



Lummi Island Heritage Trust
Otto Preserve Management Plan

Revised and Approved October 11, 2011

Otto Preserve Management Plan

<u>Table of Contents</u>	<u>Page</u>
I. Introduction.....	4
A. Description of the Otto Preserve	
B. Purpose of the Otto Preserve	
C. Site Map of the Otto Preserve	
D. Cultural History of the Otto Preserve	
II. Stewardship Vision Statement.....	7
III. Management Topics.....	8
IV. Wildlife and Plants.....	8
A. Goals	
B. Objectives	
1. Identify plants and wildlife	
2. Remove noxious weeds	
3. Maintain and improve wildlife habitat	
4. Prohibit high impact recreational uses	
5. Require dogs to be under control	
6. Maintain a link to other habitats	
C. Monitoring Protocols	
1. Plant and wildlife surveys	
2. Photographic monitoring	
3. Conservation easement stewardship	
V. Groundwater.....	11
A. Goals	
B. Objectives	
1. Minimize impervious surfaces	
2. Use of non-chemical weed control	
3. Minimize water usage	
C. Monitoring Protocols	
1. Water testing	
VI. Public Access.....	12
A. Goals	
B. Objectives	
1. Maintain appropriate level of use	
2. Safety	
3. Provide parking	
4. Access to wetlands area	
5. Use restrictions	
6. Privacy of adjacent landowners	
7. Maintenance	
8. Other facilities	
C. Monitoring Protocols	
1. Level of use	
VII. Education.....	13
A. Goals	
B. Objectives	
1. Interpretive signs	
2. Educational tours and activities	
3. Field trips on the Preserve	
C. Monitoring Protocols	
1. Educational activities by permission only	

2. Record keeping of educational tours

Table of Contents (continued)

VIII. Other Uses.....14

- A. Goals
- B. Objectives
 - 1. Renovation of the shop building for an office
 - 2. Maintain area surrounding the office
 - 3. Maintain the A-frame barn
 - 4. Evaluate preservation of Hay Barn
 - 5. Fundraising events
- C. Monitoring Protocol
 - 1. Photographic monitoring

IX. Appendices.....15

- A. Heritage Trust Mission and Values Statement
- B. Topographic Map
- C. Inventory lists of vascular plants
- D. Inventory list of bird species
- E. Map with photo points
- F. Photographs
- G. Summary of use restrictions
- H. Resource Center Map.

Otto Preserve Management Plan October 2011

I. Introduction

A. Description of the Otto Preserve

The Otto Preserve, owned and managed by Lummi Island Heritage Trust, is comprised of 94 acres of forest, meadow, and wetland located in the central portion of Lummi Island in Whatcom County, Washington, Sections 10 and 15, Township 37 N, Range 1 East, W.M.

The Otto Preserve property contains four distinct habitat types: reverting pasture/meadow, conifer forest, emergent/scrub-shrub wetland, and a reverting quarry. The reverting pasture/meadow area covers approximately 2 acres along the southern boundary of the Preserve. It has even terrain, sloping slightly to the southeast, and is dominated by a mixture of native and European grasses and forbs (non-grasses) that provide excellent forage and cover for birds such as sparrows and finches. Hedgerows buffering Sunrise Road create a shrub edge south of the meadow, further extending the diverse features of this habitat type.

A reverting quarry is approximately an acre in size and is located in the southeast corner of the Preserve. Operation in this quarry ceased in the 1970's. Natural reclamation is taking place with grasses binding the steep slopes and a young forest of firs and alders within the quarry and along the old access road.

A mature conifer forest comprises over 60 acres and is in good to excellent condition, with high native species composition. There are a variety of species and age classes of trees represented, with a healthy understory of salal, Oregon grape, oceanspray, and snowberry. Mature trees, young successional stages, snags, and forested wetland areas all contribute to the habitat values of the site. Douglas firs that are 70+ years old predominate the forest along with Western red cedar and big-leaf maple dominating particularly in the south-central portion of the Preserve. There are numerous fire-scarred remnant stumps of 200+ year old Douglas fir scattered throughout. Mossy rock balds and ledges follow the central ridge section, harboring species such as fawn lily and gold-back fern. Vigorous multi-species regeneration is evident throughout. Two small reforested areas, each less than five acres, on the property's northwest and easterly sections were planted within the last 10 years, and are showing exceptional survival and growth; obvious deer browse, while present, is not problematic. The most significant plant community on the Preserve is a high quality Douglas fir/salal/snowberry. The presence of nesting pileated woodpeckers, foraging peregrine falcons, and visiting Vaux's swifts, are indications of the quality and diversity of the Preserve property.

An emergent wetland is located along the western portion of the Preserve which, combined with the adjacent scrub-shrub wetland, comprises over ten acres; an additional four acre palustrine forested wetland is located in the northwestern portion of the Preserve. These wetlands are at least partially fed from groundwater and runoff flow from the surrounding hillsides. Water quality appears high. There has been minimal historical disturbance in the wetlands, and at present few activities threaten

their viability. Although Reed canary grass is established on the western perimeter of the ten acre wetland, a viable population of diverse and well-established native wetland plant species is also well represented. Both resident and migratory waterfowl utilize the areas, as do other wetland-associated species such as marsh wrens, herons, and rails. The location of the wetlands adjacent to undeveloped forest increases their capacity for supporting diverse wildlife populations on the Preserve.

Rock outcrops of various intrusive varieties along the north-trending ridge near the eastern boundary of the property are rare in northwestern Washington and do not exist elsewhere in Whatcom County. Samples from near the 275 foot summit of the property (see Appendix B) were analyzed by the U.S.G.S. and given an age of 160 million years. By studying the structure and chemistry of these rocks, local geologists are investigating the complex processes associated with the development and destruction of tectonic plates. These outcrops are a unique and valuable research and teaching resource.

