



Lummi Island Heritage Trust  
Baker Preserve Management Plan

*Approved March 16, 2010*

## LUMMI ISLAND HERITAGE TRUST MISSION

The mission of Lummi Island Heritage Trust is to preserve the rural character, natural heritage, and scenic beauty of Lummi Island by working with landowners and the general public to conserve the island's farmland, forestland, open space, and undeveloped shorelines.

Since its inception in 1998, the Heritage Trust has partnered with island landowners and the island community to conserve 830 acres of Lummi Island's disappearing open spaces and natural areas, and created three beautiful nature preserves. The Otto Preserve, the Curry Preserve, and the Baker Preserve provide large contiguous protected habitats for birds and other wildlife, as well as places for people to experience nature.

In addition to its preserves, the Heritage Trust has partnered with 14 private landowners to establish conservation easements on 517 acres of private land on Lummi Island.

Lummi Island Heritage Trust is a non-profit 501(c) 3 organization and belongs to the Washington Association of Land Trusts and the national Land Trust Alliance.

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## **I. Introduction**

The Lummi Island Heritage Trust's Baker Preserve consists of 129 acres of mixed forests, grassy balds, steep cliffs, seasonal streams, and wetlands.

Lummi Island Heritage Trust (LIHT) purchased the northern 49 acres of the Preserve in 1999 as the organization's first land acquisition project. In 2007, the Heritage Trust purchased an additional 80 acres to the south as part of the Baker Mountain Ranch conservation project. Simultaneously, Washington Department of Fish and Wildlife (WDFW) placed a conservation easement on the 80-acre portion of the Preserve to ensure protection in perpetuity.

To the south and east, the Baker Preserve is bordered by approximately 580 acres owned by WDFW and managed as a Natural Area Preserve (NAP). In an effort to further protect the land, the 80 acre portion of the Baker Preserve was also designated as a NAP by WDFW in 2004. This acreage will be voluntarily registered as a NAP with the Washington State Department of Natural Resources' (DNR) Natural Heritage Program.

Access to the Baker Preserve is provided by trail that leads from Seacrest Drive to an overlook on the WDFW land at the Preserve's southern boundary. The trail begins at approximately 50 feet above sea level and climbs to 1,050 feet over a distance of about 1.64 miles with an average slope of about 14 degrees. (Fig. 1, Estes, 2009).

The high profile nature of the Baker Mountain Ranch project and the participation of so many donors guided the Heritage Trust board of directors' decision to open the Baker Preserve in September 2008 under an Interim Management Plan.

In March 2009, the Heritage Trust appointed an Advisory Committee to study all aspects of the Interim Plan, solicit public input, and make recommendations to the board for consideration in the final Baker Preserve Management Plan. This plan reflects the recommendations presented by the Advisory Committee to the Heritage Trust board in August 2009.

This Baker Preserve Management Plan is an adaptive document and it is anticipated that there will be need for ongoing revision as environmental and social conditions change.

