated. Pollen records indicate that the fire history has not changed substantially for several thousand years.

## *Conservation concerns*

The Minnesota DNR has identified 69 Species in Greatest Conservation Need (SGCN) that are known or predicted to occur within the Border Lakes. These SGCN include 15 species that are federal or state endangered, threatened, or of special concern. Examples of these species are bald eagles, Canada lynx, spruce grouse, great gray owls, black-backed woodpeckers, yellow rails, boreal owls, trumpeter swans, boreal chickadees, merlins, red-necked grebes, northern bog lemmings, and lake sturgeon. The greatest factors affecting these species within this region are habitat loss and habitat degradation. For more information about habitat needs and "wild and rare" species, see the link below for the MN DNR's Border Lakes subsection Action Plan For Minnesota Wildlife:

[https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/border\\_lakes.pdf](https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/border_lakes.pdf)



# Islands and Landscape Descriptions

## ***Watershed Description:***

Water is an important cultural resource for northern Minnesota. It is important for property owners/managers to understand why and how water quality decisions made on a relatively small area of land can impact the interconnected water flowage system of an entire continent. Levels of watersheds are broken down like puzzle pieces within the last larger category with each level draining a smaller area of land into a smaller watercourse. Starting at the largest level, Rainy Lake, and Rainy River at its outlet, are the major water bodies for the Rainy Basin in this area. Within the basin, Ober's islands are contained more concisely within the **Rainy River-Rainy Lake major**, and **Rainy Lake minor** watersheds. The water from your property flows 6.5 miles northwest into the Rainy River, eventually reaching Lake of the Woods, then into the Winnipeg River, Lake Winnipeg, then the Nelson River, and ultimately out into Hudson's Bay. According to the Minnesota Pollution Control Agency's (MPCA) most recent report about the Rainy River-Rainy Lake major and minor watersheds:

*In 2017, the Minnesota Pollution Control Agency (MPCA) began an intensive watershed monitoring (IWM) effort of surface waters within the RRRL Watershed. Five stream stations were sampled for biology at the outlets of variable sized drainages. These locations included both the mainstem Rat Root River and the East Branch of the Rat Root River. As part of this effort, MPCA staff joined with Koochiching County Soil and Water Conservation District (SWCD) to conduct stream water chemistry sampling at the outlets of the Rat Root River and the East Branch of the Rat Root River. In 2019, rivers, streams, and lakes with sufficient data were assessed to determine if they supported aquatic life, recreation, and consumption. In addition to the data collected by MPCA, the assessors considered data from other state and federal agencies, local units of government, lake associations, and/or individuals. In all, four stream segments and one lake was assessed for aquatic life and recreation.*

*All four of the assessed streams fully supported aquatic life and/or recreation. Although several lakes were impaired for aquatic consumption (mercury in fish), all lakes clearly met recreational use goals. The high recreational lake quality reflects the undisturbed nature of their contributing watersheds. In the remote northeastern region of the watershed where obtaining water quality samples may be difficult, lake clarity data suggests that these lakes are suitable for recreation.*

*Overall, water quality conditions are good and can be attributed to the forest and wetlands that dominate land cover within the RRRL Watershed. However, in parts of this watershed, total suspended solids (TSS) and dissolved oxygen (DO) may at times exceed the state standards. The underlying fine sediments and generally flat topography of the region, a function of this region's geologic past, likely contribute to the TSS and DO exceedances. Increases in anthropogenic stressors, such as historical and recent forest*

## Islands and Landscape Descriptions

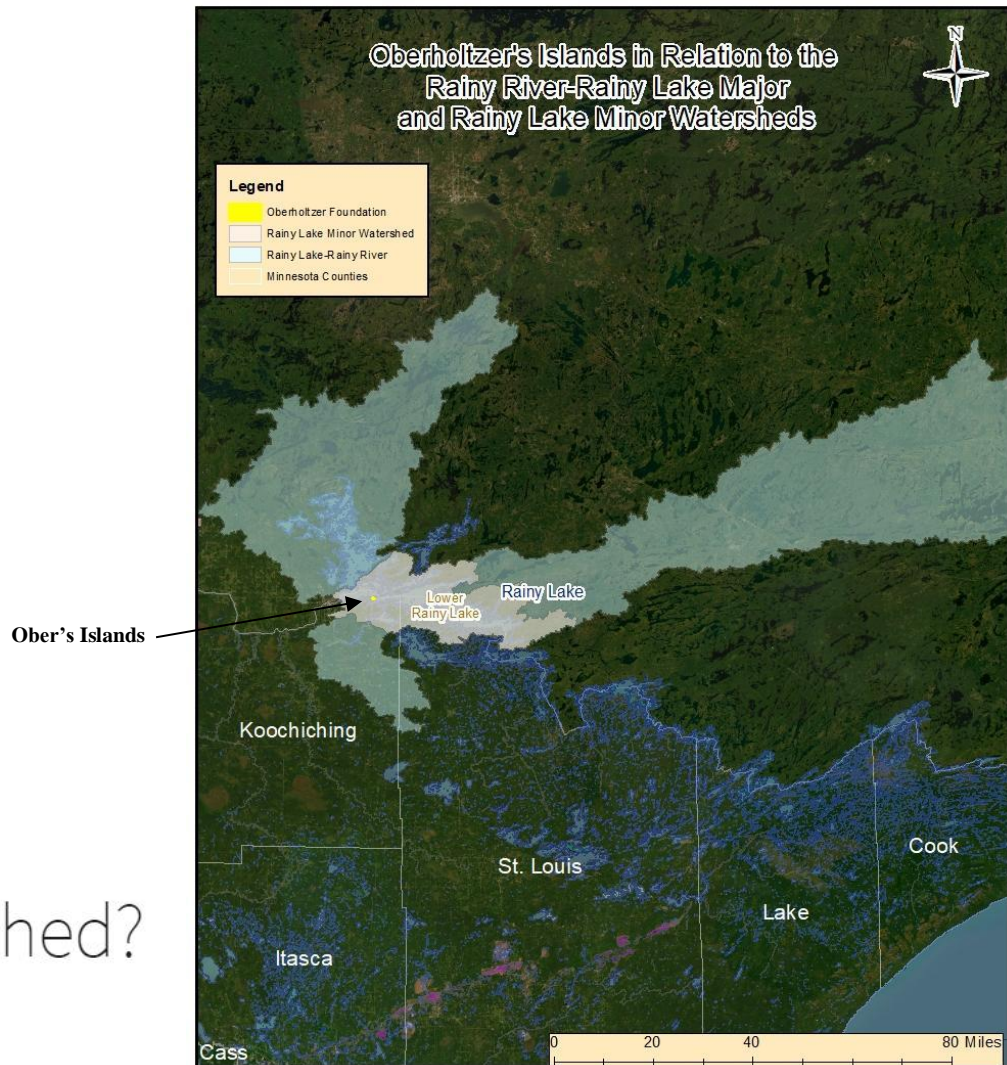
*cover changes, flow alterations, and the draining of wetlands, may locally affect aquatic life health. Where standards are being met, protection strategies to maintain good water quality are important.*