B. Purpose of the Otto Preserve

In keeping with the mission and values of the Lummi Island Heritage Trust (Appendix A), the natural, open space protected by the Otto Preserve contributes to the overall beauty and rural quality of Lummi Island and serves to help maintain the small community atmosphere of the island. The property can be viewed from Sunrise Road that follows the southerly boundary. The Preserve also encompasses a forested prominence that is visible from many vantage points on the island, from the waters of Hale Passage, and the mainland of Whatcom County.

The forest, fields, and wetlands of the Otto Preserve provide a secure and diverse refuge for native flora and fauna that are being displaced by habitat disturbance both on the island and on the nearby mainland. The Preserve also provides a place for people to learn about, experience, and develop an appreciation of the natural world.

In addition, the Otto Preserve serves to increase people's interest in and appreciation for land conservation on Lummi Island. The Heritage Trust holds several conservation easements that protect approximately 110 additional acres in the vicinity of the Preserve. These conservation easements expand the area protected by the Preserve and create a network of conservation-minded neighbors.

Finally, the Otto Preserve protects a significant portion of one of the island's watersheds, helping ensure healthy water quality and support wetland functions into the future.

C. Site map of the Otto Preserve

(this needs to be changed based on what map(s) is/are used, layout would be simplified if all maps were Appendices rather than inserting them on the following pages)

The site map, found on the following page, shows the location of the Otto Preserve in the central area of Lummi Island. The map detail shows the location of the Preserve in relation to Sunrise Road, as well as the habitat areas, existing buildings and the trail system.

D. Cultural history of the Otto Preserve

Carl and Ilse Otto lived on this land during the 1950s and 1960s. Carl was an inventor with diverse interests. Ilse was a talented artist and a gold and silversmith. Sometime after Ilse passed away, Carl contracted Lou Gerhig's disease and was cared for by Lummi Islander Phyllis Lockwood. Upon Carl's passing, Phyllis inherited the Otto's farm; she and her family were stewards of the land until the Heritage Trust purchased it in June of 2000. Portions of the land were used historically for farming, and some logging activity took place between 1976-1996. Mining activity took place for a brief period during the 1960s. The small gravel mine located on the easterly portion of the Preserve is abandoned and serves as an example of natural regeneration of a Douglas fir forest. This abandoned quarry is being reclaimed naturally, but the headwall, access road, and work area can still be identified. An abandoned homestead was located on the southerly portion of the Preserve near Sunrise Road. The entire property has been uninhabited for over 40 years.

E. Creation of the Otto Preserve

The Lockwood family made the decision to sell the 70 acre Otto Farm in November 1999. As a result of concerns about the impact of residential development (a potential for up to 23 lots) and logging on wildlife habitat, open space and the scenic value of the property, Lummi Island Heritage Trust negotiated an agreement with the Lockwood family in June 1999 giving the Trust eleven months to raise the necessary funds to purchase and protect the old Otto Farm as a nature preserve.

It took the generous financial support of individuals, families, businesses, and organizations, as well as the generosity of landowners who protected their land to make the purchase of the Otto Farm possible. In total, over 400 individuals and businesses, along with several Island organizations, including Beach School PTO, Lummi Island Civic Club, Lummi Island Community Association, Lummi Island Grange, Lummi Island Mermaids and Lummi Island Scenic Estates, made financial or in-kind contributions to the campaign. An anonymous donor provided a generous matching grant, and grants were received from off-island organizations including the North American Wetlands Conservation Council (NAWCC) through the U.S. Fish and Wildlife Service, the Martin Miller Fund of The Seattle Audubon Society, and Visio Corporation.

As a contingency for grants from the NAWCA and the Martin Miller Fund, a conservation easement for the property was required. The Audubon Society was involved in negotiating the terms of the conservation easement. San Juan Preservation Trust holds the conservation easement and is responsible for insuring that the terms of the agreement are followed. The Otto Preserve was dedicated on July 22, 2000.

In 2006, the generous donation of a 7.85 acre parcel adjacent to the Preserve allowed the Heritage Trust to leverage the financial support necessary to purchase and protect an additional 17 acres, thus expanding the Otto Preserve to 94 acres. The 7.85 parcel was named "Walden Walk" and the 17 acres "Baumgart Woods." The Loop Trail on the Preserve was extended to include walking trails through these new parcels.

II. Stewardship Vision Statement

The Otto Preserve, protected in perpetuity by Lummi Island Heritage Trust, will be a place where high quality habitat for native plants and animals is maintained, a natural environment where people can enjoy spending time, a place of pride for the Lummi Island community, and a place where people can learn about natural habitats and the environment for generations to come.

III. Management topics

Six management topics, listed below, provide the basis for discussing the Otto Preserve Management Plan:

- A. Wildlife and plants
- B. Groundwater
- C. Cultural history
- D. Public access
- E. Education
- F. Other uses

The Otto Preserve Management Plan devotes a section to each of these topics and sub-headings detail the goals, objectives, and monitoring protocols. The goals in each section describe the long-term vision for the resources and uses of the Preserve. The objectives define actions that lead toward achieving the goals. The monitoring protocols provide the methods to measure progress toward reaching and maintaining the objectives.

Appendices to the plan include the mission and values statements adopted by the Heritage Trust, maps, photos, plant and animal inventories, and a summary of use restrictions.

The Otto Preserve Management Plan attempts to be as descriptive and specific as possible, however, stewardship is an adaptive process that must respond to changing environmental and social conditions. A growing population and increasing tourism both on Lummi Island and the nearby mainland may put new pressures on the Otto Preserve. Through vigilant monitoring and on-going periodic review, the Heritage Trust will evaluate its effectiveness and update or revise the Otto Preserve Management Plan as necessary.

