MNRCP ID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| ***Maine Natural Resource Conservation Program******Management Plan Template*** **Management Plan****for*****Fill in Project Name*** |
|  |
|  |
| **Organization** |
| **Author and title** |
| Date |

*The general outline that follows is designed to assist in the development of the Long-term Management Plan for MNRCP Projects. Objectives and tasks are provided for illustrative purposes only and may not represent management requirements suitable or necessary for every site. Sections in* plain text *represent language that should be included in a plan for MNRCP projects. Items in italics describe the type of information to be included in that section and should be modified or deleted and replaced with the pertinent information for the project site. Please provide a* ***draft of the plan as a MS Word document*** *to MNRCP for review prior to finalizing the plan as a PDF. Review using Word and track changes is significantly easier for MNRCP reviewers. If necessary, maps and other appendices can be provided as a separate PDF file for the purposes of review.*

***Note: Maps are required.*** *Maps should be large (full page size is preferred) and may be put into an Appendix or interspersed throughout the document.* ***Maps of similar content may be combined as long as the information they are to convey is clear and well-defined.***

**Table of Contents Page**

|  |  |  |  |
| --- | --- | --- | --- |
| **I.**  |  | **Geographic Information** |  |
| **II.** |  | **Introduction** |  |
| **III.** |  | **Property Description** |  |
| **IV.** |  | **Natural Resources** |  |
| **V.** |  | **Management Vision & Goals** |  |
| **VI.** |  | **Management Actions** |  |
| **VII.** |  | **Funding & Task Prioritization** |  |
| **VIII** |  | **Literature Cited** |  |

**APPENDICES**

**Appendix A: Invasive Plant Control Plan (if applicable)**

**Appendix B: Legal Documents**

**Appendix C. Restoration or Enhancement Plan (if applicable)**

**Appendix D. Photos (note, should be large, e.g., 2/page)**

**Appendix E. other (e.g., Maps if not interspersed into document). . . .**

# Geographic Information

**Site Name:**

**Township/County:**

**MNRCP Site ID:**

**Total Site Size:**

**Type of Ownership:** *(i.e., fee or conservation easement; if easement include landowner’s name*)

**Date Acquired:**

# Introduction

## Purpose of Management plan

Conservation of this property was funded *[“in part”, if other funders were involved]* by the Maine Natural Resource Conservation Program (MNRCP) as compensation for unavoidable impacts to resources under the Maine Natural Resources Protection Act and/or the federal Clean Water Act. The purpose of this management plan is to ensure that the property is managed and maintained in perpetuity in accordance with the Project Agreement between [*the project sponsor*], The Nature Conservancy, and the Maine Department of Environmental Protection (MDEP).

## Long-Term Steward and Responsibilities

The Long-Term Steward of the site is [*steward organization*]. [*Steward organization*], and subsequent Long-Term Stewards if the property is transferred, shall implement this management plan, managing and monitoring the property in perpetuity to preserve its habitat and conservation values in accordance with the MNRCP Project Agreement. Before any action is taken to void or modify the deed (or easement, if applicable), management plan, or long-term protection mechanism, including transfer of title to, or establishment of any other legal claims over the site, 60-day advance notification must be given to MDEP and the US Army Corps of Engineers (Corps).

## Management Plan Review

The management plan will be reviewed at a minimum once every 5 years by the Long-Term Steward. The plan may be revised or supplemented with additional information and management recommendations. Any substantial revisions, not including grammatical, editorial, or formatting edits, that change the management actions beyond standard maintenance activities, specifically those that address natural resources, will be reviewed with MNRCP.

# Property Description

## Setting and Location

*Describe the location and general physical setting of the property: rural, urban, forest, field, upland, wetland, streams, etc. Detailed natural resource information will be described in section V. Note if the property is adjacent to other conservation holdings. Provide maps of:
1) the general vicinity to show the parcel location in relation to municipal boundaries, other conservation lands, major roads, lakes and streams, and other distinguishable landmarks, and
2) the project parcel which shows the property boundaries on a topographic map or aerial photo.
3) road map showing how to get to the property, with parking and trailhead information if applicable.*

## Directions and Access

*Include driving directions, legal access points for the property, and information on parking and trailhead amenities (include road map with any access points, rights of way, trailhead and parking locations that are applicable).*