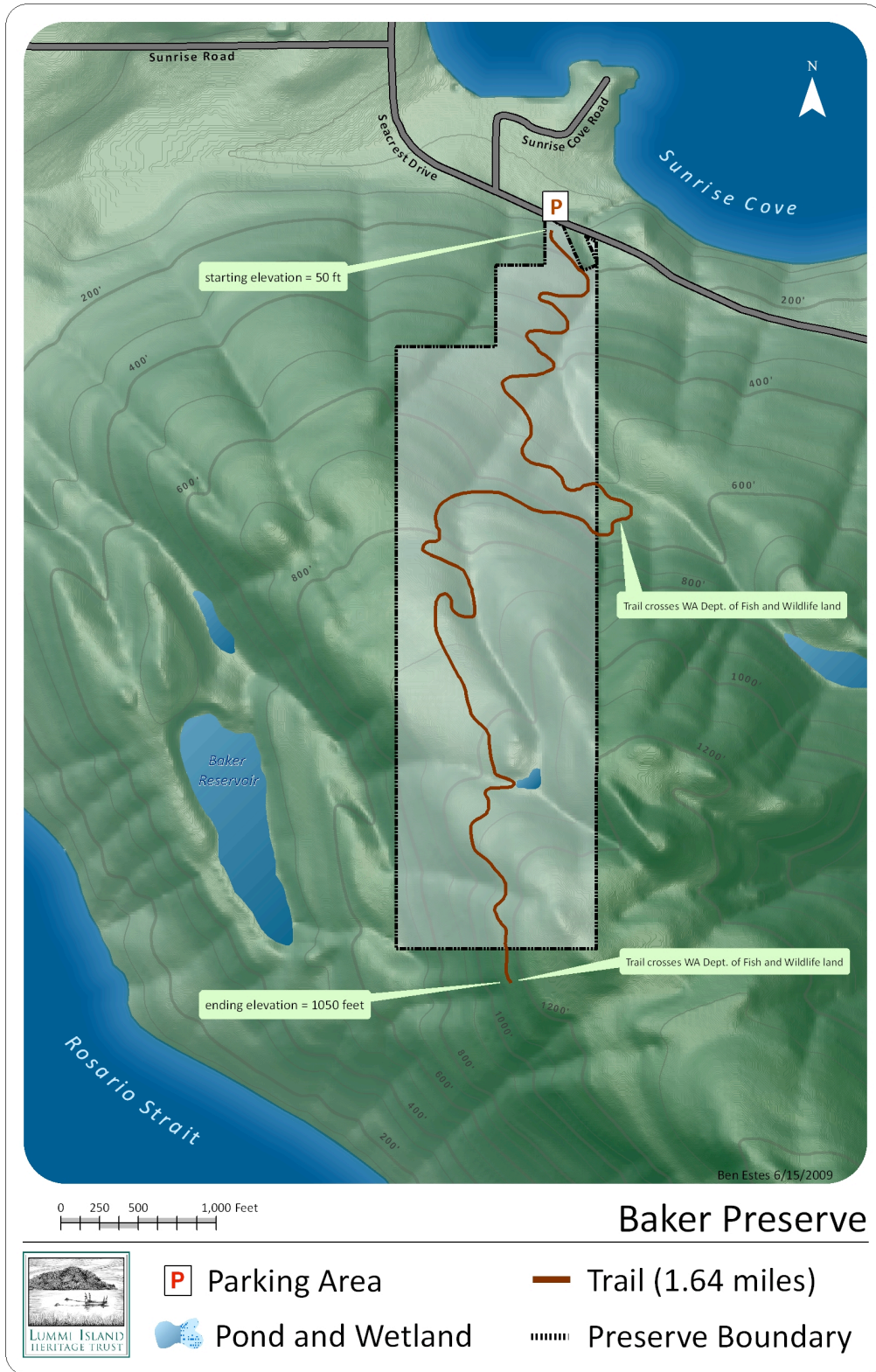


Figure 1. Map of the Baker Preserve (Ben Estes, 2009)

## **II. Management Goals**

Lummi Island Heritage Trust has developed five goals for the Baker Preserve taking into consideration the overarching strategies set forth in 1) the Trust's mission and goals statement to manage "lands owned by the Heritage Trust primarily for the benefit of native plants and wildlife, allowing low-impact public use where appropriate" (Lummi Island Heritage Trust, 2005) and 2) the WDFW policy that Natural Area Preserve lands "must be managed primarily for resource preservation, protection and study, and may provide limited or no public use." (WDFW & Lummi Island Heritage Trust, 2007);

Goal 1: Follow the priorities of the conservation easement held by WDFW, which states: "the property will be retained forever in its natural and open space condition, to protect habitat and to prevent any use of the Property that will significantly impair or interfere with the conservation values of the property" (WDFW & Lummi Island Heritage Trust, 2007).

Goal 2: Manage the Preserve in cooperation with WDFW and in a manner that will 1) enhance habitat for native plants and wildlife, 2) promote forest fire prevention, and 3) support native flora and fauna restoration toward an old-growth native forest ecosystem.

Goal 3: Encourage scientific studies that provide current and historic data, develop inventories, and provide accurate baselines for the Baker Preserve's plants, wildlife, streams, wetlands, and geological features.