The MPCA also discussed the Rainy Lake smaller, more concise “minor” watershed directly around Ober’s Islands:

*The Rainy Lake Subwatershed had no assessable stream segments and one lake assessed for aquatic recreation. Rainy Lake is a prominent resource important for both recreation and the economy of the region, while also playing a large role in the water quality of the Rainy River. Total Phosphorus and Chlorophyll-a datasets for aquatic recreation use assessment are relatively small given the popularity of the lake. However, an extensive water clarity dataset bolstered by citizen monitoring provides a good historical record of conditions in Rainy Lake. The recreational water quality is in good condition, clearly meeting regional goals reflective of a contributing watershed that is generally intact forest and wetland environments. Water clarity appears to be stable with no long-term trend detected. The continued strong presence of citizen monitoring is important to track water clarity changes into the future between gaps of more extensive monitoring efforts. Protecting water quality of Rainy Lake is imperative because citizens and local economies depend on it. Voyageurs National Park conducts water quality monitoring on a number of more remote lakes in this subwatershed. Overall, those clarity datasets indicate good recreational water quality. More nutrient and chlorophyll-a data would be needed to conduct a complete assessment. Limited chloride data collected in lakes in this watershed suggest that it is not a potential stressor to aquatic communities.*

For more information about your watersheds, see Koochiching SWCD’s Rainy River-Rainy Lake Major Watershed page at: <https://koochichingswcd.org/rainy-riverrainy-lake/>. The Rainy Lake Conservancy, a registered Canadian charity, also focuses on maintaining the health of the Rainy Lake Watershed. See <https://www.rainylakeconservancy.org/>.

# Islands and Landscape Descriptions



## What is a watershed?

A watershed is the area of land where all of the water that drains off of it goes into the same place—a river, stream or lake. The smallest watersheds are the drainage areas for small streams and lakes. Think about your local creek or river. Where does it start? What type of landscape does it flow through? Where does it end up? All of the area covered is a watershed.

Each small watershed is part of the more extensive watershed for a larger stream or lake in the vicinity. These larger watersheds are, in turn, part of even larger drainage networks, and so on. The largest-scale watershed is called a basin. Minnesota has ten basins, some of which include portions of neighboring states or Canada.



MPCA (2017). *What is a watershed?*

# Islands and Landscape Descriptions

## *Review Island Descriptions*

### *Mallard Island*

Mallard Island was deeded to Ernest Oberholtzer in July 1928 by William Hapgood as payment to Ober for his work as manager of the Deer Island resort. Hapgood had acquired Mallard Island through the Torrens Act, an act that facilitated the transfer of Indian land to white settlers.

The total area of the island is 1.5 acres (0.6 hectares), a length of approximately 1,100 feet and width of 100-200 feet. Oberholtzer appreciated the natural beauty of the Rainy Lake watershed, but on Mallard Island he also practised the skills he acquired during his studies in Landscape Architecture at Harvard University. Joe Paddock, in *Keeper of the Wild* (2001), has brief references to Ober's approach to land management on Mallard Island. Paddock described that Ober "somehow managed to maintain and expand a rich personal lifestyle on that narrow, 1,100- foot spit of rock, moss, and pine, Mallard Island." He pointed out: "It is surprising to some that Ober kept his island more carefully groomed than it is today." There are indications that the vegetation on Mallard Island was quite sparse when Oberholtzer purchased it (including some photographic evidence). This lack of vegetation would support the theory that the initial tree cover was pioneer species such as jack pine, birch and poplar which are now giving way to mid- and late-successional white and red pine.

After Ober died in 1977, Mallard Island fell into disuse for a period until the Oberholtzer Foundation developed a long-term vision for the use of the islands. Since that time, the Foundation has spent considerable energy, with the help of both paid and volunteer workers, restoring both land and physical structures. This work has been done to carry on Oberholtzer's conservation spirit.

