

# MACAULAY POINT NATURAL AREAS MANAGEMENT PLAN

PREPARED FOR

TOWNSHIP OF ESQUIMALT  
ESQUIMALT BC



*Lupinus densiflorus* Benth. var. *densiflorus*,  
Dense-flowered Lupine, Nationally Endangered

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**MARCH 2009**

## **SUMMARY**

The objective of Macaulay Point Park Natural Areas Management Plan is to create a detailed approach to actively assist in the survival and protection of populations of federally and provincially listed species at risk. For the purposes of this management plan, Macaulay Point Park includes Fleming Beach, Buxton Green and Macaulay Point.

Management of Macaulay Point Park is essential to protect the resources that led to the formation of the park initially. In addition, recent passage of the Species at Risk Act requires that the Department of National Defence protect species at risk that are located on land DND owns. This report presents preliminary proposed management systems for Macaulay Point.

The proposed management systems are based on an understanding of the current conditions that exist in the park. An assessment of these conditions forms the baseline upon which management actions can be measured. The current conditions assessment identified all sites in the park where degradation of the ecological integrity was evident (excluding the ubiquitous invasive species). At each site a photograph, information on the conditions, causes (where apparent) and GPS locations were collected. This information has been compiled into the Current Conditions Report (Appendix 1).

A total of 59 degraded sites were identified in Macaulay Point Park. All are associated with some form of park usage. Usage patterns were evaluated and overlain by the occurrence of rare species (from other studies). Five management zones have been proposed:

1. Rock Climbing Zone
2. Off-leash Dog Walking Zone
3. Historic Fort Zone
4. Swimming and Picnic Zone
5. Conservation / On-leash Dog Walking Zone.

Specific management strategies have been established for each of these zones, and management and monitoring systems that support the revised site management systems are proposed. The current conditions report can serve as a baseline against which changes in park ecosystems can be measured. Current rare species monitoring programs should be continued to provide an indication of the success of the revised management programs.

Recommendations for implementation of the proposed changes in management are identified. These include bringing the public into the management decision making and fostering the development of stewardship groups to assist in the stewardship of the park. It is recognized that implementation may be a protracted process.

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## 1.0 INTRODUCTION

Management of our parks is essential to sustain the values that prompted establishment of these sites. In addition, as *refugia* from expanding urban areas and ecosystem alienation, parks often serve to protect elements of the natural flora and fauna that could not survive in the “outside” context. Increased pressures on parks from park users as well as from invasive species that arise from increased use have created a situation where new management techniques are required. Traditional management strategies that focused on building more facilities and hardening trails have proven to be ineffective in protecting the integrity of the ecological resources that parks seek to protect. In addition, there is an increasing demand from the public served by these parks to participate in the way the facilities are managed.

All these pressures are at play at Macaulay Point Park. The land is owned by the Department of National Defence (DND). However, the Township of Esquimalt manages Macaulay Point through a renewable five-year license agreement with DND. The Township of Esquimalt has occupied the site since 1985 and maintained it as a park since 1991. Initially, management activities centered on providing benches, trails and other amenities such as mowed areas. The federal Species at Risk Act (SARA) applies to the area of land owned by DND. The Act contains prohibitions which aim to protect species at risk. There are known SARA listed species populations at Macaulay Point and the development of an effective land management strategy to minimize threats and sustain these populations is needed. This report presents management systems that are available for adoption at Macaulay Point. These strategies recognize the current recreational use of the park while providing a context in which rare species can be effectively managed.

Effective management systems are responsive to the pressures that influence the resource that is being managed. Management actions must anticipate resource threats and respond accordingly before the resource that is being managed is lost. The Limits of Acceptable Change model (Cole and Stankey 1997) is an assessment model that was developed to provide an assessment system that is responsive to changing conditions brought about by degrading elements (humans, dogs, invasive species, etc.). This model allows managers to define conditions that are unacceptable and to implement management actions to avoid loss of the resource being managed. It also identifies natural ecosystem components that are influenced by the degrading elements. The presence or absence of appropriate vegetation was used at Macaulay Point as the ecosystem measure that was influenced by the degrading element (park use). Where off-trail vegetation damage was significant enough to create bare ground, then management actions were indicated. However, where vegetation remained covering the ground, continued use could be tolerated. Details of the assessment methodology are presented below.

## **2.0 METHODS**

The Macaulay Point Natural Areas Management Plan was developed using specific methodology, applying the following five principle tasks:

1. Collection of appropriate existing data and mapping
2. Collection of information on the current conditions at the park
3. Design of management scenarios
4. Development of management implementation options
5. Identification of appropriate monitoring tools.

The first task required for the development of the Natural Areas Management Plan entailed the collection and review of all pertinent information. Information on rare species populations, including recent mapping and trends, plans for development and other pertinent information was collected and reviewed. An initial site visit was held with management personnel to identify existing management strategies, constraints and opportunities. Status reports and recovery plans for species at risk that occur in the park were reviewed.

The second task consisted of documenting current conditions in the park. This was the detailed field work segment of the project. The current conditions assessment collected data at every site where evidence of wear was visually apparent. Each site was photographed and a GPS location was recorded. Data collected at each site is provided in the Current Conditions Report (Appendix 1). In addition to providing information that was used in the preparation of this natural areas management plan, the Current Conditions Report serves as a benchmark for future assessments and monitoring. Future monitoring programs that use comparisons against the documented current conditions will allow management effectiveness to be evaluated and management treatments to be modified as needed to achieve desired results.

Data collected from current conditions assessment have been used to develop specific management prescriptions. Both short and long term management treatments are proposed. Management opportunities such as blocking trails, restricting dog off-leash areas or establishing cedar snake fences to limit access to certain areas can be coupled with longer term treatments such as replacing woody invasive species that are currently restricting access to certain areas with native species that achieve the same function. Management recommendations are based on current anthropomorphic conditions as well as ecological characteristics of the site being managed to ensure the long term protection of species at risk.

Adoption and implementation of any management plans being considered should include the participation of park users in addition to the more standard ecological information that is regularly included. Strategies that allow for the inclusion of park users are presented as an integral part of any management plans that are proposed. Failure to include park users in proposed changes could negatively affect the success of any implementation of

the natural area management plan. In addition, if a local stewardship group is formed as suggested; monitoring activities within the park will become less onerous.

Monitoring the effects of any management system that is implemented is an important part of ensuring success. Monitoring systems that make use of the Current Conditions Report that is part of this study have been developed. In addition, a companion report detailing monitoring systems that address species at risk populations specifically is being prepared. This document will complement the monitoring system proposed in this report.

### **3.0 RESULTS**

A total of 59 degraded sites were identified at Macaulay Point Park, and are found in the Current Conditions Report. The location of these sites is shown on the management zones map. These sites are in addition to the ubiquitous occurrence of alien invasive species found in the park. The degraded sites ranged from off-trail locations that suffer from occasional dog use to sites that have been so heavily used that deep trenches have been cut into the soil. The following sections provide details of the results of this study and the application of those results in the definition of management strategies. Recommendations for implementation of those strategies are provided in the following section.

#### **3.1 CURRENT CONDITIONS**

Macaulay Point Park has been heavily invaded by non-native species, although some native coastal bluff species persist in several areas. The park is the site of heavy fortifications constructed as early as the late 1800s. These fortifications dominate the landscape and the soil disturbances associated with their construction influences the development of vegetation. In addition, construction of park facilities, including trails, benches, lawns, beaches and other amenities have significantly modified the native vegetation. The presence of dense compacted soils is a result of the type of soil (silty glacial till), the construction of the fortifications and the development of park facilities. Soil conditions create impediments to restoration of functioning native coastal bluff ecosystems, although elements of these ecosystems persist.

The current conditions assessment (Appendix 1) provides a baseline against which the effects of management treatments can be gauged. Although the park is a publically used area and thus subjected to a certain level of degradation, it may be important to create a balance between the level of degradation and the ability of the vegetation (native or otherwise) to recover. Management decisions can be based on knowledge of the conditions of the park relative to some former condition. For instance, a decision to close an informal trail may result in recovery of the trail area with an opportunity to remove the closure object (split rail fence). Similarly, if a decision is taken to harden and formalize the trail, then future assessments can determine if this has been effective in moderating the disturbance that created the trail in the first place.

The dominance of the park by non-native species makes any management activity that might be considered more difficult. Soil disturbances will be met by the rapid establishment of weeds, while sites where woody invasive species are removed are open to invasion by non-native grasses and other alien species. The poor soil conditions that exist over much of the park contribute to the preponderance of alien invasive species. It is unlikely that replacement of alien species by native species will be successful in the face of these poor soil conditions.