IV. Wildlife and plants

A. Goals

1. To maintain, enhance and restore native wildlife habitat and native plants

B. Objectives

1. Identify plants and wildlife:

The Heritage Trust has worked with local scientists to create a detailed inventory of the plants, animals and birds that inhabit the Otto Preserve. A list of species observations made on and nearby the property during July and August 1998, June through December 1999, and February and March 2000 has served as a basis for defining these detailed inventories. A master vascular plant list was established in 2000 and additions to this inventory by the Washington Native Plant Society occurred in 2006 and 2008. (see Appendix C). A master bird list was started in 1998 and most recently updated in 2011 (see Appendix D). The Northwest Mushroomers began a mushroom and lichen inventory in 2011, a hard copy with photographs is located at the Resource Center. A baseline amphibian survey of the wetland is proposed. Inventories of flora and fauna will be updated as needed with the help of local experts, Heritage Trust members and volunteers.

A schedule for follow-up surveys will be determined based on results of the initial survey.

2. Remove noxious weeds:

The spread of invasive species has been ranked second only to habitat loss as a threat to global biodiversity. The Trust will make every effort to develop a noxious weed management plan that controls and eliminates invasive populations while maintaining and restoring native plant communities and avoiding adverse impacts to adjacent properties. Known invasive plant species on the Otto Preserve include Himalayan blackberry, English holly, American vetch(?), Reed canary grass, English Ivy and Scotch broom. Continuous staff and volunteer monitoring will help track the occurrence of these and other noxious species. Specific action to monitor and control invasive species will include cooperation with the Whatcom County Noxious Weed Control Board and other agencies, as well as, volunteer work parties for manual or mechanical removal of invasive plants. The Trust will consider use of herbicides on a case-by-case basis and only as a last resort, when all other methods are unsuccessful

3. Manage the property to maintain and improve wildlife habitat for native species:

The Trust will consult with professional foresters and ecologists to assess the health of the Otto Preserve wooded areas over time. The Otto Preserve is located along the Pacific Flyway, adding to the importance of conserving the quality and diversity of its wildlife habitat for foraging and incidental perching. Several priority non-game species are known to utilize the Otto Preserve including the black swifts, Vaux's swifts, Northern harrier, pileated woodpeckers, and black-headed grosbeaks. Black-headed grosbeaks and pileated woodpeckers are known to breed in the area. Peregrine falcon and bald eagle are known to nest in the nearby vicinity and have been reported in the Preserve area. Particular attention will be paid to protecting and monitoring the forest in light of its importance for wildlife breeding, foraging and perching.

Some forest management may be necessary to maintain areas around existing buildings and along trails. Removal of blow-down and dead trees will be undertaken only when the fallen trees present a danger to existing buildings or pose a safety problem along walking trails. In the event of a catastrophic blow-down, the Trust will consult with specialists regarding proper management of the damaged forest.

The location of the wetland adjacent to the forest area increases the capacity for supporting diverse wildlife populations on the Otto Preserve. The wetlands currently are productive and critically important areas for wildlife and water quality. Both resident and migratory waterfowl utilize the Otto

Preserve wetland areas including mallard, wood duck, and ring-necked duck, as do other wetland-associated species such as marsh wrens, herons, and rails. Mallards are known to breed in the Preserve area. As human development in Washington State continues to degrade habitat for these and other waterfowl species, particular attention will be paid to managing the Preserve as an increasingly important resource for maintaining healthy waterfowl populations.

The reverting meadow area on the Otto Preserve (approximately 2 acres) is currently in good condition. It has an even terrain dominated by a mixture of native and European grasses and forbs that provide excellent forage and cover for birds such as sparrows and finches. Hedgerows buffering Sunrise Road create a shrub edge for the meadow extending the diverse features of this habitat. The meadow borders the building envelope area, which includes the Heritage Trust office building (formerly the Otto's shop), a parking area and the trailhead. The area adjacent to the office and parking lot will be maintained by annual field mowing. Volunteers and staff will manually remove young woody vegetation from the adjacent meadows to help preserve these areas.

4. Prohibit incompatible recreational uses:

In an effort to limit impacts of human use on wildlife populations, access to the interior of the Preserve (north of the parking area) will be by foot only on the designated Loop Trail, except for maintenance and fire vehicles. Public camping, motorized vehicles, bicycles, and horseback riding will be prohibited. Outdoor fundraising gatherings and special events, which have been approved by the Trust, will be limited to the meadow and building areas. No hunting is allowed.

5. Require dogs to be under control:

In an effort to prevent wildlife harassment, protect fragile habitat, and preserve enjoyment for all, dogs must be on leash and under voice control when not in vehicles or inside the Otto Resource Center. It is the responsibility of dog owners to clean up after their dogs. No other domestic animals or pets are allowed on the Preserve.

6. Maintain the Preserve as a corridor and link to other habitat on the island:

Buffers and corridors created by private conservation easements on adjacent properties add a valuable extension of the wildlife habitat on the Otto Preserve. The Trust will limit fencing that would create a barrier to wildlife movement and strive to continually involve neighbors in the monitoring and protection of the Otto Preserve and the greater "neighborhood" as a whole.

C. Monitoring protocols.

1. Plant and wildlife surveys:

Existing plant and wildlife inventories will be updated and reviewed over time in an effort to monitor changes in plant and wildlife communities on the property and surrounding area. Additionally, volunteers who regularly walk the Otto Preserve will be encouraged to record their plant and wildlife observations and give this information to the staff.

2. Periodic Photographic monitoring:

Photographs from set points will be used to monitor changes in the forest, wetland and meadow habitat areas. Initial photo points are described and mapped in Appendix E. Changes over time will be determined by visual examination of the photographs. Current Photos are shown in Appendix F. Specific actions to remedy unacceptable changes and impacts may include removal of invasive vegetation, restricted access to specific areas, or consultation with professionals to develop management techniques for problem areas.