Oberholtzer had a multiple use approach to land management on Mallard Island, a combination of utilitarian, recreational, aesthetic, ecosystem and sacred values (see Paddock, p. 29 and pp. 241-42). Given the small area of Mallard Island, and the frequent use by visitors (although restricted to respect the Island's ecological carrying capacity), contemporary land use and management is intensive and continues Ober's multiple use philosophy.

### *Crow and Hawk Islands*

Crow and Hawk Islands became Ober's from Wm. and Katherine Hamill on June 1, 1950. He maintained them as buffers for Mallard Island and as sources of fuel wood. Both islands continue to be used as buffers and sources of fuel wood. A mock wooden tepee was transferred in June/July 1961 to Hawk from the Dahlberg estate on Jackfish Island. It sits in the middle of Hawk Island with a few trails leading to it. The west point of Hawk Island is a clear area that has been used for temporary storage of materials.

## Islands and Landscape Descriptions

Crow Island has a number of spots where canoes can land. In 2003 a crew finished a recreational/educational trail the length of the island. That trail now provides recreation for Mallard Island program participants. An Interpretive narrative for the trail was recorded by Tom Bell in June 2004. There is a traditional sweat lodge on Crow Island as of 2022 with a portable latrine. A small dock was added on the north side in 2023.

### *Gull Island*

Gull Island was owned by Rody Hall until she deeded it to the Oberholtzer Foundation on July 7, 1995. A houseboat, Frigate Friday, was moored for use at Gull Island by Ted Hall in the late 1970s. After Ted's death at 82 years in 2003, his son, Thomas, who inherited the houseboat, continued to moor it there through an annual lease with the Foundation. The Frigate Friday's boat license was transferred to the Oberholtzer Foundation by Thomas Hall in the fall of 2009. Ober had owned and lived in the Frigate for a number of years prior to its use by Ted. The Frigate Friday is no longer. There is a railroad caboos on rails. There are also supporting structures—a composting outhouse and small metal storage shed. There are a number of trails crossing the island. In 2018 a traditional Teaching Lodge was built by Anishinaabe experts from Nigigoonsiminikaaning First Nation, an Anishinaabe community on Rainy Lake with close ties to Oberholtzer and the islands.

# Plant and Forest Inventory

## Plant and Forest Inventory

### *Tree Species Terminology*

Because popular names vary, Latin names for species will be used in any inventories and work plans developed. Where data is available, projected resiliency to continued climate change according to University of Minnesota data will be indicated by either the species' estimated *increase* in our future forests, *decrease*d presence, or *no change*.

For tree species, these include:

White pine—*Pinus strobus* (Pw), *Increase*

Red pine—*Pinus resinosa* (Pr), *Increase*

Jack pine—*Pinus banksiana* (Pj), *no change*

Black spruce—*Picea mariana* (Sb), *decrease*

White spruce—*Picea glauca* (Sw), *decrease*

White or paper birch—*Betula papyrifera* (Bw), *decrease*

Juniper—*Juniperus* sp. (J)

Larch or tamarack—*Larix laricina* (La), *decrease*

Quaking/trembling aspen, poplar, or popple—*Populus tremuloides* (Po), *decrease*

Balsam poplar or balm of gilead—*Populus balsamifera* (Pb), *decrease*

Ash—*Fraxinus* sp. (white, green & black) (A w, g, b), *no change*

Hackberry—*Celtis occidentalis* (Hb), *Increase*

Cedar, eastern white—*Thuja occidentalis* (Ce), *decrease*

Balsam fir—*Abies balsamea* (Ab), *decrease*

Apple—*Malus* sp. (M)

Oak—*Quercus* sp. (Q n-northern pin, b-bur), *Increase*

Maple—*Acer* sp. (A s-sugar, r-red), *Increase*

Hawthorn—*Crataegus laevigata* (Ht)

### *Forest Type Summary*

#### *Inventory (2001)*

A tree inventory was conducted in 2001, led by Jean Replinger. These notes are from their report. From this work, we estimate that we have: approx. 114 white pine; approx. 80 red pine; approx. 284 (mostly) black spruce (note that the lower branches of the black spruce die off and their remaining branches droop to the forest floor and replant. Because of that they are in tight clusters of very large numbers, and difficult to count); a cluster of blue spruce behind the Bird House. Several species were not noted in this inventory. These include: conifer—eastern white cedar (*Thuja occidentalis*) and balsam fir (*Abies balsamea*); hardwoods—ash (*Fraxinus*), poplar (*Populus*), birch (*Betula*), apple (*Malus*) and oak (*Quercus*). We know we have: two Ohio hackberry (*Celtis occidentalis*) in the "Iowa Cornfield"; more jack

# Plant and Forest Inventory

pine than we desire; less birch (thanks to the beaver) than we desire; and more aged juniper for ground cover than we desire. Much has changed since 2001. Inventories should be updated every five years.

## *Native Plant and Forest Type Assessment (2023)*

The four islands are typical of those found throughout the Border Lakes eco-region. Glacially scoured bed rock has shallow silt-loam soils in low points and crevices. Mosses and organic material created by decomposing plant material provide important nutrients to these otherwise difficult growing conditions. Topography tends to be rocky and uneven with defined ridges running east-west along the middle of each island. Topography has not been digitally mapped on Mallard and Gull, but ridge tops on Crow reach 1148 ft above sea level, 40ft above the shoreline. On Hawk, the ridge top near the Tee Pee reaches 1142ft, 34 ft above the shoreline. These ridge tops tend to be less vegetated than the rest of the island as they are excessively drained and exposed to the most extreme weather. Blueberry, common juniper, tufts of poverty grass and other low growing species with the occasional conifer or northern pin oak are the typical species growing in these tough conditions. Mid-slope, trees, shrubs, and ground cover plants become more frequent.