Management of alien invasive species is a complex topic (Polster and Landry 1993). At Macaulay Point considerations of rare species and human (and dog) access must be weighed against the detrimental impacts of these species before management actions are taken. Areas where invasive species dominate such as the proposed upper off-leash dog area can be cleared without harm while other sites such as the occurrence of Tree Lupine in areas where Purple Sanicle is found on the ocean side of the old fort should be cleared much more cautiously. Management plans for dealing with invasive species are incorporated in the discussion of management zones (3.4) below.

Two rare species, Dense-flowered Lupine and Purple Sanicle persist at Macaulay Point Park in spite of or perhaps because of the poor ecological conditions of the park. The current extent of these species is shown on the map of proposed management zones (Section 3.4). Detailed surveys of these species are conducted at the park on a regular basis. Management modifications must be conducted with these species in mind. Continued assessments of population viability are required to ensure maintenance of these species.

## **3.2 PARK USAGE**

Macaulay Point Park is regularly used by a wide variety of people. Park users can be divided into groups for the purposes of natural areas management. Dog walkers constitute the largest group of park users (Photograph 3.2-1). Mountain bike riders are another significant group, as are walkers without dogs. The rock-outcrop near Fleming Beach is used by a small, but well defined group of people – rock climbers. Families with young children come to the park to use the beach and sun bathers can be seen on the rocky outside coast. Local children have used the park to build forts and other structures in secluded areas. Homeless people also use the park although not as much as other parks in the Capital Region.

The current park usage pattern creates different conditions of degradation. Some uses in some areas have the potential to result in unacceptable risk for rare species while other uses may have no impact on rare species populations. Rock climbing has little impact on rare species populations or on other ecological elements. Mountain bike riding and dog walking can create unacceptable damage to sensitive ecosystems and ecosystem components. Management of these different park uses will be essential if protection of rare species is to be accomplished. The following section discusses ecosystem degrading elements in greater detail.



**Photograph 3.2-1.** Dog walkers constitute the largest and perhaps the most regular group of park users.

### **3.3 DEGRADING ELEMENTS**

Understanding the conditions that are causing ecosystem degradation is the first step in design of restoration programs (Polster 1991). The degradation must stop or restoration will not be possible. This is clear where degrading elements are obvious such as when a bulldozer is clearing land: there is no point starting the restoration until the bulldozer has finished. However, where degrading elements are more subtle, identification of the degrading elements can be difficult. Understanding why the degradation is happening can provide insight into simple management treatments that might limit the degradation. For instance, placing beach logs along trails can encourage people and their dogs to stay on the trails. Similarly, mountain bike riders coming down one of the steep slopes of the old fort to a trail with a log beside it will find the ride much less pleasant. The following paragraphs identify some of the common degrading elements found in Macaulay Point Park. It is up to park management staff to determine what constitutes “acceptable” degradation; therefore the following discussion is presented without prejudice.

Alien invasive species constitute the largest ecosystem degrading element in Macaulay Point Park. The presence of these species is intricately connected to all the other degrading elements at work in the park. Construction of the fortifications without the salvage and re-use of the rich coastal bluff topsoil has resulted in soil conditions that

foster the invasion and growth of alien species. Similarly, construction of park facilities (Photograph 3.3-1), although well intentioned and in keeping with the practice at the time they were built, has provided an additional degrading element that fosters invasion by alien species. Construction of simple things like a picnic bench (Photograph 3.3-1) can create an area of excessive wear that encourages growth of invasive species such as Common Plantain (*Plantago major* L.).



**Photograph 3.3-1.** Construction of this lawn area has eliminated any native flora or aquatic habitats that might have existed and introduced non-native lawn grass species. There is wear in the turf around the picnic bench (left side) inviting invasive species.

Recreational activities such as mountain bike riding can cause significant site degradation (Photograph 3.3-2). Mountain bike riding causes soil disturbance activities and creates sites where invasive species can establish. Many invasive species including as Hairy Cat's-ear (*Hypochaeris radicata* L.) thrive in disturbed areas with degraded soils, exactly the conditions along many of the trails in Macaulay Point Park. In addition to fostering the establishment and growth of invasive species, mountain bike riding in sensitive coastal bluff ecosystems opens the disturbed sites to erosion and trail degradation. Muddy trails cause problems for other park users who then widen the trail to avoid the mud, causing further degradation of the site. In addition, the steep slopes and sometimes muddy trails around the old fort are an attraction to mountain bike riders who seek out these conditions. Riding down steep slopes with brakes applied can easily rip away any protective vegetation cover and open the site to erosion that may degrade the habitat of SAR. For this reason, trail areas that go up and down steep slopes such as the one shown in Photograph 3.3-2 should be closed (see also Section 3.5 below).



**Photograph 3.3-2.** Mountain biking around the old fort area has created significant site degradation. Heavy application of brakes on downhill sections opens soils to erosion and promotes invasive species colonization along the trail margins

Many of the degraded sites are a direct result of off-leash dog walking. Dog behaviour is very predictable and this can be seen in the degradation of sites. Dogs will go directly up and down very steep slopes (Photograph 3.3-3). In some cases, dog owners will throw sticks or balls over the edge of these slopes for dogs to chase. In other cases, dogs will naturally traverse these slopes as part of their site exploration. These activities result in site erosion and can significantly degrade the coastal bluff ecosystem. Installation of stairs will not change this pattern of use although it will provide safe beach access for people.

Dogs will often walk, either on leash or off-leash, beside their owner but off the trail. This parallel walking can cause degradation of the area beside the trail. This has been termed “dog braiding”. In some cases, dog braiding is a result of many dogs accessing a desired site such as a tree or a rock off the main trail to “mark” territory via urination (Photograph 3.3-4). Repeated use, including marking by numerous dogs that pass by, results in a trail up to the object, then back to the main trail and the owner. Dog braiding can happen even when the dogs are on leash if the leash is the type that extends and recoils, allowing the dog to walk many metres from the owner. Site degrading activities can therefore continue even with dogs on a leash.



**Photograph 3.3-3.** This dog trail to the beach is too steep to be regularly used by people. The trail is a result of dogs accessing the beach area to either fetch objects or explore the site.



**Photograph 3.3-4.** Many dogs will “mark” objects along the trail. Repeated marking of the same site results in creation of a degraded site (red circle).

Dogs often walk in areas where they can get a good view of their surroundings. When this corresponds with walking beside their owner, this instinct is particularly pronounced. Repeated use of the same path for walking dogs creates defined trails that then reinforce the use of these same defined trails. Once trails are established, the disturbance invites invasive species to colonize, further degrading the local ecosystem. Photograph 3.3-5 shows one such site along the main trail in Macaulay Point Park.



**Photograph 3.3-5.** This small trail parallel to the main trail has developed from dogs walking along the edge of the coastal bluff site of the old original trail. A Purple Sanicle site has been destroyed by this trail.

Construction of “forts” and other uses of the wooded areas of Macaulay Point Park by neighbourhood children can cause ecosystem degradation, although this tends to be localized and of limited duration. Children grow, interests change and a neighbourhood “fort” soon falls into disrepair. Use of the park by homeless people is another problem, although unlike children, homeless people tend to be more permanent. Wider social issues such as homelessness are well beyond the scope of this study, except to recognize that ecosystem degradation caused by homeless people does occur in the park and from a management perspective, except for significant policing presence, little can be done. Introduced Eastern Cottontail rabbits may be causing some loss of plants, but the large number of dogs that frequent the park probably minimizes the extent of damage by rabbits.

### **3.4 PROPOSED MANAGEMENT ZONES**

Preliminary management zones for Macaulay Point Park have been proposed to protect existing populations of species at risk and to provide a diversity of park user opportunities. By recognizing the needs of the various user groups as well as the requirements for DND to protect species at risk, management zones have been proposed that minimize ecological degradation while providing opportunities for continued park use.

Macaulay Point Park can be divided into five management zones (Figure 1):

1. Rock Climbing Zone
2. Off-leash Dog Walking Zone
3. Historic Fort Zone
4. Swimming and Picnic Zone
5. Conservation / On-leash Dog Walking Zone.

Mountain bike riding off the authorized trails in the park is seen as an activity that is not compatible with other uses or with the protection of ecological values. If the use of bicycles on the authorized trails in the park increases some system of signage such as along the seawall in Stanley Park will be needed. Unauthorized “fort” building or occupation is incongruous with park management. Therefore the proposed management zones do not include these activities.

Dog walking is an important activity in Macaulay Point Park. Since dogs and their owners must be able to get to the off-leash areas, it is reasonable that if dogs are controlled and kept on trails (avoid dog braiding) they should be allowed on the main trails through the other zones. The key will be to ensure dog use of the park does not interfere with other uses and conservation considerations.