Goal 4: Promote environmental education programs and events on the Preserve that encourage stewardship and protection of the conservation values of the Preserve.

Goal 5: Provide for low impact public use that encourages visitor education, preserves habitat, and protects the conservation values of the Preserve.

## **III. Natural Resources**

### **Geological Features**

The underlying rocks in the Baker Preserve are characteristic of those found throughout the southern portion of Lummi Island. They consist of a thick sequence of sandstone and shale, the Lummi Formation, which appears to overlay basalt and chert, thought to be a portion of an old sea floor (Blake and Engrebretson, 2003). All of these rocks have been intensely deformed in a subduction zone environment similar to the plate boundary currently found along the coast of Washington and Oregon. The associated high pressures and moderate temperatures have metamorphosed these rocks, producing the hard sandstone and highly cleaved shale seen today. Subsequent to these events, faults and fractures have developed.

Glaciers advanced and covered most of the Puget Lowlands between 20,000 and 10,000 years ago, including Lummi Mountain. Glacial groves and striations can be seen on

some massive portions of the Lummi Formation. Except for local pockets of glacial debris, the old rocks were thinly covered and consequently the soil cover is generally thin in the Baker Preserve.

After the glaciers retreated, the entire area has undergone uplift. Many of the existing faults and fractures have been reactivated to produce distinct topographic features, such as narrow, linear valleys. It is believed that fracture zones control the three drainage basins and associated wetlands within the preserve. The dramatic cliff along the west side of the preserve is associated with a prominent northwest trending fault that has dropped the entire sequence down to the west. While erosion has reduced the steepness of the fault scarp, leaving the series of exposed balds; the slope forms a dangerous area. Similarly, some of the steeper portions of the trail and some of the wetter areas along the trail owe their presence to these fracture zones.

### **Flora and Fauna**

The Baker Preserve contains several WDFW priority habitats and DNR Natural Heritage Program terrestrial ecosystems including:

- mature Douglas fir forest with snag-rich areas
- near-vertical cliffs
- talus slopes
- isolated wetlands
- nesting habitat for several species of concern, and
- Douglas-fir/baldhip rose-oceanspray native plant community  
(Eissinger, 2008 )

The Baker Preserve's plant communities are relatively species rich for a Puget Lowland forest type. The Preserve supports a vibrant forest community of diverse species and a fragile succession of flora at the grassy balds. The uncommon and sensitive plant species on these fragile balds can easily be destroyed by foot traffic.

The forests on the Preserve were logged as part of the early exploitation of natural resources on Lummi Island. Timber was harvested, logging roads were developed and there were significant fires in the slash. The land has been recovering naturally with minimal disturbance for the past 70-80 years.

The Baker Preserve contains important wildlife habitat. A partial wildlife list includes diverse amphibian, reptile, bird, and mammal species including State and Federal species of concern. Ground birds can be particularly vulnerable to disruption by humans and dogs during and after nesting.

Flora and fauna inventory lists for the Baker Preserve are available at the Heritage Trust Resource Center and are included in Appendix B of this Management Plan. Existing ecological inventories will be expanded and updated as new information becomes available.

## **Wetlands and Riparian Habitat**

Three seasonal streams create three drainage basins and support a small wetland within the Baker Preserve. The linear courses of these streams are likely related to fractures in the underlying bedrock. Access to fresh water is critical for the preserve's terrestrial wildlife and plant communities.

The unique conditions of an island environment create significant limitations for terrestrial and fresh water populations. Disruption of specific habitats can eliminate an entire species from Lummi Island, therefore careful stewardship is especially important to safeguard the flora and fauna of the Baker Preserve.

### A. Objectives for Natural Resources

1. Maintain forests, wetlands, steams, balds, and native species in good ecological health; support long-term return to an "old-growth" native forest ecosystem.
2. Encourage native species diversity.
3. Improve ecological functioning of human-altered habitats.
4. Encourage a greater understanding of the Preserve's natural habitats and systems through education and research.