## *Trees*

Tree species identified during the 2023 field work were as follows (all islands):

Black spruce—*Picea mariana* (Sb)  
Northern white cedar—*Thuja occidentalis* (Ce)  
White pine—*Pinus strobus* (Pw)  
Jack pine—*Pinus banksiana* (Pj)  
Red pine—*Pinus resinosa* (Pr)  
Balsam fir—*Abies balsamea* (Ab)  
Northern pin oak—*Quercus ellipsoidalis*  
Bur oak—*Quercus macrocarpa*  
Paper birch—*Betula papyrifera* (Bw)  
Black ash—*Fraxinus nigra*  
White spruce—*Picea glauca* (Sw)  
Quaking/trembling aspen—*Populus tremuloides* (Po)  
Norway spruce—*Picea abies*  
Red maple—*Acer rubrum* (ACr)  
Hackberry—*Celtis occidentalis* (CEo)  
in roughly this order of frequency.

Species composition tends to be scattered with the three varieties of pine (white, red, jack) and oak at the top of the ridges. Spruce and balsam fir is found in dense pockets in the most level areas at mid or bottom of the slope. Aspen, birch, ash and other deciduous trees are

# Plant and Forest Inventory

scattered in lower areas with more soil concentration, and cedar is confined to the shoreline.

## *Shrubs*

Shrubs are scattered throughout the islands in the open and under some of the less dense tree canopy. Low bush blueberry is very common in both cases. Native shrub species identified on the islands during the 2023 field work were as follows:

Lowbush blueberry—*Vaccinium angustifolium*

Bearberry—*Arctostaphylos uva-ursi*

Common juniper—*Juniperus communis*

Prickly wild rose— *Rosa acicularis*

Willow—*Salix* sp.

Wild red raspberry—*Rubus idaeus*

Round-leaved dogwood—*Cornus rugosa*

Beaked hazelnut—*Corylus cornuta*

Downy arrowwood—*Viburnum rafinesqueanum*

Prickly gooseberry—*Ribes cynosbati*

Serviceberry (juneberry/Saskatoon)—*Amelanchier arborea*

Smooth sumac—*Rhus glabra*

Black cherry—*Prunus serotina*

Red osier dogwood—*Cornus sericea*

in roughly this order of frequency.

In previous plan iterations it is noted that Oberholtzer may have intentionally propagated or encouraged certain species in particular areas on the islands. This would support the occurrence of many black cherries in front of the wooden mock teepee on Hawk Island and scattering of black cherries and groves of well-developed round-leaved dogwood on Crow Island. While still native species, these shrubs are not typically found in this concentration.

## *Ground Vegetation*

Low ground plants, grasses, forbs, sedges, mosses, etc., primarily grow in areas with the highest concentrations of soils and best water availability. The highest concentrations of ground cover diversity on the islands can be found under the forest canopy between the ridges on Hawk and Crow Islands. A list of the forbs identified during field work for the 2023 plan update are as follows:

Poverty grass—*Danthonia spicata*

Canada mayflower—*Maianthemum canadense*

Wild sarsaparilla—*Aralia nudicaulis*

Field horsetail—*Equisetum arvense*

Golden rod—*Solidago* sp.



# Plant and Forest Inventory

Columbine—*Aquilegia canadensis*  
Bunchberry—*Cornus canadensis*  
Bush honeysuckle—*Diervilla lonicera*  
Twinflower—*Linnaea borealis*  
Starflower—*Trientalis borealis*  
Poison ivy—*Toxicodendron radicans*  
Grape—*Vitis* sp.  
Veiny pea—*Lathyrus venosus*  
Virginia creeper—*Parthenocissus quinquefolia*  
Pussytoes—*Antennaria* sp.  
Bluebead lily—*Clintonia borealis*  
Sweet-scented bedstraw—*Galium triflorum*  
Bastard toadflax—*Comandra umbellata*  
Lady fern—*Athyrium filix-femina*  
Common polypody—Common Polypody

These are listed in no particular order as occurrence and populations of these small plants vary across the islands. Neither are the native ground cover species on the islands limited to these species, this just begins an ID list that can be added to in the future.

## *Minnesota Native Plant Community*

The land formation and identification of indicator species of trees, shrubs, and ground cover on the islands suggest that the Minnesota DNR Ecological Classification System Forest System for Crow, Mallard, Hawk, and Gull islands is **Fire Dependent, Northern Dry-Bedrock Pine (Oak) Woodland** (FDn22). See descriptions of these plant communities from selected reference pages out of [Field Guide to the Native Plant Communities of Minnesota-The Laurentian Mixed Forest Province](#) (MN DNR, 2003) at the end of the plan.

## ***Current Forest Condition***

(2023) In general, the forests and plant communities on the islands are healthy and typical of those on islands across the Border Lakes region. At the time of the update, scattered individual cases of decline in some of the oldest trees are occurring across all three islands. Trees at the top of the ridges were still suffering from the extreme drought of 2021 and trees along the shore were suffering from prolonged submersion during the flooding of 2022. In general, it is common that trees growing in the bedrock ground conditions of the Border Lakes region, especially those at the top of ridges, decline earlier than the same species growing in better soils and moisture availability. This means that often otherwise long-lived species like eastern white pine will begin to decline prematurely, especially after extreme climactic events like those occurring in 2021 and 2022. Currently, natural tree decline, forest succession, extreme weather events, and beavers are the biggest influencing factors on the islands.