#### **3.4.1 ROCK CLIMBING ZONE**

The rock climbing zone covers the rock cliff area near Fleming Beach (Photograph 3.4.1-1). This area is used by a small number of people for practice climbing. This activity does not create any significant ecological impact, although there has been a loss of the native plants that normally grow in crevices and the chalk that is used for the climber’s hands stains the rock and may damage crustose lichens. In addition, unauthorized trails have been established to reach the top of the cliff without climbing up the face. There may be opportunities to work with the rock climbing community to formalize appropriate trails so that any ephemeral pools that might exist on the crest of the rock knob are not impacted. Similarly, this group could be enlisted to remove any invasive species that have established on the rock face.



Figure 1. Preliminary management zones suggested for Macaulay Point Park.



**Photograph 3.4.1-1.** The rock climbing zone consists of the small rock cliff located near the boat launch area.

### **3.4.2 OFF-LEASH DOG WALKING ZONE**

The off-leash dog walking zone is broken into two areas: the large area in the northwest part of the park that is currently covered with Himalayan Blackberries (*Rubus discolor* Weihe & Nees), and the rocky beach area on the west side of Macaulay Point. The Himalayan Blackberry area could be developed as a large grassy area where dogs could run and chase balls, while the beach area would be provided for dogs to go into the water chasing balls and sticks. Fencing may be needed to delineate this zone and to prevent movement of dogs into sensitive areas. Some effort would be required to transform the large Himalayan Blackberry patch into a grassy area. However, there may be opportunities to use increasingly available native Garry oak ecosystem grasses for revegetation of this area. The use of native grasses may allow species such as the Purple Sanicle (*Sanicula bipinnatifida* Dougl. ex Hook.) to expand their range into this area as dogs may make perfect vectors for the burred seeds of this species and the soil disturbance caused by dogs may provide space for the Purple Sanicle to establish. However, establishment of this zone is not intended to cause the expansion of SAR populations. Monitoring would be required to determine if native grasses could withstand the heavy trampling that is attendant with off-leash dog use of the area and what levels of maintenance would be needed as well as the colonization of the area by Purple Sanicle.

The beach portion of the off-leash dog walking zone extends from the top of the high tide line out into the sea. This area is covered by a cobble beach or bedrock and is relatively impervious to damage. Some intertidal organisms may be lost due to dogs using these

sites but the intertidal organisms re-colonize beaches readily and any loss would be temporary as long as the disturbing element (dog use) continued (Poling et al 2002). Providing a durable area where dogs can access the water is essential to generate support for the changes in park management that are required to sustain species at risk populations.

### **3.4.3 HISTORIC FORT ZONE**

The historic fort zone consists of the immediate area of the historic fort, including the tunnel and tower at the top of the hill (Photograph 3.4.3-1). The historic fort zone provides an excellent opportunity for DND (or Parks Canada Agency) to work with the Township of Esquimalt to create an interesting attraction in a site that is now dominated by invasive species and impacted by mountain bike users. Although beyond the scope of this report, development of the historic fort area similar to Fort Rodd Hill where the military history of Victoria's defence can be interpreted, would provide a significant improvement over the current conditions. If native Garry oak ecosystem grasses were used in the restoration of this area, opportunities for expansion of the species at risk would be provided. In addition, by using this area for history interpretation, use by mountain bike riders could be curtailed. Detailed plans for restoration of the old fort area should be prepared by people qualified in history interpretation as well as ecological restoration, as there may be opportunities in the completed work as well as in conducting the work that would be missed in traditional ecological restoration. Replacement of invasive species by native species that are appropriate to the areas being restored will be an important part of the restoration work and may allow expansion of SAR populations.



**Photograph 3.4.3-1.** This historic site would be included in the historic fort zone.

### **3.4.4 SWIMMING AND PICNIC ZONE**

The swimming area, Fleming Beach and picnic zone, Buxton Green (Photograph 3.3-1) are located near the rock climbing zone. This area is used by families with young children and provides a sandy beach where children can play. The broad grassy area is used for picnics. Some unregulated off-leash dog use was noted (Photograph 3.3-1). Existing management, including the on-leash dog use of this zone can continue although consideration should be given to replacement of invasive species by native species.

### **3.4.5 CONSERVATION / ON-LEASH DOG WALKING ZONE**

The conservation / on-leash dog walking zone is a large area that extends through the areas where species at risk are found. Systems to protect local ecological values such as placing logs along trail edges and replacing invasive plants with native species that perform the same function should be implemented. Sites where invasive species such as Himalayan Blackberry currently prevent access could be replaced by native Nootka rose (*Rosa nutkana* Presl). Sites where invasive woody species can be replaced by native shrub species are discussed in the current conditions report (Appendix 1). Similarly, introduced grasses could be replaced by native Garry oak ecosystem grasses, although this may be a protracted procedure. Experience at other Garry oak ecosystems (e.g. Fort Rodd Hill) suggests that the replacement of alien grasses with native grasses is a slow process (MacDougall 2004). It may be that such restoration efforts are not viable in a place like Macaulay Point Park as the level of disturbance and the ability to restrict access is a problem for restoration.

## **3.5 TRAILS**

There are a variety of trails in Macaulay Point Park, although only the large formal trails are “official”. Major trails that have been established over the years by common use should be either formalized or closed. Minor trails should be closed and restored. Where informal trails could impact SAR, they should be closed or formalized with restrictions such as split rail fences to keep people and dogs on the trail. The current conditions assessment (Appendix 1) identifies a number of locations where informal trails have been established. Decisions will be needed on whether to formalize these trails or to close them. Where trails are closed, signs can be posted indicating that the trail is closed for rehabilitation work.

There are several main trails that service almost all of Macaulay Point Park. Keeping these main trails open is recommended. There are a variety of smaller informal trails that could be closed and restored. If it is determined that an informal trail serves a useful purpose that cannot be met with the main trails, then it may be prudent to formalize these trails. The decision of which trails to close and which to retain will need to be taken as the results of the changes in management associated with the management zones described above become apparent. At this juncture decisions on which secondary trails should be retained and which should be closed would be pre-mature. Clearly, however, trails that traverse areas of SAR populations should be closed.

## **4.0 IMPLEMENTATION**

Changes in how Macaulay Point Park is managed may be difficult as many people resist change. The key to implementing changes will be to bring park users into the process of making the necessary changes. Establishment of stewardship groups such as the rock climbing and dog walking groups is essential to help manage the areas where their activities occur. It is clear that protection of species at risk is of paramount concern and needs to be addressed in whatever management system is developed. Failure to do so could result in DND cancelling the lease of the land and closing the park to the public, a situation that nobody wants. Detailed designs for public consultation and community consensus building will need to be established. This will require a significant effort from Esquimalt and DND as a community liaison person will be needed to help develop and nurture these groups.

The following sections provide suggestions of how the management plans presented in this report could be implemented. However without buy-in from local park users, notably the dog walking crowd, the best management plans and implementation procedures in the world will be sabotaged. Therefore the suggestions presented in the following sections are predicated on the assumption that the community of park users from rock climbers and dog walkers to beach users are in agreement with the actions that are being taken. In the ideal condition, park users groups would also serve as stewardship groups to ensure the management actions that are taken are effective in addressing the issues that have resulted in the management actions.

Much of the work of implementation will depend on the budgets that are allocated for management in this park. In an ideal world where budgets were not limiting, a systematic program of implementation would be established for the management suggestions presented in this report. However, budgets are a real issue and strategies that allow for varying budgets are required. The first step in addressing ecological degradation in the park is to stop the degrading influences. Unchecked use of the park by dog walkers and invasive species (not unrelated issues) are the two primary causes of ecological degradation in the park. The following recommendations address both of these concerns.

### **4.1 ROCK CLIMBING ZONE MANAGEMENT IMPLEMENTATION**

Little will be required for designation of the rock climbing zone. The existing signs cautioning walkers as well as requesting rock climbers sign waivers appear to be appropriate. There may be an opportunity to elicit the help of the rock climbers in removing alien invasive species from the rock face and around the top of the climbing cliff as this area could be hazardous for un-roped people. Care would be required to avoid damage to other vegetation growing in the rocks. Dog walking is not an issue in the rock climbing area.