3. Conservation easement stewardship:

The San Juan Preservation Trust as holds a conservation easement for the Otto Preserve property. Annual conservation easement stewardship visits conducted by SJPT will ensure that the resources of two conservation organizations are committed to the maintenance, enhancement, and restoration of native wildlife habitat and plants on the Otto Preserve. A copy of the conservation easement document is available at the Heritage Trust office.

V. Groundwater

A. Goals

1. To preserve and protect underlying aquifer
2. To enhance the aquifer recharge character of the wetland

B. Objectives

1. Minimize impervious surfaces:

The 14+ acre wetland areas, located along the western portions of the Otto Preserve are at least partially fed from groundwater and runoff flow from adjacent hillsides. Historically, there has been minimal disturbance to the wetlands, and at present their viability is not threatened. The Trust will minimize use of impervious surfaces, which are only allowed within the building envelope area. Any water runoff will be directed to areas of natural groundwater infiltration in an effort to preserve and enhance the aquifer recharge.

2. Use of non-chemical weed control:

Non-chemical methods to manage invasive species will be used whenever practical. Environmentally safe chemical applications will be used only as a last resort when other methods have failed and will be done in a manner as to not pose persistent threats to groundwater quality.

3. Minimize water usage:

A well was drilled in October 2001 to serve the small office building. There is no residential use of water at the Otto Preserve. In 2005, the Heritage Trust Board of Directors, approved the installation of an underground water reservoir tank on the Otto Preserve for use in fighting fire on the Preserve

and the surrounding neighborhood. A maintenance agreement between Whatcom County Fire District 11 and the Heritage Trust defines use of the water tank, standpipe and hydrant. The agreement is reviewed bi-annually by the Fire District and the Heritage Trust.

C. Monitoring protocols

1. Water testing:

The temperature, pH, and clarity of water in the main wetland area will be measured periodically. Data will be monitored over time and a wetland biologist will be consulted if significant changes are noted.

The well water will be monitored in accordance with the Federal and State guidelines for a Group B water system. Water samples will be collected by a certified water quality technician and tested at a certified lab.

VI. Public access

A. Goals

1. To provide opportunities for safe, low-impact public access for recreation, nature appreciation, and natural history or environmental education.
2. To maintain a proper level of use so visitors have a quality outdoor experience while ensuring that plant and wildlife habitat is preserved.

B. Objectives

1. Maintain appropriate level of use:

Maintaining an appropriate level of use ensures that each visitor to the Otto Preserve has a quality experience and is essential in protecting the Preserve's outstanding natural character. The Trust will use a variety of tools to monitor and control use levels when necessary.

2. Safety:

Hiking and other passive recreational activities include a certain level of danger, but the Trust will make every effort to reduce the risk of injury to visitors at the Otto Preserve. Directional signs and maps will encourage visitors to stay on established, maintained trails and to avoid potential hazards. Trail maintenance will keep walking trails open and safe, and trail improvements will help to provide even footing at steep sections.

3. Provide parking:

Limited parking for cars will be provided in the designated area near the office building and will include one ADA accessible parking space. A bicycle rack will be provided. There will be no overnight parking allowed.

4. Create access to wetlands area:

A trail will be created to safely access the emergent wetland area. The proposed wetland trail will be directed away from sensitive ecological areas, property boundaries, and safety hazards. The trail will be designed in such a manner as to safely access the wetlands for wildlife viewing without disturbing critical habitat.

5. Use restrictions:

The Otto Preserve will be open for public use during daytime hours. Trails are to be used for pedestrian access only and dogs must be leashed. No bicycles, horses, or vehicles will be allowed on the trails. No camping, fires, hunting, or discharge of firearms will be allowed anywhere on the property. The property may not be used for any for-profit commercial venture. Outdoor fundraising gatherings and special events, which have been approved by the Trust, will be limited to the meadow and building areas. Use restrictions will be posted on site where appropriate and listed in literature describing the Preserve. A summary of use restrictions is given in Appendix G.

6. Privacy of adjacent landowners:

The Trust will make every effort to protect the privacy of adjacent landowners issues by responding to their issues and concerns. Property boundary signs will be posted where trails are in close proximity of property lines to identify the edge of the Preserve and to discourage trespassing.

7. Maintenance

Maintenance may include removal of trash, trail work, field mowing, the removal of invasive species, the installation and maintenance of signs, cleaning and repairing the Resource Center, planting native species and other Board-approved activities. The Trust will encourage volunteers to help with maintenance.

8. Other facilities:

At this time, the Heritage Trust has no plans to develop other permanent visitor facilities at the Otto Preserve, such as public restrooms.

C. Monitoring protocols

1. Level of use:

Currently, baseline levels of use are at an acceptable level. The Trust will rely on feedback from staff, volunteer monitors, members, and neighbors to determine appropriate use levels. If use levels of the Otto Preserve become intolerable or jeopardize the natural environment, stewardship responses may include restrictions on hours of use, restrictions on size of parties visiting the Preserve, or temporary closure of endangered areas.

VII. Education

A. Goals

1. To educate visitors about the natural and cultural history of the Preserve.
2. To increase visitors' appreciation for land conservation efforts on the island.

B. Objectives

1. Interpretive signs:

The Trust will encourage the interpretation and understanding of the history and the natural habitats of the Otto Preserve. A sign is attached to an outside wall of the Otto Resource Center and a rustic kiosk containing maps and Heritage Trust materials is installed at the Loop Trail entrance. Interpretive information will also be included in printed materials and on the Trust's website.

2. Sponsor educational tours and activities:

The Heritage Trust will encourage a better understanding of the Otto Preserve's ecological resources by sponsoring environmental education programs. Specific activities may include guided natural history walks, bird watching tours, and conservation education field trips.