# Plant and Forest Inventory

## *Forest Regeneration*

New tree and forest generation is not being impacted by white-tailed deer browse at this time. White-tailed deer can significantly shape and decrease the diversity of northern plant communities, but young white pine, red pine, oak, and shrubs species are growing well. However, beavers will continually browse deciduous trees along the shore and even those deeper into the island if they become desperate. Protecting desirable deciduous trees with plastic trunk protectors or cages, as has been the practice of island caretakers, is the only effective way to protect individual trees near the water's edge.

## *Fire Risk*

The islands' heavily conifer-dominated forest type is vulnerable to fire, the area of stunted black spruce west of the buildings on Mallard Island being the area most at risk. It is suggested that branches on trees in vulnerable areas be pruned up high enough that they do not contact the ground creating "ladders" for fire to move up into the canopy. Monitor sparks from campfires and chimneys under varying wind directions to identify any approximate trees or other vegetation that may combust under the right conditions. These trees should be considered hazard trees and removal is suggested to protect buildings. Dispose of cut plant material after any hazard tree removal as soon as wildfire risk conditions allow. Monitor wildfire danger or burning permit requirements at the Minnesota DNR Website:

[https://www.dnr.state.mn.us/forestry/fire/firerating\\_restrictions.html](https://www.dnr.state.mn.us/forestry/fire/firerating_restrictions.html)

Rake and dispose of accumulated leaf and needles on the ground around buildings and the fire pit area every spring to reduce additional fuels during the late spring-early summer fire season. Establish a schedule for regular inspection and cleaning of Mallard Island building chimneys. Consider having chimney spark arrestors inspected and/or installed by a qualified contractor.

## *Hazard Trees*

A white spruce, white pine, and red pine were identified and flagged for suggested removal due to their decline and hazard to buildings and people on Mallard Island. Also consider that on average, a tree's roots system is two to four times the diameter of its crown and the buttress rooting of spruce and pine can easily compromise stone and concrete foundations, especially ones of considerable age. The roots of trees within 15 ft of buildings should be assessed for contact with foundations and considered hazard trees if they are exerting any pressure. A rule of thumb for affecting structures is: a tree 30 ft high will have an effect within 3 ft of the trunk; a 30-50 ft high tree will have an effect within 5 ft of the trunk; and a 50 ft high tree will have an effect within 8 ft of the trunk.

# Plant and Forest Inventory

## *Invasive Species*

A few invasive species were identified but not in concentrations that create a significant impact to aesthetics or plant diversity. Sweet clovers (*Melilotus* sp.) were growing near heavier trafficked areas on Mallard. A variety of non-native Cotoneaster that may have invasive characteristics was growing near the trail and buildings on Mallard. A few stalks of bull thistle (*Cirsium vulgare*) were growing in front of the wooden teepee on Hawk Island. Canada thistle (*Cirsium arvense*) was not located but likely exists. Removal is recommended for both of these species.

Grasses and forbs can be hand pulled while undesirable shrubs can be cut at ground level and the stump treated with a herbicide that targets woody plants like Tordon RTU or Pathfinder 2. Reed canary grass and hybrid cattail are present but very difficult to manage due to the large unmanaged populations in the landscape.

There are many developing populations of other invasive species on the mainland that would be detrimental to the Foundation's goals. Some of these include European buckthorn, wild parsnip, spotted and meadow knapweed. Monitor for these undesirable plants and use the management guidance in the Minnesota Department of Transportation Guide [Minnesota Noxious Weeds](#) (MNDOT, 2023) supplied with this plan. A separate Invasive Species Manual has been compiled in conjunction with this Vegetation Management Plan.

## *Climate Change*

Climate change is projected to have considerable impact on our region's forests and landscape. Major ways this could occur is temperature increase, precipitation changes, longer growing seasons, soil moisture and drought stress, frozen ground duration, wildfire, increased invasive species suitability, forest pest prevalence and active season lengthening, and an increase in deer browse damage. These factors may dramatically change plant and animal species occurrence and distribution. Resiliency has become the term used to describe a species' ability to withstand climate change, projected impacts for species currently present on the islands are indicated on the list on page 13. Nature is amazing at adapting to change and rather than making dramatic preemptive vegetation modification, it is suggested to encourage climate resilient species through planting and/or protection. This would be most applicable to the shoreline where species that would resist unseasonably high water may become more important, and at the top of the ridges where drought resistant trees may withstand prolonged lack of moisture. In general, many of the islands' current species are projected to do well over the coming decades and though Ober's islands may look different in the future, forests will remain.

# Plant and Forest Inventory

## *Flooding*

The Rainy Basin experienced abnormally high-water levels in 2014 and 2022. According to tree pathologists, the effects of flooding, most notably prolonged submersion of roots systems, can cause plant decline for up to 3 years after the event. In most cases, climactic events do not kill trees outright but weaken their normal ability to resist disease and insect intrusion. While no trees in our northern forests are equipped to withstand the months of high water that occurred during the 100-year flood event in 2022, some species are more resistant than others. Trees that naturally grow in wet plant communities like black or green ash, American elm, northern white cedar, bur oak, silver maple, black spruce, tamarack, balsam poplar, and white pine—in roughly this order of preference—can survive root submersion much better than upland species. While conducting any tree management on the islands, consider encouraging flooding resistant tree species within 20ft of the shoreline over trees that need well-drained soils like jack pine, red pine, balsam fir, quaking aspen, paper birch, white spruce, red maple, and pin oak.