## 4.2 OFF-LEASH DOG WALKING ZONE MANAGEMENT IMPLEMENTATION

Clearing the Himalayan Blackberries, establishing fences and development of a suitable ground cover will be the first task in establishing the off-leash dog walking zone. Fencing should be installed once the Himalayan Blackberries are cleared and prior to ground cover establishment or park users will make use of this new open area. Consideration should be given to using a gravel base (crushed  $\frac{3}{4}$  minus with fines or other suitable trail gravel) for areas of anticipated highest wear. Clearing the Himalayan Blackberries and establishment of the fences should be conducted in the early spring so that establishment of the ground cover can be completed when weather conditions will favour grass growth. Although it would be ecologically beneficial to establish native grasses in this area eventually, it may be prudent to start with a durable turf mix so that the site is reasonably operable in a short time. Fertilizer and good turf establishment practices should be used to avoid delays. Regular mowing during the growing season will prevent the re-growth of Himalayan Blackberries from the root crowns. Regular mowing of the tender new sprouts may be a more effective way of eliminating the Himalayan Blackberries than digging out the roots as digging would entail significant soil disturbance. Signs should be erected telling the public what is happening. Once the areas are established, bylaw officers should be instructed to ticket dog owners found outside of these areas with their dogs off-leash. Once word gets around, less enforcement will be needed.

## 4.3 HISTORIC FORT ZONE MANAGEMENT IMPLEMENTATION

A specific management plan will be needed to develop the historic fort idea. This should include information on interpretive strategies, anticipated management issues and treatments for sustaining SAR populations that occur in the fort area. Historic interpretation is beyond the scope of this study. However, because the historic interpretation interests intersect the ecological aspects of management, the following should be addressed in any management plan for this area:

1. Remove invasive species and work towards replacing invasives with native species;
2. Protect SAR populations and look for opportunities for population expansion; and
3. Consider the ecological implications of specific management treatments (i.e. If grass mowing is proposed for the fort area are there timing considerations that should be addressed?).

There may be opportunities in the old fort area to use native prickly species such as Nootka Rose (*Rosa nutkana* Presl) and Black Hawthorn (*Cretagus douglasii* Lindl.) to restrict access in areas that are sensitive either due to the conditions of the site (steep corners adjacent to concrete walls) or because of the presence of SAR. Native prickly species can be a much more effective deterrent to access than signs or fences while enhancing the biodiversity in the park.

#### **4.4 SWIMMING PICNIC ZONE MANAGEMENT IMPLEMENTATION**

There are no significant management issues facing the swimming picnic zone. Control of off-leash dogs will be required as little children can be scared of large dogs charging into the water where they are playing. In addition, revegetation of the rock knob shown as site 2 in the current conditions report could be conducted using local native species.

#### **4.5 CONSERVATION / ON-LEASH DOG WALKING ZONE MANAGEMENT IMPLEMENTATION**

The conservation / on-leash dog walking zone includes the main trail along the top of the coastal bluff. This area also includes a variety of informal trails. Emphasis should be given on minimizing the number of trails although if too many trails are closed, park users will simply walk across the open areas. Decisions will be needed on which trails are to be retained and which are to be closed. Once a decision to close a trail is taken, measures such as erecting split rail fencing and planting thorny shrubs such as Nootka rose should be conducted. The soil on some informal trail areas will need to be loosened to get vegetation established. Planting native species into rock hard glacial till will not be successful. In areas where trails are prone to dog braiding, a row of large beach logs along the edge of the trail should be established to keep dogs on the main trail. Often old boom logs can be obtained from timber dealers for little or no cost. These would make excellent trail marking logs. Clearly defining the trails in this zone will help to protect the ecological values in the zone.

Invasive species removal will be a major task in this zone. Care should be taken to replace the invasives with suitable native plants or the invasives will just come back. A stock of appropriate native species seed could be maintained for this purpose. The task of removing invasives could easily swallow up the entire budget for park management; therefore specific strategies for each area within this zone need to be established. Priority should be given to treatment of areas where SAR are present unless the invasive species are protecting the SAR from damage by park users. Establishment of the off-leash dog walking zones first will help protect sensitive areas within this zone. Specific invasive species removal strategies will need to be formulated on the basis of available budgets. Removal of invasive species with limited distribution such as the fennel, poison hemlock and the tree lupines should be given priority as should cutting ivy from trees in the Vancouver Island Aspen – Nootka Rose community. Areas with ecosystems that are rare such as the Vancouver Island Aspen – Nootka Rose community should also be dealt with as soon as budgets allow.

When dealing with invasive species in an area such as Macaulay Point Park it is useful to divide the area into individual sections so that only the sections that can be dealt with completely within the budget that has been allocated are treated. Within the sections selected for invasives removal, it is useful to deal with the outlying individuals first before addressing larger clumps. Once the invasive species in one section have been

addressed completely, taking care to allow funding for repeat visits in subsequent years to deal with new occurrences, a new section can be tackled and the process can be repeated. Seasonality of removal programs will need to fit with periods when park visitation is appropriate to the methods being used. For instance, if a large brush cutter is being used to remove Himalayan Blackberries, this should be done when visitor use is low as these machines can be dangerous. Similarly, once broom has been cleared from an area numerous broom seedlings will start to emerge. There is little point in addressing these before they go to flower as most of the seedlings will die during the first year of growth. Therefore timing the remedial broom clearing to a time when the plants are flowering and before they set seed will be most effective. Detailed strategies on invasive species management can be found in the stewardship manuals produced by the Garry Oak Ecosystems Recovery Team.

#### **4.6 IMPLEMENTATION PRIORITIES**

Development of priorities for implementation of the various management suggestions presented in this report will depend on availability of budgets to conduct the work. However, the first step in the development of effective ecological management systems that protect SAR will be to get the community of park users together to discuss options so that any management activities that are implemented are acceptable to park users. Although it is recognized that building a stewardship community for the park will be a long term, ongoing process, bringing park users together to start the process is seen as the first step in any potentially successful management system.

A meeting of park users could be announced using signs posted in the park. The meeting could start with an opportunity (for 30 to 60 minutes) for the public to look at various maps and plans that would be displayed around the room. The more formal part of the meeting could start by introducing the various management players (Township of Esquimalt Parks staff, DND Staff) and resource people (NRCan specialists, GOERT outreach specialist, any consultants that were to be used). The discussion could then turn to the biophysical attributes of Macaulay Point Park, including SAR and the responsibility of management staff for the protection of SAR with the recognized need to implement some form of management. Options such as those employed at Albert Head and Rocky Point (closure to the public and restoration) could be presented. The preliminary management plans provided in this document could then be presented with an opportunity for input from the public on the preliminary plans. Notes on points raised could be written on flip charts or displayed on a projected computer screen.

The outcome from the meeting should be aimed at determining the immediately acceptable management activities that could be undertaken to protect SAR and the formation of a Macaulay Point Stewardship Group to work out details of future management activities. It may be that placing large beach logs along the edge of the main bluff-top trail to protect SAR on the slope or extending the fence and closing the trail that bisects the dense-flowered lupine patch on the southeast side of the park would be seen as something that could be done immediately while shifting the off-leash dog area to those areas discussed in this report would require additional discussions. It is clear

that without support from the public, none of the management activities suggested in this report will be effective.

## **5.0 MANAGEMENT AND MONITORING**

Continued management and monitoring will be required to ensure the management systems that are established are effective in achieving their goals. The current conditions assessment provides a baseline upon which a future monitoring system can be based. The current locations of degradation can be re-assessed once management systems have been in place for several years. The benchmark established by the current conditions assessment allows comparisons to be made into the future. Interactions such as the role of off-leash dogs in controlling bunny damage should be assessed. Similarly, the possibility that human and dog use of areas keeps invasive grass species in check needs to be considered

The rare species assessments that are presently used to determine rare species populations and trends should be continued through the changes in management systems. Rare species populations can serve as a measure of how successful the new management systems are. Care should be taken to ensure a correlation between the management actions and the rare species population changes, as there may be a number of factors that result in changes in rare species populations. Experience from other sites can help in defining external factors that may be at play.