3. Encourage local groups to take field trips on the Preserve:

The Trust will encourage local schools and community organizations to take walks and field trips on the Otto Preserve in an effort to increase appreciation for land conservation efforts on the island. The Trust will cooperate with ecological or wildlife research activities. Educational and research activities on the Otto Preserve will be conducted on a permission-only basis and may be limited to size and duration. The Heritage Trust will partner with educators and scientists to conduct appropriate research. Collection of botanical, zoological, geological, or other specimens will be prohibited except on a permission-only basis for scientific purposes.

C. Monitoring protocol

1. Educational activities for groups will be on a permission only basis.
2. The Trust will keep a record of educational tours, activities and field trips conducted on the Preserve. Any impacts due directly to these activities will be reported in management plan updates.

VIII. Other Uses

A. Goals

1. To maintain a permanent office area and meeting space on-site.
2. To maintain the A-frame barn.

3. To evaluate preservation of the Hay Barn building.
4. To hold periodic fundraising events.

B. Objectives

1. Maintain the Heritage Trust Resource Center, the organization's main office:

With the help of dozens of volunteers, the Trust renovated the old shop building located at the entrance to the Preserve and developed the Heritage Trust Resource Center, a building suitable for use as an office and meeting area. A septic system was installed to accommodate the addition of a small restroom and kitchen. A detailed map of the Otto Resource Center, including parking areas, can be found in Appendix H.

The Heritage Trust office was moved to the Resource Center in 2005. The Trust typically holds meetings of its Board of Directors and committees at the Resource Center. The Center is used for staff offices and programs hosted, sponsored or directed by the Heritage Trust. It is not available for private use. The Resource Center will be maintained for use as an office and meeting space. Routine maintenance will include interior and exterior cleaning and necessary repairs to the building.

2. Maintain the area surrounding the office:

The immediate area surrounding the office building, parking lot, and trailhead will be kept in its natural state as much as is practical. Any landscaping around the office building will be accomplished using only native plants.

3. Maintain the A-frame barn:

The A-frame barn will be maintained for use as a storage building. The building received a new metal roof in October 2001. Curtain drains were installed along the north and south sides of the building to direct water runoff from the roof away from the building and to allow for natural groundwater infiltration. A secure, dry storage area was completed within the barn in 2010.

4. Evaluate preservation of the Hay Barn structure:

The Hay Barn structure is located in the wooded area west of the A-frame. Designed and built by Carl Otto, the barn has interesting architectural features. However, this building was neglected for many years and has structural problems due to rot and extensive insect damage. To document its features, the barn was photographed prior to the removal of damaged planks and timbers. Some structural support was added to stabilize the building and improve visitor safety. The Heritage Trust will evaluate the costs of further preservation or restoration to the Hay Barn.

5. Fundraising events:

The Trust will hold periodic fundraising events at the Otto Preserve. The area adjacent to the office and parking lot will be maintained by field mowing to keep this area open for outdoor events.

C. Monitoring protocol

1. Photographic monitoring:

Periodic photographic documentation of the office building, the A-frame and the Hay Barn will be used to monitor changes in the adjacent natural areas, as well as the structures themselves (see Appendix E and F).

IX. Financial Analysis and Schedule

This analysis is intended as a financial planning tool, with all numbers approximate and subject to future adjustment. Otto Preserve management expenses will be reconsidered annually as part of the Heritage Trust's regular budgeting process.

In 2000, when the Otto Preserve was created the Trust designated the Otto Preserve Endowment Fund for the long-term stewardship of the Preserve. The interest from the endowment fund is available for a variety of stewardship expenses. The annual operating budget includes costs for maintaining the Trusts Preserves. This financial analysis considers the basic components of Otto Preserve management and annual property management costs.

Projected annual property management (2011 forward):

Signage, trails, mowing, and misc. property maintenance \$ 2,000
Parking lot maintenance \$ 500
Ecological monitoring and restoration \$250
Staff time \$7,000
ANNUAL TOTAL (not adjusted for inflation) \$ 9,750

IX. Appendices

- A. Heritage Trust Mission and Values Statements
- B. Topographic Map
- C. Inventory lists of vascular plants
- D. Inventory lists of bird species
- E. Map with Photo Points
- F. Photographs
- G. Summary of use restrictions
- H. Resource Center Map

Appendix A: Lummi Island Heritage Trust Mission and Values

Lummi Island Heritage Trust – Statement of Mission and Values

Our Mission:

To create a legacy of abundant open space, native habitat, and natural resources on Lummi Island by inspiring people to protect and care for the island's farms, forests, wetlands and shorelines forever.

Our Values:

Lummi Island Heritage Trust is committed to:

- Striving for *integrity, respect* and *transparency*,
- Making *stewardship* of our protected lands a priority obligation,
- Fostering a conservation ethic in all generations through education and outreach,
- Ensuring *financial sustainability* of our organization through fiscal prudence and strong ties with our donors, volunteers and the greater community and
- Holding ourselves to the highest standard of *excellence* and *permanence* in all our work.

Appendix B: Topographic Map

Topographic map of the Otto Preserve. The existing buildings, trails, wetland area, and 275-foot summit are shown within the Otto Preserve boundaries.



Appendix C: Inventory of vascular plants observed on the Otto Preserve

Vascular Plant List
Otto Preserve

Otto Preserve, Whatcom County, WA. List covers plants found in the Otto Preserve on Lummi Island since 1998. List by Al Hanners and others, October 2000, with additions by Wayne Weber, September 2006. 115 spp.

These lists represent the work of different WA Native Plant Society members over the years. Their accuracy has not been verified by the WNPS, but is offered as a tool to enhance the enjoyment and study of native plants.