# Foundation Goals and Guidelines

## Ernest C. Oberholtzer Foundation Vegetation and Shoreline Management Goals and Guidelines

### *Vision Statement*

The Ernest C. Oberholtzer Foundation Vegetation and Shoreline Management Plan, while respecting the conservation spirit of and historical land uses practised by Ernest Oberholtzer, will adopt a zoning approach which incorporates the multiple uses of the islands, putting maintenance of the Rainy Lake Watershed ecosystem and the safety of island users as its top priorities.

In addition, this plan's objectives include:

- Protecting the water quality of Rainy Lake by restricting the development of the islands' shorelines;
- Protecting natural habitat for wildlife and plants, both terrestrial and aquatic; and
- Preserving the open and natural rugged character of the islands for scenic enjoyment.

### *Conservation Easement Values and Requirements*

The Conservation Easement describes the conservation values of the islands, including:

- "With over 1 ¾ miles of rugged and mostly undeveloped shoreline in Rainy Lake, the islands include a significant amount of privately owned natural shoreline in the increasingly developed Rainy Lake. Development of the islands, which are mostly shallow rock soils over granite bedrock, would adversely affect the water quality and aquatic habitats of Rainy Lake.
- The islands contain relatively undisturbed and varied natural habitat along the shores and within inland areas, including rocky rugged terrain covered with mostly white and red pine trees, providing critical layover and nesting areas for various species of birds and waterfowl as well as habitat for aquatic species.
- The rugged shorelines create spectacular scenic views that can easily be enjoyed from boats and nearby islands. The small bays and rugged rocky outcrops reflect the wilderness character of this region" (CE, Recitals D). Based on this the Easement is intended to provide a "significant public benefit" by:
  - Protecting the water quality of Rainy Lake by restricting development of the shoreline.
  - Protecting natural habitat for wildlife and plants, both terrestrial and aquatic.
  - Preserving the open and natural rugged character for scenic enjoyment by the public from Rainy Lake and nearby islands (CE, s. 1).

# Foundation Goals and Guidelines

The Conservation Easement requires “no removal, cutting, pruning, trimming or mowing of any trees or other vegetation, living or dead, and no introduction of non-native species is allowed except as follows (CE, s 2.12):

- a. In conjunction with habitat management as specifically permitted, that is to create, maintain, restore, or enhance habitat for wildlife and native biological communities in accordance with this Plan (CE, s. 3.3.).
- b. As reasonably required to construct and maintain permitted buildings, structures, trails and other improvements and provided that vegetation shall be restored following any construction to a condition consistent with the conservation purposes of the Easement.
- c. To maintain existing landscaping and gardens on Mallard and Gull Islands or to landscape areas immediately adjacent to new buildings or structures specifically authorized in s. 3 under educational and recreational use and development (3.2) and habitat management (3.3).
- d. As reasonably required to prevent or control insects, noxious weeds, invasive vegetation, disease, fire, personal injury, or property damage.
- e. To remove downed or dead timber for firewood or other use.” (CE, s. 2.12)

## ***Management Project Guidance***

### *Tree Removal*

The northern forests are part of a dynamic ecosystem. Trees age and die, new regeneration springs up. The ecosystem has historically been fire-driven with renewal occurring following frequent fires. With fire suppression, some of the dynamics have been removed from the system and it is therefore necessary for human safety and fire control to remove trees.

Removals are recommended for a number of reasons:

1. Promote regeneration: to release and encourage growth of understory younger trees, remove competing vegetation immediately surrounding desired seedlings. It may be necessary to protect seedlings from deer or beaver damage in order to ensure success.
2. Ensure the safety of island users: to remove declining trees that pose a potential danger to buildings or people from blowdown. Or trees whose roots may cause damage to building foundations.

# Foundation Goals and Guidelines

3. Promote biodiversity: to encourage a diversity of native tree and plant species.
4. Maintain the health of the forest: to control disease vectors, fuel load to minimize fire danger, and invasive, introduced species which if left alone will eventually dominate sites.

However, snag trees are beneficial wildlife habitat for the many cavity-nesting species that call northern Minnesota home. Wood ducks, woodpeckers, flying squirrels, marten, fisher, many species of owls and songbirds use rely on cavities to raise young and hibernate over winter. When not creating a hazard, large diameter snags (>15" diameter) could be retained for wildlife benefits. This is most appropriate for the less inhabited portions of the property.

## *Vegetation Regeneration*

- Remove hazardous vegetation such as wildfire fuel buildup and invasive species to encourage naturally established regeneration, favoring climate change resilient and flooding resistant species within 20 ft of the shoreline.
- Consider some artificial planting to encourage biodiversity, maintain presence of or reintroduce natural species if absent, and provide wildlife habitat. Consideration of species to plant should be planned in co-ordination with wildlife inventory.
- Protect vulnerable seedlings with cages or tree tubes to avoid beaver or deer browse damage.

## *Shorelines*

- Ensure signage is up to date and sufficient to cover east, west, north, and south sides of all islands. Signage must be small and unlit and used for informational or interpretive purposes (CE, s. 2.7b).
- Maintain shoreline of all islands in a manner that prevents or discourages erosion, including blockage of trails that may be contributing to excessive erosion. No activities that cause significant erosion or are seriously detrimental to water quality or purity are allowed (CE, s. 2.11).
- Discourage public access with signage and by avoiding signs of human use (i.e. no visible trails, campsites, fire pits, etc.).
- In wilderness zones, except for allowing movement of canoes, allow overhanging vegetation.
- Keep channels free of blockage for canoe travel.
- No alteration or manipulation of natural watercourses, lakes, shorelines, wetlands, or other surface or subsurface water bodies or creation of new waterbodies is allowed except to restore or enhance wildlife habitat or native biological communities in keeping with this plan (CE s. 2.11).