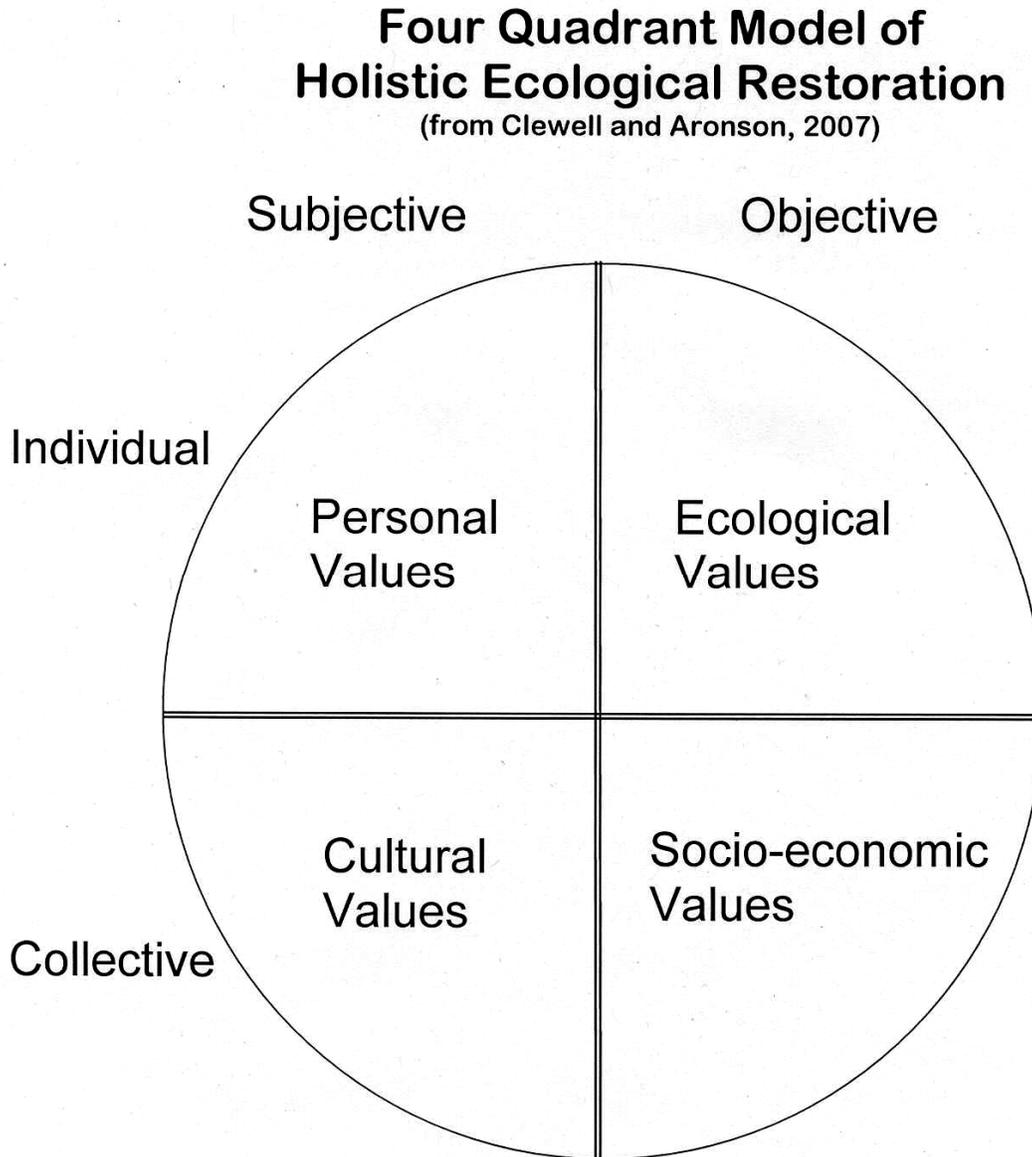
The establishment of a local stewardship group for Macaulay Point Park can help with the monitoring and management activities that are conducted in the park. People who regularly walk in the park can help ensure that management activities that are implemented achieve the desired results. Opportunities for improvements can be suggested at regular meetings of the stewardship group while announcements about upcoming management activities (e.g. broom cutting work-bee) can be publicized at such meetings. Maintaining a core group of dedicated park users can provide substantial benefits both to Macaulay Point Park and to other environmental endeavours in the area.

## **6.0 CONCLUSIONS**

Management of Macaulay Point Park is a complex matter. Simply removing invasive species can have unexpected consequences. Similarly current use patterns may be supporting rare species populations and changes in use patterns may affect the rare species populations. In some cases rare species require the disturbance created by use to effectively compete against introduced grasses and other plants that are only recently part of the ecological matrix.

Macaulay Point Park provides an opportunity to include social and cultural attributes in the ecological restoration of the park. Clewell and Aronson (2007) have suggested that inclusion of social and cultural values in ecological restoration is the only way that restoration can be successful in the current context. Holistic ecological restoration is the

model that has been proposed (Figure 2). Participation of park users in implementing change and undertaking stewardship activities is an essential ingredient in management of the park.



**Figure 2.** Holistic ecological restoration model.

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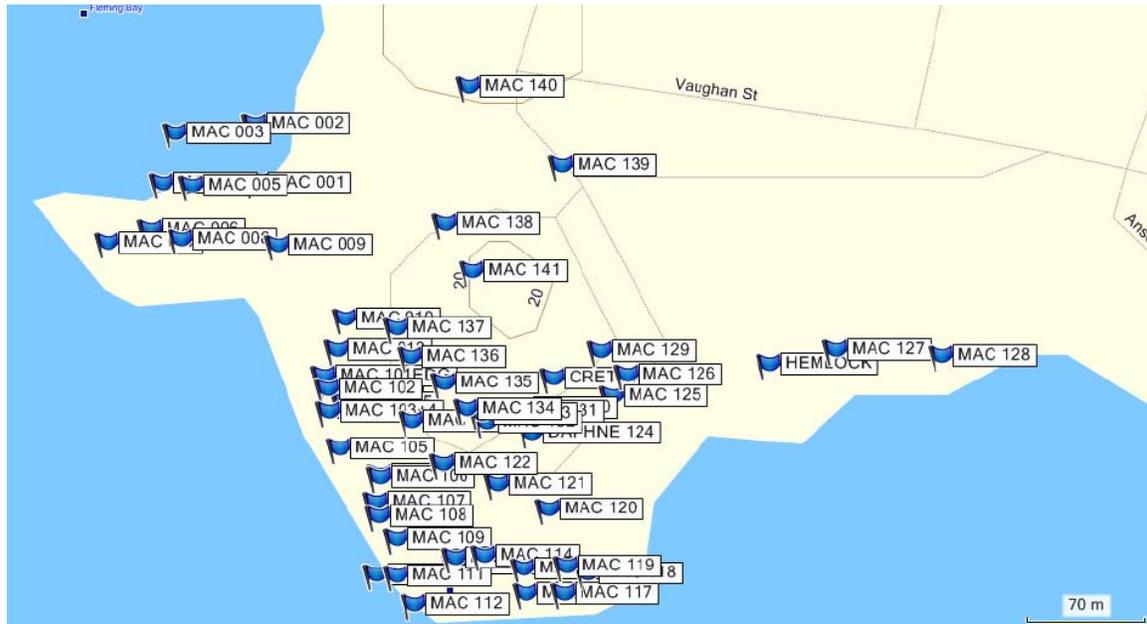
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## **Appendix 1**

### **Current Conditions Report Macaulay Point Park Township of Esquimalt**

**March, 2009**

## Distribution of Sample Sites in Macaulay Point Park<sup>1</sup>



<sup>1</sup> Note: Detailed locations are provided on Management Zones Map.

**Current Conditions Report  
Macaulay Point Park**

**Site # 01      GPS Coordinates (all sites 10U):** 0469602  
5362964

**Substrate Type**      Shallow soil on rock slope

**GPS Number:** 01



**Photo Number:**      MAC 001 01

**Comments:**      Trails (several) up the slope from the main trail.

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

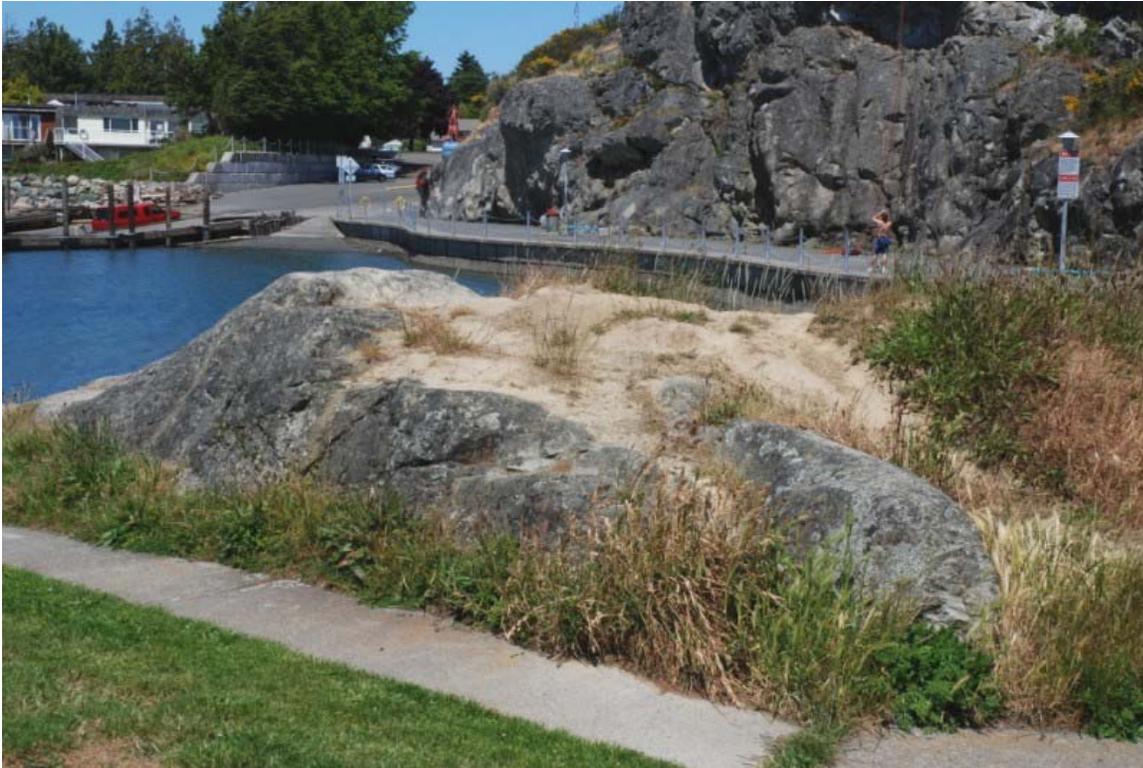
**Restoration Suggestions:**      Plant dense rose and snowberry thicket at top and bottom of slope and in soil pockets on slope. Kinnikinnick could be planted along the crest of the slope to trail down over slope.