* - Introduced

<u>Scientific Name</u>	<u>Common Name</u>	<u>Family Name</u>
<i>Abies grandis</i>	Grand fir	Pinaceae
<i>Acer macrophyllum</i>	Big-leaf maple	Aceraceae
<i>Adenocaulon bicolor</i>	Pathfinder	Asteraceae
<i>Alnus rubra</i>	Red alder	Betulaceae
<i>Amelanchier alnifolia</i>	Serviceberry	Rosaceae
<i>Anaphalis margaritacea</i>	Pearly everlasting	Asteraceae
<i>Arbutus menziesii</i>	Pacific madrone	Ericaceae
<i>Arctium minus</i> *	Common burdock	Asteraceae
<i>Athyrium filix-femina</i>	Lady fern	Polypodiaceae
<i>Berberis aquifolium</i>	Tall Oregongrape	Berberidaceae
<i>Berberis nervosa</i>	Cascade Oregongrape	Berberidaceae
<i>Betula papyrifera</i>	Paper birch	Betulaceae
<i>Carex deweyana</i>	Dewey's sedge	Cyperaceae
<i>Carex hendersonii</i>	Henderson's sedge	Cyperaceae
<i>Carex obnupta</i>	Slough sedge	Cyperaceae
<i>Carex pachystachya</i>	Pachystachy sedge	Cyperaceae
<i>Cerastium vulgatum</i> *	Mouse-ear chickweed	Caryophyllaceae
<i>Cirsium arvense</i> *	Canada thistle	Asteraceae
<i>Cirsium vulgare</i> *	Bull thistle	Asteraceae
<i>Corallorhiza maculata</i>	Spotted coral-root	Orchidaceae
<i>Corylus cornuta</i>	California hazelnut	Betulaceae
<i>Cryptogramma crispa</i>	American rock-brake	Polypodiaceae
<i>Dactylis glomerata</i> *	Orchard grass	Poaceae
<i>Dipsacus sylvestris</i> *	Teasel	Dipsacaceae
<i>Dryopteris expansa</i>	Spreading wood-fern	Polypodiaceae
<i>Epilobium watsonii</i>	Watson's willow-herb	Onagraceae
<i>Equisetum arvense</i>	Common horsetail	Equisetaceae
<i>Erythronium oregonum</i>	Giant fawn-lily	Liliaceae
<i>Fragaria vesca</i>	Wild strawberry	Rosaceae
<i>Galium aparine</i>	Cleavers	Rubiaceae
<i>Galium triflorum</i>	Fragrant bedstraw	Rubiaceae
<i>Gaultheria shallon</i>	Salal	Ericaceae
<i>Geranium robertianum</i> *	Stinky Bob	Geraniaceae
<i>Geum macrophyllum</i>	Large-leaved avens	Rosaceae
<i>Goodyera oblongifolia</i>	Rattlesnake-plantain	Orchidaceae
<i>Hedera helix</i> *	English ivy	Araliaceae

Heuchera micrantha	Small-flowered alumroot	Saxifragaceae
Hieracium gracile	Slender hawkweed	Asteraceae
Holodiscus discolor	Ocean spray	Rosaceae
Hypericum perforatum*	Klamath weed	Hypericaceae
Hypochaeris radicata*	Hairy cat's-ear	Asteraceae
Ilex aquifolium*	English holly	Aquifoliaceae
Juncus effusus	Soft rush	Juncaceae
Lactuca muralis*	Wall lettuce	Asteraceae
Lapsana communis*	Nipplewort	Asteraceae
Lathyrus sylvestris*	Narrow-leaved everlasting pea	Fabaceae
Linnaea borealis	Twinflower	Caprifoliaceae
Lonicera ciliosa	Orange honeysuckle	Caprifoliaceae
Lysichiton americanus	Skunk cabbage	Araceae
Matricaria matricarioides*	Pineapple weed	Asteraceae
Mentha arvensis	Field mint	Lamiaceae
Montia parvifolia	Streambank spring beauty	Portulacaceae
Montia sibirica	Candyflower	Portulacaceae
Oemleria cerasiformis	Indian plum	Rosaceae
Osmorhiza chilensis	Mountain sweet-cicely	Apiaceae
Phalaris arundinacea*	Reed canarygrass	Poaceae
Pheum pratense*	Timothy	Poaceae
Plantago lanceolata*	English plantain	Plantaginaceae
Plantago major*	Common plantain	Plantaginaceae
Polygonum aviculare*	Doorweed	Polygonaceae
Polypodium glycyrrhiza	Licorice fern	Polypodiaceae
Polypodium hesperium	Western polypody	Polypodiaceae
Polystichum munitum	Western sword fern	Polypodiaceae
Populus trichocarpa	Black cottonwood	Salicaceae
Prunella vulgaris	Self-heal	Lamiaceae
Prunus emarginata	Bitter cherry	Rosaceae
Pseudotsuga menziesii	Douglas fir	Pinaceae
Pteridium aquilinum	Bracken	Polypodiaceae
Pyrus fusca	Pacific crabapple	Rosaceae
Ranunculus repens*	Creeping buttercup	Ranunculaceae
Ribes lacustre	Prickly currant	Grossulariaceae
Ribes sanguineum	Red-flowered currant	Grossulariaceae
Rosa gymnocarpa	Baldhip rose	Rosaceae
Rosa nutkana	Nootka rose	Rosaceae
Rubus discolor*	Himalayan blackberry	Rosaceae
Rubus laciniatus*	Evergreen blackberry	Rosaceae
Rubus leucodermis	Blackcap	Rosaceae
Rubus parviflorus	Thimbleberry	Rosaceae
Rubus spectabilis	Salmonberry	Rosaceae
Rubus ursinus	Wild blackberry	Rosaceae
Rumex acetosella*	Sheep sorrel	Polygonaceae
Rumex crispus*	Sour dock	Polygonaceae
Rumex obtusifolius*	Broad-leaved dock	Polygonaceae
Salix lasiandra	Pacific willow	Salicaceae
Salix scouleriana	Scouler willow	Salicaceae
Salix sitchensis	Sitka willow	Salicaceae