# Foundation Goals and Guidelines

## *Docks*

- Keep docks to a minimum while still providing ease of and safe access to highly used areas and provide moorings that protect shoreline vegetation and prevent erosion.
- “Boat docks may be placed or constructed to provide ease of and safe access to those areas used for permitted recreational and educational uses. The number of docks shall be kept to a minimum. Docks must be constructed of non-reflective materials and moored in a manner that protects shoreline vegetation and prevents erosion. Docks may be maintained in their existing location or relocated. However, no dock may be placed or constructed in a location that interferes with the scenic or natural habitat conservation values of this easement” (CE, s. 3.2g)

## *Topography and surface alteration*

- “No alternation or change in the topography or the surface is allowed. This includes no ditching, draining or filling and no excavation or removal of soil, sand, gravel, rock or other materials, except as specifically permitted by the easement” (CE, s. 3).
- Avoid the transportation of new soil or fill material from the mainland to reduce the risk of invasive species introduction.

## *Fire Management*

- Remove fallen trees to ensure minimal fuel load. In addition, trim branches on trees near buildings and fire pits up to a height where they do not create a “ladder” for fires to reach tree crowns.
- Monitor sparks from campfires and chimneys under varying wind directions to identify any approximate trees or other vegetation that may combust under the right conditions. These trees should be considered hazard trees and removal considered.
- Monitor wildfire danger or burning permit requirements at the Minnesota DNR Website: [https://www.dnr.state.mn.us/forestry/fire/firerating\\_restrictions.html](https://www.dnr.state.mn.us/forestry/fire/firerating_restrictions.html)
- Rake and dispose of accumulated leaf and needles on the ground around the buildings and fire pit area each spring to reduce additional fuels during the late spring-early summer fire season.
- Establish a schedule for regular inspection and cleaning of Mallard Island building chimneys.

## *Program Management and Support*

- Allow fuel wood gathering from all islands, with an emphasis on removal of dead and downed timber, ensuring low impact removal and proper clean-up.



# Foundation Goals and Guidelines

## *Island Specific Guidance*

### *Mallard Island*

1. **Building areas:** ensure clear access, safety, and integrity of buildings; maintain aesthetics cover and setting in the area immediately surrounding buildings.
2. **Ceremonial use:** acknowledge that all of the islands are sacred and respect the use of Mallard Island for sacred activities, such as fasting, meditation, and taking care of and communing with Minisanakwadook, the Drum in the Big House.
3. **Fires:** monitor the drift of sparks from fires regularly to ensure they are not making contact with combustible vegetation.
4. **Trails:** ensure clear and safe access, removal of any trees which block paths; maintain aesthetics.
5. **Gardens:** restoration based as much as possible on Oberholtzer's original vision, including rock walls. Utilitarian function for kitchen garden: maintain herb garden for cooking. Restore, as practical, historic areas built by Oberholtzer. Focus on amending soils to improve quality and quantity through mulching, using sawdust, and wood chips.
6. **Wilderness:** the area directly west of Bird House on the north side of the path between the Big House and Bird House is to be maintained in a "natural" condition with as little manipulation as possible. This area is mainly spruce with moss cover on the forest floor. Maintain low impact path for access through the area.
7. **Recreational and educational:** maintain Mallard as main center of program activities for recreation and education, including bird watching, nature observation or study, hiking, and other similar low impact recreational and educational programs or activities.
8. **Shoreline:** maintain rock walls, access to and from dock areas, keep fallen trees generally clear of the water (except wilderness zone), and maintain island privacy.

### *Gull Island*

1. **Building areas:** ensure clear access, safety, and integrity of buildings; maintain aesthetics cover and setting in the area immediately surrounding buildings. As support for Mallard programming, Gull may be used to provide maintenance and management facilities, such as storage, work barges, accommodation for work crews, etc.
2. **Ceremonial use:** Respect and understand the spiritual significance of the Teaching Lodge.
3. **Trails:** ensure clear and safe access, removal of any trees which block paths; maintain aesthetics. Maintain low impact path(s) for access through the area.
4. **Wilderness:** the area west of the beach to be maintained in a "natural" condition with as little manipulation as possible, except for potential building sites that fall within building code.
5. **Recreational and educational:** maintain Gull as an adjunct to Mallard programs for recreation and education, including bird watching, nature observation or study, hiking, and other similar low impact recreational and educational programs or activities.

# Foundation Goals and Guidelines

6. **Shoreline:** allow docks in heavily used areas of island to support program and maintenance activities.

## *Hawk Island*

1. **Wilderness:** maintain wilderness aspect of Hawk, with the exception of low-maintenance trails to the teepee, temporary storage, fuel wood gathering and fire management.
2. **Ceremonial use:** Respect the land and its spiritual and healing significance.
3. **Recreational and educational:** maintain Hawk as an adjunct to Mallard programs for recreation and education, including bird watching, nature observation or study, hiking, and other similar low impact recreational and educational programs or activities. In his time, Ober had attempted to create a pond or ponds on Hawk Island. These ponds could be maintained and observed as an example Ober's landscape architecture.

## *Crow Island*

1. **Trails:** ensure clear and safe access, removal of any trees which block paths; maintain
2. **Wilderness:** the area west of the beach to be maintained in a "natural" condition with as little manipulation as possible, except for potential building sites that fall within building code.
3. **Ceremonial use:** Respect the Sweat Lodge site and its healing powers.
4. **Recreational and educational:** maintain Crow as an adjunct to Mallard programs for recreation and education, including bird watching, nature observation or study, hiking, and other similar low impact recreational and educational programs or activities.