**Current Conditions Report  
Macaulay Point Park**

**Site # 02      GPS Coordinates (all sites 10U):** 0469601  
5363000

**Substrate Type**      Shallow soil on rock knob

**GPS Number:** 02



**Photo Number:**      MAC 002 02

**Comments:**      Shallow soil on top of rock knob worn

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Plant dense rose and snowberry thicket on top of knob. Plant *Leymus mollis* and *Grindelia* around site in deeper soil areas.

**Current Conditions Report  
Macaulay Point Park**

**Site # 03      GPS Coordinates (all sites 10U):** 0469563  
5362994

**Substrate Type**      Shallow soil adjacent to rock knob

**GPS Number:** 03



**Photo Number:**      MAC 003 04

**Comments:**      Soil worn, rock exposed

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Plant dense rose and snowberry thicket outside of fence. Provide access point for folks (and dogs) to access the water.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 04     **GPS Coordinates (all sites 10U):** 0469557  
5362965

**Substrate Type**     Rock, soil in crevices

**GPS Number:** 04



**Photo Number:**     MAC 004 05

**Comments:**     Trail up rock gully

**Indicators:**     Worn rock and soil, vegetation damaged

**Indicator Rating:**     Bare

**Restoration Suggestions:**     Determine if steps should be constructed to connect lower area with main trail. If so, construct steps and plant roses and snowberry to block access.

**Current Conditions Report  
Macaulay Point Park**

**Site # 05      GPS Coordinates (all sites 10U):** 0469571  
5362963

**Substrate Type**      Rock, soil in crevices

**GPS Number:** 05



**Photo Number:**      MAC 005 06

**Comments:**      Shallow soil in crevices of rock

**Indicators:**      Vegetation showing signs of wear, rock scuffed

**Indicator Rating:**      Worn

**Restoration Suggestions:**      Plant rose and snowberry thicket behind bench.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 06      **GPS Coordinates (all sites 10U):** 0469551  
5362937

**Substrate Type**      Compacted soil adjacent to trail

**GPS Number:** 06



**Photo Number:**      MAC 006 07

**Comments:**      Worn area adjacent to trail caused by dogs (dog braiding)

**Indicators:**      Compacted soil, bare soil, vegetation worn

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Develop strategy for encouraging dogs to stay on trails (e.g. beach logs lining trail). Re-establish durable grass cover.



**Current Conditions Report  
Macaulay Point Park**

**Site # 08      GPS Coordinates (all sites 10U):** 0469566  
5362932

**Substrate Type**      Gravelly soil along trails

**GPS Number:** 08a



**Photo Number:**      MAC 008 10

**Comments:**      Heavily worn areas at trail junctions

**Indicators:**      Trails expanding, worn vegetation, compacted soils

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Improve trail surfaces, make clear distinction between trail and grass area (log buffers?).

**Current Conditions Report  
Macaulay Point Park**

**Site #** 08b    **GPS Coordinates (all sites 10U):** 0469566  
5362932

**Substrate Type**      Gravelly soil along trails

**GPS Number:** MAC 008



**Photo Number:**      MAC 008 62

**Comments:**    Widening complex of trails at junction.

**Indicators:**    Trails widening, vegetation damaged along trail sides, soils compacted

**Indicator Rating:**    Bare

**Restoration Suggestions:**    Define acceptable trails; close other areas using rose and snowberry plantings or log buffers.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 08c    **GPS Coordinates (all sites 10U):** 0469566  
5362932

**Substrate Type**      Gravelly soil along trails

**GPS Number:** MAC 008



**Photo Number:**      MAC 008 63

**Comments:**    Widening complex of trails at junction.

**Indicators:**    Trails widening, vegetation damaged along trail sides, soils compacted

**Indicator Rating:**    Bare

**Restoration Suggestions:**    Define acceptable trails; close other areas using rose and snowberry plantings or beach logs along trail edges.

**Current Conditions Report  
Macaulay Point Park**

**Site # 09      GPS Coordinates (all sites 10U):** 0469612  
5362928

**Substrate Type**      Gravelly soil along trails

**GPS Number:** MAC 008



**Photo Number:**      MAC 008 15

**Comments:**      Desire trails worn in slope

**Indicators:**      Trails widening, vegetation damaged along trail sides, soils compacted

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Define acceptable trails (see discussion of trail management in Section 3.1 above); revegetate other areas.

**Current Conditions Report  
Macaulay Point Park**

**Site # 10**      **GPS Coordinates (all sites 10U):** 0469644  
5362885

**Substrate Type**      Worn compacted soil

**GPS Number:** MAC 009



**Photo Number:**      MAC 009 17

**Comments:**      Bare soil on desire trail

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Define acceptable trails; close other areas using rose and snowberry plantings. Incorporate invasive species management into plans for management of this area.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 11                    **GPS Coordinates (all sites 10U):** 0469634  
5362851

**Substrate Type**        Shallow soil at top of coastal bluff

**GPS Number:** MAC 101EDG



**Photo Number:**        MAC 011&12 19

**Comments:**        Worn dog trail along edge of bluff

**Indicators:**        Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**    Bare

**Restoration Suggestions:** Block access with log. Modify off-leash area to restrict coastal bluff areas with SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site # 12**      **GPS Coordinates (all sites 10U):** 0469640  
5362867

**Substrate Type**      Worn soil areas adjacent to trail

**GPS Number:** MAC 010



**Photo Number:**      MAC 010 18

**Comments:**      Worn vegetation patches in seasonably wet sites

**Indicators:**      Vegetation showing signs of wear in seasonably wet areas

**Indicator Rating:**      Worn

**Restoration Suggestions:**      Define trail and restrict dog access to easily damaged wet areas.  
Wet areas can be important areas for some SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site # 13**      **GPS Coordinates (all sites 10U):** 0469635  
5362843

**Substrate Type**      Worn soil on dog trail to beach

**GPS Number:** MAC 102



**Photo Number:**      MAC 102 07

**Comments:**      Steep till slope being worn by dog travel.

**Indicators:**      Vegetation showing signs of wear, large bare areas

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Close side trail with log along main trail. Modify off-leash area to restrict near shore areas with SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 13a                    **GPS Coordinates (all sites 10U):** 0469636  
5362847

**Substrate Type**        Shallow soil at top of coastal bluff

**GPS Number:** MAC 101EDG



**Photo Number:**        MAC 101 05

**Comments:**        Worn dog trail along edge of bluff

**Indicators:**        Shallow compacted soil, vegetation worn, small patches of bare soil

**Indicator Rating:**    Worn

**Restoration Suggestions:** Block access with log. Modify off-leash area to restrict coastal bluff areas with SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site # 14**      **GPS Coordinates (all sites 10U):** 0469643  
5362835

**Substrate Type**      Worn soil area on bank

**GPS Number:** MAC 013



**Photo Number:**      MAC 013 20

**Comments:**      Worn dog run area

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Modify off-leash area to restrict near shore areas with SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site # 15**      **GPS Coordinates (all sites 10U):** 0469635  
5362830

**Substrate Type**      Worn dog trail to beach

**GPS Number:** MAC 014



**Photo Number:**      MAC 104 10

**Comments:**      Worn coastal bluff area with SAR

**Indicators:**      Shallow compacted soil, vegetation worn, some bare soil

**Indicator Rating:**      Worn

**Restoration Suggestions:**      Modify off-leash area to restrict near shore areas with SAR.

**Current Conditions Report  
Macaulay Point Park**

**Site # 16**      **GPS Coordinates (all sites 10U):** 0469640  
5362808

**Substrate Type**      Worn soil trail to beach

**GPS Number:** MAC 103+4



**Photo Number:**      MAC 105 09

**Comments:**      Worn trail over coastal bluff to beach

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Confirm trail location (staircase to access beach ?) and harden or close with split rail fence

**Current Conditions Report  
Macaulay Point Park**

**Site # 17**      **GPS Coordinates (all sites 10U):** 0469660  
5362791

**Substrate Type**      Worn soil on bank

**GPS Number:** MAC 015



**Photo Number:**      MAC 014 22

**Comments:**      Worn dog run area

**Indicators:**      Compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Modify off-leash area to restrict near shore areas with SAR.