<i>Sambucus racemosa</i>	Red elderberry	Caprifoliaceae
<i>Sanicula crassicaulis</i>	Pacific sanicle	Apiaceae
<i>Scirpus microcarpus</i>	Small-flowered bulrush	Cyperaceae
<i>Sedum lanceolatum</i>	Lance-leaved stonecrop	Crassulaceae
<i>Senecio jacobaea*</i>	Tansy ragwort	Asteraceae
<i>Senecio vulgaris*</i>	Common groundsel	Asteraceae
<i>Smilacina racemosa</i>	False Solomon's seal	Liliaceae
<i>Solidago canadensis</i>	Meadow goldenrod	Asteraceae
<i>Sonchus asper*</i>	Prickly sowthistle	Asteraceae
<i>Spergularia rubra*</i>	Red sandspurry	Caryophyllaceae
<i>Spiraea douglasii</i>	Hardhack	Rosaceae
<i>Spiranthes romanzoffiana</i>	Hooded ladies-tresses	Orchidaceae
<i>Stachys cooleyae</i>	Cooley's hedge-nettle	Lamiaceae
<i>Stellaria crispa</i>	Crisped starwort	Caryophyllaceae
<i>Stellaria media*</i>	Common chickweed	Caryophyllaceae
<i>Symphoricarpos albus</i>	Common snowberry	Caprifoliaceae
<i>Tanacetum vulgare*</i>	Common tansy	Asteraceae
<i>Taraxacum officinale*</i>	Common dandelion	Asteraceae
<i>Tellima grandiflora</i>	Fringecup	Saxifragaceae
<i>Thuja plicata</i>	Western red cedar	Cupressaceae
<i>Tiarella trifoliata</i>	Foamflower	Saxifragaceae
<i>Trientalis latifolia</i>	Broadleaved starflower	Primulaceae
<i>Trifolium hybridum*</i>	Alsike clover	Fabaceae
<i>Trifolium pratense*</i>	Red clover	Fabaceae
<i>Trifolium repens*</i>	White clover	Fabaceae
<i>Tsuga heterophylla</i>	Western hemlock	Pinaceae
<i>Urtica dioica</i>	Stinging nettle	Urticaceae
<i>Vaccinium parvifolium</i>	Red huckleberry	Ericaceae
<i>Veronica americana</i>	American brooklime	Scrophulariaceae

Appendix D: Inventory of bird species observed on the Otto Preserve

Otto Preserve Bird List – updated 6/21/2011

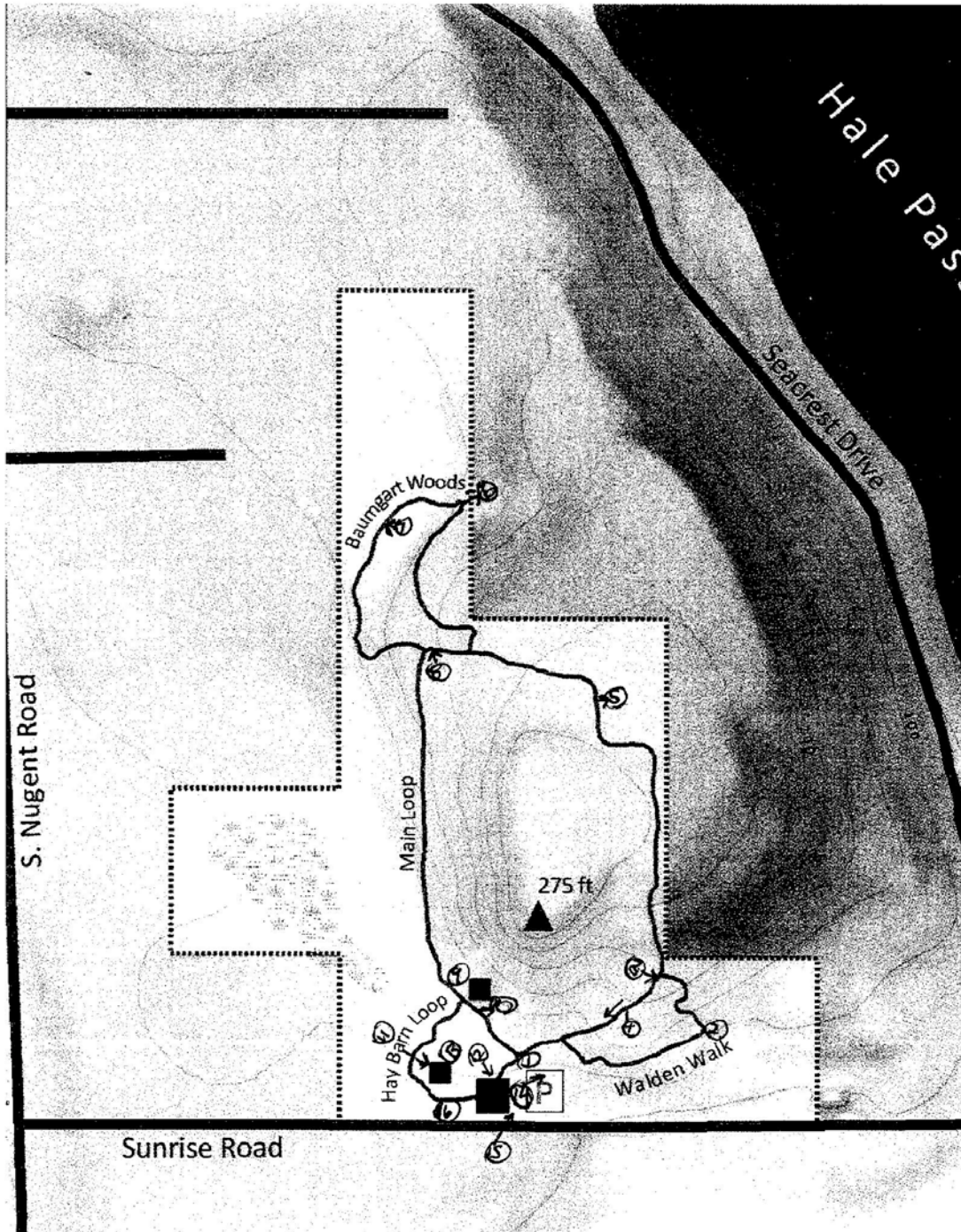
Wood Duck*	<i>Aix Sponsa</i>
American Wigeon	<i>Anas americana</i>
Mallard*	<i>Anas platyrhynchos</i>
Green-winged Teal	<i>Anas crecca</i>
Ring-necked Duck	<i>Aythya collaris</i>
Bufflehead	<i>Bucephala albeola</i>
Hooded Merganser*	<i>Lophodytes cucullatus</i>
Great Blue Heron	<i>Ardea herodias</i>
Turkey Vulture	<i>Cathartes aura</i>
Osprey	<i>Pandion haliaetus</i>
Bald Eagle	<i>Haliaeetus albicilla</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Virginia Rail*	<i>Rallus limicola</i>
Sora*	<i>Porzana carolina</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Band-tailed Pigeon	<i>Patagioenas fasciata</i>
Barn Owl	<i>Tyto alba</i>
Western Screech-Owl	<i>Megascops kennicottii</i>
Great Horned Owl*	<i>Bubo virginianus</i>
Barred Owl*	<i>Strix varia</i>
Northern Saw-whet Owl	<i>Aegolius arcadius</i>
Vaux's Swift	<i>Chaetura niger</i>
Rufous Hummingbird*	<i>Selasphorus rufus</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>
Downy Woodpecker*	<i>Picoides pubescens</i>
Hairy Woodpecker*	<i>Picoides villosus</i>
Northern Flicker*	<i>Colaptes auratus</i>
Pileated Woodpecker*	<i>Dryocopus pileatus</i>
Olive-sided Flycatcher*	<i>Contopus cooperi</i>
Willow Flycatcher*	<i>Empidonax traillii</i>
Pacific-slope Flycatcher*	<i>Empidonax difficilis</i>
Cassin's Vireo	<i>Vireo cassinii</i>
Hutton's Vireo*	<i>Vireo huttoni</i>
Warbling Vireo*	<i>Vireo gilvus</i>
Steller's Jay*	<i>Cyanocitta cristata</i>
Northwestern Crow	<i>Corvus caurinus</i>