### B. Stewardship Tasks for Natural Resources

Preservation, conservation and restoration of the Preserve's outstanding ecological resources are the primary goals of our stewardship program. Short-term tasks are targeted for completion in 1-3 years. On-going tasks require longer-term action.

#### 1. Protection of priority habitats and species

The Preserve's priority habitats and species of concern are cited in Appendix C. Extra management attention will be given to the priority habitat areas and species of concern.

Protective actions may include:

Short-term:

- 1) Restrict public use in areas such as nest sites and specific balds

On-going:

- 2) Seasonal or permanent closure for restoration or protection
- 3) Ecological restoration of damaged habitats

#### 2. Maintain balds and other areas with sensitive/rare vegetation



The thin, rocky soils and steep cliffs of the balds present ecological and safety challenges. Plant communities on balds grow on thin, dry soils vulnerable to trampling and compaction. Visible damage has already occurred from human foot traffic.

Protection and restoration tasks may include:

Short-term:

- 1) Installing fencing and signage at the overlook to improve visitor safety and protect native plants (in partnership with WDFW)
- 2) Interpretive signage to educate and enhance safety for visitors

On-going:

- 3) Monitoring and controlling for invasive species
- 4) Planting of native species to renew damaged areas
- 5) Closure of selected sensitive areas or over-used areas

### 3. Wetlands and Streams

More scientific research is needed to investigate the wetland and riparian habitats and species on the Baker Preserve. Maintaining clean water supplies is critical for healthy growth of flora and fauna.

Management tasks may include:

On-going:

- 1) Studying and creating inventories of wetland species and amphibian populations
- 2) Monitoring and controlling for invasive wetland species
- 3) Maintaining trails and roads to control water damage

### 5. Forest Management

The Baker Preserve contains dry coniferous forest, open transitional forest, moist mixed woodlands of Douglas Fir, Red Alder, Western Red Cedar, Bigleaf Maple, and a rich understory of native shrubs, flowers and ferns.

Forest management activities may include:

Short-term:

- 1) Removal of diseased or hazardous trees

On-going:

- 2) Documentation of historical logging activities
- 3) Selective planting and tree removal to increase biodiversity, reduce disease, enhance “old growth” characteristics, and reduce fire danger.

### 6. Control of Invasive Species (plants and animals)

Non-native species and noxious weeds can invade natural areas and outcompete native plants and animals. Noxious weeds can also be toxic to humans and animals. Invasive

plants often form dense monocultures, thus reducing an area's rich biodiversity. Control efforts on the Baker Preserve will be focused in areas of greatest ecological priority and vulnerability.

Specific tasks may include:

Short-term:

- 1) Consultation with Whatcom County Noxious Weed Board to identify and inventory invasive species and noxious weeds.

On-going:

- 2) Removal and control activities carried out by stewards, staff, volunteers and contractors

## 7. Scientific Research

Scientific research will be encouraged on the Baker Preserve. Scientific data will be used to increase knowledge and to inform Baker Preserve management practices, stewardship training, and environmental education programs. Prior permission from Lummi Island Heritage Trust is required for all research activities that are conducted on the Preserve.

## 8. Education

LIHT will actively promote knowledge, stewardship and enjoyment of the Baker Preserve's ecological resources through cooperation with schools, youth clubs, environmental educators, nature organizations, and community groups. Educational events and programs on the property will be encouraged. They will be conducted on a permission-only basis and may be limited in size and duration.

Specific actions may include:

Short-term

- 1) Promote conservation education field trips by local organizations
- 2) Host community hikes, walks, and programs for LIHT members and guests
- 3) Train steward "naturalists" for onsite education

On-going:

- 4) Interpretive signage at kiosks and along trails
- 5) Disseminate public information via the LIHT website, newsletter, e-mail, and printed materials
- 6) Encourage first time users to visit the Heritage Trust Resource Center for an orientation and other educational opportunities

## 9. Restriction of uses (repeated on IV, B.8)

Restrictions are intended to protect the ecology of the Preserve and minimize management costs. This information will be posted on-site and in LIHT materials, as appropriate. LIHT generally uses signage and periodic contact with staff and volunteer

stewards to educate visitors about use restrictions. Consistent with the management goals of preserving flora and fauna, the following activities are prohibited on the Preserve:

- Fires, fireworks, firearms or smoking
- Hiking with dogs or other domestic animals
- Bicycles, wheeled or motorized vehicles
- Camping, hunting, overnight stays
- Use of alcohol or drugs
- Commercial activities
- Collection of botanical, zoological, geologic or other specimens except by permission for scientific or educational purposes.