**Current Conditions Report  
Macaulay Point Park**

**Site # 19**      **GPS Coordinates (all sites 10U):** 0469659  
5362768

**Substrate Type**      Soil (till) slope to beach with rip rap.

**GPS Number:** MAC 108 19



**Photo Number:**      MAC 108 16

**Comments:**      Dog trail to beach.

**Indicators:**      Vegetation worn in an area that is too steep for most people

**Indicator Rating:**      Bare in some areas, otherwise worn.

**Restoration Suggestions:**      Define off leash areas to protect sensitive coastal bluff sites.  
Blocking access may allow recovery. Direct people to staircase for beach access.  
Provide a sign stating the damage being caused by dogs scrambling up and down the slope.

**Current Conditions Report  
Macaulay Point Park**

**Site # 20**      **GPS Coordinates (all sites 10U):** 0469667  
5362755

**Substrate Type**      Re-worked glacial till

**GPS Number:** MAC 109 20



**Photo Number:**      MAC 109 17

**Comments:**      Compacted, poor quality soils susceptible to degradation.

**Indicators:**      Vegetation worn, some bare soil

**Indicator Rating:**      Worn

**Restoration Suggestions:**      Close to off-leash dog use. Monitor recovery to ensure this site is not taken over by invasive species. Non-native grasses may be acceptable here.

**Current Conditions Report  
Macaulay Point Park**

**Site # 21**      **GPS Coordinates (all sites 10U):** 0469658  
5362734

**Substrate Type**      Shallow soil (till) with rocks protruding

**GPS Number:** MAC 110 21



**Photo Number:**      MAC 110 18

**Comments:**      Shallow poor quality soil with rock outcrops

**Indicators:**      Vegetation absent on trail to beach.

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Define trail to beach and close other areas. Monitor natural recovery. Remove invasive lupines.

**Current Conditions Report  
Macaulay Point Park**

**Site # 22**      **GPS Coordinates (all sites 10U):** 0469667  
5362733

**Substrate Type**      Poor quality soil (till).

**GPS Number:** MAC 111 22



**Photo Number:**      MAC 111 19

**Comments:**      Vegetation being damaged by dogs walking along trail.

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Worn with bare areas

**Restoration Suggestions:**      Define trail areas with logs. Monitor natural recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 23**      **GPS Coordinates (all sites 10U):** 0469676  
5362716

**Substrate Type**      Poor quality soil (gravely till) with rocks.

**GPS Number:** MAC 112 23



**Photo Number:**      MAC 112 20

**Comments:**      Worn vegetation at point, poor soil.

**Indicators:**      Poor quality compacted soil, vegetation worn, bare soil in spots.

**Indicator Rating:**      Worn with bare areas

**Restoration Suggestions:**      Define trail and either close access to point or provide hardened trail to avoid damage to sensitive habitat.

**Current Conditions Report  
Macaulay Point Park**

**Site # 24**      **GPS Coordinates (all sites 10U):** 0469695  
5362744

**Substrate Type**      Shallow soil on rock knob

**GPS Number:** MAC 113 24



**Photo Number:**      MAC 113 21

**Comments:**      Worn dog trail to open area

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Worn with bare areas

**Restoration Suggestions:**      Define trail with beach logs and prevent dog access to meadow.  
Monitor natural recovery. Remove fennel (high priority).



**Current Conditions Report  
Macaulay Point Park**

**Site # 26      GPS Coordinates (all sites 10U):** 0469728  
5362737

**Substrate Type**      Soil

**GPS Number:** MAC 115 26



**Photo Number:**      MAC 115 23

**Comments:** Dog trail to mark bush

**Indicators:** Vegetation worn, bare soil

**Indicator Rating:**      Bare in places.

**Restoration Suggestions:** Use beach logs to define trail and keep dogs on trail.

**Current Conditions Report  
Macaulay Point Park**

**Site # 27**      **GPS Coordinates (all sites 10U):** 0469729  
5362723

**Substrate Type**      Shallow soil on rock

**GPS Number:** MAC 116 27



**Photo Number:**      MAC 116 24

**Comments:**      Shallow soil on rock is worn in places down to the bedrock

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare in places

**Restoration Suggestions:** Define trails with beach logs, keep dogs and people on trails and provide defined access to rocky beach areas.

**Current Conditions Report  
Macaulay Point Park**

**Site # 28**      **GPS Coordinates (all sites 10U):** 0469748  
5362723

**Substrate Type**      Shallow gravely soil on rock outcrop

**GPS Number:** MAC 117 28



**Photo Number:**      MAC 117 25

**Comments:**      Shallow soil on top of rock, worn

**Indicators:**      Shallow compacted soil, vegetation worn, bare gravel/soil

**Indicator Rating:**      Bare

**Restoration Suggestions:** Define trail as well as access to rocky headland. Monitor vegetation recovery.



**Current Conditions Report  
Macaulay Point Park**

**Site # 30**      **GPS Coordinates (all sites 10U):** 0469749  
5362739

**Substrate Type**      Poor quality soil (disturbed till)

**GPS Number:** MAC 119 30



**Photo Number:**      MAC 119 27

**Comments:**      Large open area with SAR used by dogs for running.

**Indicators:**      Vegetation worn, bare soil in places

**Indicator Rating:**      Bare

**Restoration Suggestions:** Change usage and monitor recovery. See also Site 26 for view from other side of meadow.

**Current Conditions Report  
Macaulay Point Park**

**Site # 31      GPS Coordinates (all sites 10U):** 0469740  
5362772

**Substrate Type**      Soil

**GPS Number:** MAC 120 31



**Photo Number:**      MAC 120 28

**Comments:** Trail into forest being developed

**Indicators:**      Vegetation worn

**Indicator Rating:**      Worn

**Restoration Suggestions:** Close trail to forest with beach logs. Plant Nootka rose in grassy area between trail and forest to restrict access.

**Current Conditions Report  
Macaulay Point Park**

**Site # 32**      **GPS Coordinates (all sites 10U):** 0469716  
5362787

**Substrate Type**      Poor soil (till)

**GPS Number:** MAC 121 32



**Photo Number:**      MAC 121 29

**Comments:**      Large open area used by dogs for running

**Indicators:**      Poor quality compacted soil, vegetation worn, bare in places

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Change usage patterns and monitor recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 33      GPS Coordinates (all sites 10U):** 0469690  
5362799

**Substrate Type**      Soil (till)

**GPS Number:** MAC 122 33



**Photo Number:**      MAC 122 30

**Comments:**      Unofficial trail between two meadows

**Indicators:**      Trail bare

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Either establish a suitable trail or close this access. Clearing invasives (broom and Himalayan Blackberry) may provide a more diffuse usage thus minimizing impacts.

**Current Conditions Report  
Macaulay Point Park**

**Site # 34**      **GPS Coordinates (all sites 10U):** 0469675  
5362824

**Substrate Type**      Poor quality soils (glacial till)

**GPS Number:** MAC 123 34



**Photo Number:**      MAC 123 31

**Comments:**      Trail across meadow.

**Indicators:**      Poor quality compacted soil, vegetation worn, bare soil in places

**Indicator Rating:**      Bare in places

**Restoration Suggestions:**      Change usage patterns and monitor. If trail persists, then consider hardening and defining trail.