Common Raven	<i>Corvus corax</i>
Tree Swallow*	<i>Tachycineta bicolor</i>
Violet-green Swallow*	<i>Tachycineta thalassina</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee*	<i>Poecile atricapillus</i>
Chestnut-backed Chickadee*	<i>Poecile rufescens</i>
Bushtit*	<i>Psaltriparus minimus</i>
Red-breasted Nuthatch*	<i>Sitta canadensis</i>
Brown Creeper*	<i>Certhia americana</i>
Bewick's Wren*	<i>Thryomanes bewickii</i>
House Wren*	<i>Troglodytes aedon</i>
Pacific Wren*	<i>Troglodytes pacificus</i>
Marsh Wren*	<i>Cistothorus palustris</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
Swainson's Thrush*	<i>Catharus ustulatus</i>
Hermit Thrush	<i>Catharus guttatus</i>
American Robin*	<i>Turdus migratorius</i>
Varied Thrush	<i>Ixoreus naevius</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Orange-crowned Warbler*	<i>Vermifora celata</i>
Yellow Warbler*	<i>Dendroica petechia</i>
Yellow-rumped Warbler*	<i>Dendroica coronata</i>
Black-throated Gray Warbler*	<i>Dendroica nigrescens</i>
Townsend's Warbler*	<i>Dendroica townsendi</i>
MacGillivray's Warbler*	<i>Oporornis tolmiei</i>
Common Yellowthroat*	<i>Geothlypis trichas</i>
Wilson's Warbler*	<i>Wilsonia pusilla</i>
Western Tanager*	<i>Piranga ludoviciana</i>
Spotted Towhee*	<i>Pipilo maculatus</i>
Fox Sparrow	<i>Passerella iliaca</i>
Song Sparrow*	<i>Melospiza melodia</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
White-crowned Sparrow*	<i>Zonotrichia leucophrys</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed Junco*	<i>Junco hyemalis</i>
Black-headed Grosbeak*	<i>Pheucticus melanocephalus</i>
Red-winged Blackbird*	<i>Agelaius phoeniceus</i>
Brown-headed Cowbird*	<i>Molothrus ater</i>
Purple Finch*	<i>Carpodacus purpureus</i>
House Finch*	<i>Carpodacus mexicanus</i>
Red Crossbill*	<i>Loxia curvirostra</i>

Pine Siskin*
American Goldfinch*
Evening Grosbeak

Spinus pinus
Carduelis tristis
Coccothraustes vespertinus

Appendix E: Map of Photo Monitoring Points



Appendix F: Photographs

[photographs are presented in the Otto Preserve baseline files, available at the Heritage Trust Resource Center.]

Appendix G: Summary of use restrictions

The following use restrictions will be in effect for the Otto Preserve. They will be posted on site and mentioned in literature describing the Preserve as appropriate.

- No camping
- No fires
- No hunting or discharge of firearms
- Daytime use only
- Dogs must be on leash and under voice control
- Dog owners must clean up after their dogs
- Pedestrian access only
- No overnight parking
- No vehicles (except fire and maintenance)
- No bicycles beyond the parking area
- No horses
- No for-profit commercial use
- No collection of botanical, zoological, geological or other specimens except on a permission-only basis for scientific or educational purposes

Appendix H: Resource Center Map