Trailhead sign-in is required and hiking parties greater than six persons must have prior approval. Vehicle access is limited to emergency and service vehicles. Baker Preserve is open for daytime use only and hiking is allowed only on designated trails.

#### 10. Enforcement of Preserve Restrictions

Communication and education are essential tools in the enforcement of Preserve restrictions. LIHT Board members, staff and volunteers will document and respond to violations of Baker Preserve policies through personal contact and written communication. Criminal violations will be referred directly to the Whatcom County Sheriff's Department for enforcement.

#### C. Monitoring Protocols for Natural Resources

High priority ecological features on the Preserve will be monitored to help evaluate stewardship policies and maintain resource health. Additional research will be encouraged and other monitoring methods will be developed as needs emerge.

1. Inventory: Existing ecological inventories provide a baseline against which to measure suspected changes or impacts to the land. Inventories will be updated on a regular basis or as new information becomes available.
2. Photomonitoring: Photographs will be taken from specified photo points on the property to provide a visual record of trends and changes over time.

### **IV. Public Access**

The Heritage Trust's stewardship strategy to manage "lands owned by the Heritage Trust primarily for the benefit of native plants and wildlife, allowing low-impact public use where appropriate" is the foundation for public access management decisions (Lummi Island Heritage Trust, 2005).

Keeping human presence and intervention to a minimum is expected to maintain and restore the Baker Preserve's plants, wildlife and other natural features. Public access and

other activities will be designed to minimize impacts, with the understanding that public access may have to be restricted or discontinued if the Preserve's conservation values are compromised and impacts cannot be controlled.

A "no dogs or other domestic animals policy" was established on the Preserve based on the following information: 1) an analysis of pertinent scientific research, (LIHT Advisory Committee Report, 2009, pp. 36-37); 2) the requirement stated in the Conservation Easement held by WDFW that a Natural Area Preserve must "protect habitat and prevent any use...that will significantly impair or interfere with the conservation values of the property," (WDFW& Lummi Island Heritage Trust, 2007); 3) the DNR Natural Heritage Council policy recommendation that "dogs not be allowed on Natural Area Preserve designated lands" (DNR, 2009) and 4) the recommendation of the LIHT Advisory Committee (LIHT Advisory Committee Report, 2009, pp. 31, 35-46). Service dogs are permitted in accordance with Americans With Disabilities Act (ADA) guidelines.

#### A. Objectives for Public Access

1. Maintain safe, low impact public access that provides for scientific and educational understanding of the Preserve's conservation values.
2. Maintain an appropriate level of use, thus protecting the Preserve's conservation values, and providing visitors with a sense of wildness.
3. Support volunteer stewardship program to educate visitors and monitor activities on the preserve.

#### B. Stewardship Tasks for Public Access

1. Controlling level of use

Over time the Baker Preserve is expected to face pressures from the region's rising human population and increasing demand for public access to natural areas. Maintaining an appropriate level of use is essential to protecting the Preserve's conservation values. The following approaches may be used to manage levels of use:

- 1) Limit signage to avoid overexposure and to limit visual impact to the natural environment; use signage that incorporates universal symbols
- 2) Limit facilities to discourage unwanted activities. No toilets, trash receptacles, or picnic tables will be provided. "Leave no trace."
- 3) Monitor the number of visitors through use of a trailhead sign-in system. A permit system and/or electronic monitors to control visitor use may be implemented as needed.
- 4) No promotion of the Preserve for recreation, such as in hiking guides or trail books. Prior permission is required for groups of six or more.

5) Close the Preserve to public access at any time for reasons such as unsafe weather or trail conditions, damage to ecological resources, or violations of Preserve policies.