**Current Conditions Report  
Macaulay Point Park**

**Site # 35      GPS Coordinates (all sites 10U):** 0469733  
5362817

**Substrate Type**      Soil

**GPS Number:** DAPHNE 124



**Photo Number:**      MAC 124 32

**Comments:** Dog trail through dense brush (all invasive species)

**Indicators:**      Vegetation worn, bare soil in places, vegetation tunnel

**Indicator Rating:**      Worn, bare in places

**Restoration Suggestions:**      Change usage – keep dogs on leash in this area.

**Current Conditions Report  
Macaulay Point Park**

**Site # 36      GPS Coordinates (all sites 10U):** 0469733  
5362817

**Substrate Type**      Soil

**GPS Number:** DAPHNE 124



**Photo Number:**      MAC 124 33

**Comments:** Dog trail through brush (invasive)

**Indicators:** Vegetation worn, bare soil in places

**Indicator Rating:**      Worn

**Restoration Suggestions:** Close area to off-leash dogs. Remove invasives and monitor recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 37      GPS Coordinates (all sites 10U):** 0469771  
5362839

**Substrate Type**      Soil

**GPS Number:** MAC 125 37



**Photo Number:**      MAC 125 34

**Comments:** Trail into forest and secluded beach

**Indicators:**      Vegetation worn, soil bare in places

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Either establish official trail or close this trail using Nootka rose and snowberry planted in the grassy area between the existing trail and the forest. Remove ivy from trees (High Priority).



**Current Conditions Report  
Macaulay Point Park**

**Site # 40      GPS Coordinates (all sites 10U):** 0469929  
5362861

**Substrate Type**      Soil

**GPS Number:** MAC 128 40



**Photo Number:**      MAC 128 37

**Comments:**      Trails to park bench

**Indicators:**      Compacted soil, vegetation worn, bare soil in places

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Harden trail to bench or remove bench and restore. There is a patch of invasive poison hemlock adjacent to this site that should be removed as soon as possible.

**Current Conditions Report  
Macaulay Point Park**

**Site # 41**      **GPS Coordinates (all sites 10U):** 0469766  
5362865

**Substrate Type**      Shallow soil on rock knob

**GPS Number:** MAC 129 41



**Photo Number:**      MAC 129 38

**Comments:** Dog trail into brush

**Indicators:** Vegetation worn

**Indicator Rating:**      Worn

**Restoration Suggestions:** Keep dogs on leash in this area. Monitor recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 42      GPS Coordinates (all sites 10U):** 0469728  
5362831

**Substrate Type**      Soil

**GPS Number:** MAC 130 42



**Photo Number:**      MAC 130 39

**Comments:** Dog trail into brush

**Indicators:** Vegetation worn, bare soil in places

**Indicator Rating:**      Bare

**Restoration Suggestions:** Change usage, monitor recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 43      GPS Coordinates (all sites 10U):** 0469722  
5362829

**Substrate Type**      Soil

**GPS Number:** MAC 131 43



**Photo Number:**      MAC 131 40

**Comments:** Dog trail into brush (invasive mainly)

**Indicators:** Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:** Change usage, remove invasives, and monitor recovery.

**Current Conditions Report  
Macaulay Point Park**

**Site # 44**      **GPS Coordinates (all sites 10U):** 0469711  
5362823

**Substrate Type**      Soil

**GPS Number:** MAC 132 44



**Photo Number:**      MAC 132 41

**Comments:**      Desire trail on old fort area

**Indicators:**      Compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Develop old fort for historic interpretation (e.g. Fort Rodd). Provide suitable access. Steep slopes such as this one could be planted with Nootka rose to restrict access provided there was an alternative way of getting up to or down from the battlements.

**Current Conditions Report  
Macaulay Point Park**

**Site # 45      GPS Coordinates (all sites 10U):** 0469709  
5362828

**Substrate Type**      Soil

**GPS Number:** MAC 133 45



**Photo Number:**      MAC 133 42

**Comments:**      Desire trail in old fort area

**Indicators:**      Compacted soil, vegetation worn, bare soil in places

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore old fort area as a site asset

**Current Conditions Report  
Macaulay Point Park**

**Site #** 46      **GPS Coordinates (all sites 10U):** 0469702  
5362831

**Substrate Type**      Soil and rock part of old fortification

**GPS Number:** MAC 134 46



**Photo Number:**      MAC 134 43

**Comments:**      Desire trail in old fort

**Indicators:**      Compacted soil, vegetation worn, bare soil in places

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore old fort area.



**Current Conditions Report  
Macaulay Point Park**

**Site #** 47a    **GPS Coordinates (all sites 10U):** 0469691  
5362846

**Substrate Type**      Shallow soil and rock in old fort area

**GPS Number:** MAC 135 47



**Photo Number:**      MAC 135 45

**Comments:**    Trails from dogs, bikes and people in old fort area

**Indicators:**    Shallow compacted soil, bare soil in places, vegetation worn, invasive species.

**Indicator Rating:**    Bare

**Restoration Suggestions:**    Restore old fort area.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 47b    **GPS Coordinates (all sites 10U):** 0469691  
5362846

**Substrate Type**      Shallow soil and rock in old fort area

**GPS Number:** MAC 135 47b



**Photo Number:**      MAC 135 46

**Comments:**      Shallow soil / rock in old fort area

**Indicators:**      Shallow compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore old fort.

**Current Conditions Report  
Macaulay Point Park**

**Site # 48**      **GPS Coordinates (all sites 10U):** 0469675  
5362862

**Substrate Type**      Shallow soil and rock knobs

**GPS Number:** MAC 136 48



**Photo Number:**      MAC 136 47

**Comments:**      Worn areas around old fortifications

**Indicators:**      Soil bare in areas, vegetation worn.

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore old fort.

**Current Conditions Report  
Macaulay Point Park**

**Site # 49**      **GPS Coordinates (all sites 10U):** 0469668  
5362879

**Substrate Type**      Shallow soil on rock knob

**GPS Number:** MAC 137 49



**Photo Number:**      MAC 137 48

**Comments:**      Shallow soil on bedrock in old fort area

**Indicators:**      Shallow compacted soil, vegetation worn, bare rock and soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore fort and provide suitable trails.

**Current Conditions Report  
Macaulay Point Park**

**Site # 50**      **GPS Coordinates (all sites 10U):** 0469692  
5362940

**Substrate Type**      Soil in old fortification

**GPS Number:** MAC 138 50



**Photo Number:**      MAC 138 49

**Comments:**      Himalayan Blackberry clearing has left bare areas along old fort path

**Indicators:**      Bare soil, re-sprouting Himalayan Blackberries

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Establish effective competition for Himalayan Blackberries (alder?)  
or develop a grass cover that can be mown frequently enough to prevent re-establishment  
of the Himalayan Blackberry.

**Current Conditions Report  
Macaulay Point Park**

**Site # 51      GPS Coordinates (all sites 10U):** 0469748  
5362974

**Substrate Type**      Soil

**GPS Number:** MAC 139 51



**Photo Number:**      MAC 139 58

**Comments:**      Large area of Himalayan Blackberries with no SAR could be cleared as a dog run area

**Indicators:**      Invasive species

**Indicator Rating:**      Vegetated by invasives

**Restoration Suggestions:**      Convert to fenced dog run area.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 51a    **GPS Coordinates (all sites 10U):** 0469748  
5362974

**Substrate Type**    Soil

**GPS Number:** MAC 139 51



**Photo Number:**    MAC 138 58

**Comments:**    Other side of large Himalayan Blackberry area

**Indicators:**    Invasive species

**Indicator Rating:**    Vegetated by invasives

**Restoration Suggestions:**    Convert to dog run area.

**Current Conditions Report  
Macaulay Point Park**

**Site #** 51b    **GPS Coordinates (all sites 10U):** 0469748  
5362974

**Substrate Type**      Soil

**GPS Number:** MAC 139



**Photo Number:**      MAC 139 59

**Comments:**    West side of large Himalayan Blackberry area

**Indicators:**    Invasive species

**Indicator Rating:**    Vegetated by invasives

**Restoration Suggestions:**    Convert to dog run area.

**Current Conditions Report  
Macaulay Point Park**

**Site # 52**      **GPS Coordinates (all sites 10U):** 0469704  
5363020

**Substrate Type**      Rocky soil

**GPS Number:** MAC 140 52



**Photo Number:**      MAC 140 60

**Comments:**      Large open area that could be developed as an off-leash dog area

**Indicators:**      Compacted soil, vegetation worn, bare soil

**Indicator Rating:**      Worn

**Restoration Suggestions:**      Convert to off-leash dog area.

**Current Conditions Report  
Macaulay Point Park**

**Site # 53      GPS Coordinates (all sites 10U):** 0469705  
5362912

**Substrate Type**      Rocky soil

**GPS Number:** MAC 141 53



**Photo Number:**      MAC 141 57

**Comments:**      Part of old fort area that could be developed as historic site

**Indicators:**      Compacted soil, vegetation worn, bare, eroding soil

**Indicator Rating:**      Bare

**Restoration Suggestions:**      Restore old fort