# Tasks and Projects

## Tasks and Projects

### *Data Collection*

1. Perform vegetation inventory, with a focus on individual trees (for Mallard Island and the eastern portion of Gull Island).
2. If the opportunity arises, catalogue inventory information into a GIS software program.
3. Develop maps with zones for all islands.
4. Encourage visitors to leave their written observations about and suggestions for caring for the islands' natural history in the Journal of Natural History.
5. Gather more information from journals and photos on what Mallard Island was like when Ober was here.
6. Gather more information on rare, endangered or threatened species in the area.
7. Inventory aquatic wildlife and vegetation.
8. Update existing inventories of birds, ferns, wildflowers/flowering plants, mushrooms, mammals, and reptiles/amphibians. Expand inventory to include insects, mosses, herbaceous plants and shrubs to reflect an ecosystem approach.

### *Maintenance*

1. Maintain wood chipper and put any woody vegetation unsuitable for firewood through chipper, using chips for garden mulch, some pathways and fill for low areas.
2. Maintain steps down to Iowa Cornfield in a safe condition.
3. Restore and maintain rock walls around Mallard Island and do so in the manner they were originally constructed, by an artisan capable of locating and building consistent with original construction.
4. Remove designated trees.
5. Avoid storing wood inside cabins which may introduce damaging insects.
6. Plan a Vegetation and Shoreline Management Committee meeting at least once every 2-3 years, while maintaining annual communication through emails and notes in the Vegetation Management Journal in the Wannigan.

# Maps

## Maps

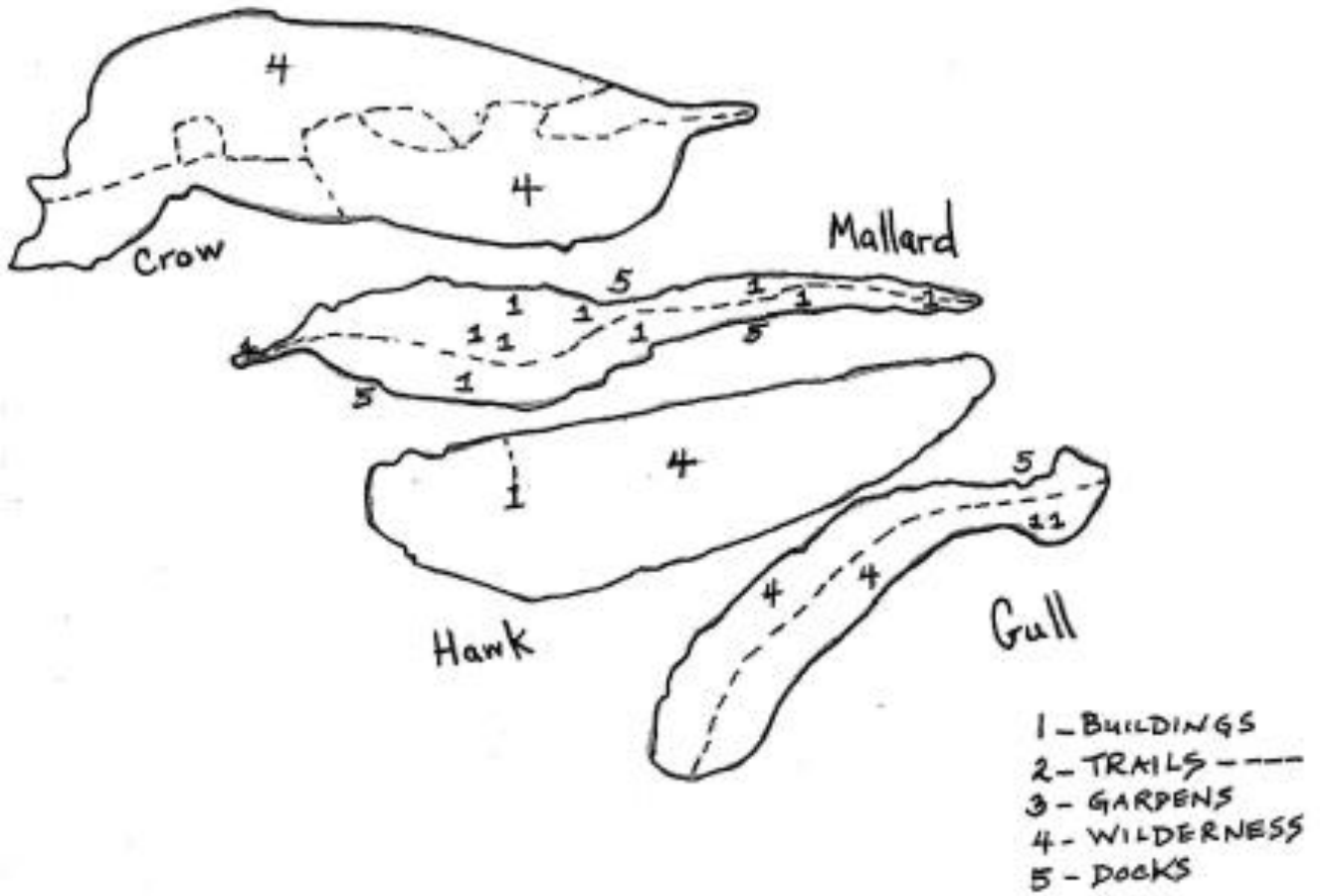


# Maps



# Maps

Map of Island Forest Zones (2007)



2007