6) Volunteer stewards and staff will document and respond to violations of public use policies. (see III, B. 9.)

## 2. Parking area and signage

A parking area with spaces for approximately five cars is available at the trailhead on Seacrest Drive. A bicycle rack will be installed. No overnight parking or camping will be allowed.

A trailhead kiosk will contain a map of the Baker Preserve, public use guidelines, a trailhead sign-in system and other information.

## 3. Volunteer Stewardship Program

LIHT will recruit interested neighbors, members and citizens as volunteer stewards to serve as guides, educators and monitors for the preserve. Volunteer stewards will help the LIHT meet its management goals by making regular visits to the property to observe and record its condition and level of use. Volunteer stewards may also be involved in visitor education, maintenance, invasive species control and safety activities.

## 4. Safety and Fire Plan

All fire, health and safety emergencies will be directed to 911. Staff and volunteers will assist first responders as needed. LIHT will work with the Lummi Island Fire Department and the Department of Natural Resources to create a plan for fire prevention, fire suppression, emergency response and rescue. The Baker Preserve's road will be maintained for fire trucks and emergency vehicles. LIHT staff and volunteers will educate visitors about fire prevention and hiking safety.

## 5. Trails and Road Maintenance

Currently a 1.64 mile-long Baker Trail leads hikers through dense forests and along old logging roads to a grassy bald, steep cliffs and an overlook (Fig. 1, Estes, 2009) featuring sweeping views of the San Juan archipelago. The Preserve will utilize a trail plan that incorporates the following principles:

- 1) Primitive trail design with a natural, native surface and sustainable location and construction.
- 2) Direct trails away from property boundaries, sensitive, or hazardous areas.
- 3) Joint trail and road maintenance by Lummi Island Heritage Trust and WDFW to clear debris and maintain access for emergency vehicles.

## 6. Installing signage

Signage will be kept to the minimum necessary to educate visitors, respect neighbor's privacy and protect the preserve's natural resources. Current signage consists of a rustic trailhead kiosk, simple wooden trail signs at junctions and boundaries and temporary signs at the balds that restrict access to all but the overlook owned by WDFW. Lummi Island Heritage Trust and Washington Department of Fish & Wildlife will partner to develop interpretive and safety signage for the balds and other priority locations.

## 7. Maintenance

Routine preserve maintenance will generally include maintaining the parking area, trails and signs, litter patrol, and other tasks as needed. Volunteers and staff will perform most routine maintenance work.

## 8. Restriction of uses (see section III, B. 8)

### C. Monitoring Protocols for Public Access

LIHT will carefully monitor the level and impacts of public use on the Baker Preserve's ecological resources. The following monitoring protocols may also be used:

- 1) Reports from volunteer stewards, staff, neighbors, members and visitors will be collected and reviewed.
- 2) Trailhead sign-in: all visitors to the Baker Trail will be requested to sign-in at the trailhead kiosk, information will be collected and reviewed on a regular basis.
- 3) Encounter monitoring: volunteer stewards will be trained to document observations of visitors, flora and fauna, and safety concerns on the Preserve.
- 4) Photomonitoring: Photographs will be taken periodically from specified photo points to assess public use impacts at key locations.

## **V. Financial Analysis and Schedule**

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

The Trust will designate \$100,000 for the long-term stewardship of the Baker Preserve. This designated fund will be available for a variety of management expenses. This financial analysis considers two components of Preserve management: site start-up costs and annual property management costs.

### **Site start-up (2008 - 2009):**

Trail Building (contract) \$3,900  
Parking area construction \$ 6,000  
Signage \$3,500  
Permit System supplies \$600  
Volunteer stewardship program supplies: \$ 150  
Advisory Committee supplies: \$ 250  
Staff time \$ 10,000  
TOTAL \$ 24,400

### **Projected annual property management (2010 forward):**

Signage, trail, and misc. property maintenance \$ 1,000  
Road and parking maintenance \$ 1,000  
Photomonitoring: \$100  
Ecological monitoring and restoration \$250  
Staff time \$7,000  
ANNUAL TOTAL (not adjusted for inflation) \$ 9,350

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