## History and Land Use of Property

### Acquisition History

*Describe the MNRCP project sponsor’s acquisition of the site, including funding sources, as well as historic land ownership, if known.*

### Land Use History

*Describe past and present land use including Indigenous Peoples’ uses, farming/agriculture, forest harvest history, development history, history of recreational use, etc.*

*MNRCP suggests the following or similar language regarding Indigenous peoples:*

The Wabanaki people, which includes the Mi’kmaq, Maliseet, Passamaquoddy, and the Penobscot, and the Abenaki people, lived in what is now the State of Maine and the area of the property for thousands of years prior to colonization. Therefore, the property is likely to include natural and cultural resources that are of importance to the Wabanaki people for medicinal, craft, and ceremonial uses.

### Man-made/Cultural Features

*Describe all existing man-made features including roads, trails, buildings, stone walls/fencing, water control structures, boat launches, historic areas, etc., and their intended future use on the property.*

*Include a map, plan, or aerial photo showing locations of all man-made/cultural features on the property including: roads, hiking and/or snowmobile/ATV trails, structures, walls, buildings, boat launches, easements, rights-of-way, leases, etc.*

### Historic or Archaeological Sites

*Describe any known historic features or archaeological sites (without providing specific locations of archaeological sites), and include a summary of the results of any site surveys/inventories, including who conducted them. An assessment of the impacts of management should be given for such sites. If you are uncertain about whether there may be any Historic or Archaeological sites on your property, contact the Maine Historic Preservation Commission in Augusta, Maine.
Information about the Maine Historic Preservation Commission can be found at:* [*http://www.maine.gov/mhpc/index.shtml*](http://www.maine.gov/mhpc/index.shtml)

*The Cultural & Architectural Resource Management Archive (CARMA) mapviewer on the Maine DOT website contains information about some Historic Sites and might be useful for a preliminary overview:* [*http://www.maine.gov/mhpc/carma\_disclaimer.html*](http://www.maine.gov/mhpc/carma_disclaimer.html)

### Existing Easements or Other Restrictions

*Include descriptions/locations of any existing easements, rights-of-way or leases held by others, their nature (buried pipeline, overhead power, ingress/egress, snowmobile trail, mineral or timber rights or other interests), authorized users (if known), access procedures, etc.*

### Legal Documents Appendix

*General note about status of legal documents with a reference to the Appendix, as applicable. The Appendix may include copies of legal documents such as deeds, legal descriptions, rights-of-way, deed restrictions, survey, mineral rights, conservation easements, MNRCP Notice of Project Agreement, other Notices of Grant Agreement, conditions of transfer, etc.*

## Adjacent Land Uses

*Description of adjacent uses around the property* -- *Detail the baseline adjacent land uses. These land uses may change over time; however, the description of the baseline conditions will give the Long-Term Steward some idea of the conditions present when the management plan was first developed.*

# Natural Resources

*Sections below provide documentation of the current conditions on the site*

## Aquatic Resources

*Describe all wetlands, streams and aquatic resources on the site with acreage/length, species and general characteristics and habitat quality*. ***For MNRCP purposes, this should be a separate discussion from other resources on the site.***

*If possible, describe the Strahler stream order of the streams onsite, (*[*http://usgs-mrs.cr.usgs.gov/NHDHelp/WebHelp/NHD\_Help/Introduction\_to\_the\_NHD/Feature\_Attribution/Stream\_Order.htm*](http://usgs-mrs.cr.usgs.gov/NHDHelp/WebHelp/NHD_Help/Introduction_to_the_NHD/Feature_Attribution/Stream_Order.htm)*) and provide a description of the channel structure.*

*Include a map showing all aquatic resources on the site – wetlands, streams and rivers, and other resources related to the aquatic environment.*

## Baseline Description of Biological Resources

* 1. **Biological Species and Communities**

*Include a general description of biological and other natural resources including but not limited to: natural community structure, natural resource inventory data, wildlife use, conservation targets, natural disturbance, assessment of native vs. invasive and non-native species, an overview of native plant species present, if applicable, including their habitat and management.*

*Include maps of resources as appropriate.*

*Complete lists of species may be included in Appendices.*

*If invasives are present see subsection F, “Threats” below*

* 1. **Endangered, Threatened and Rare Species, and Species of Special Concern**
		1. *Describe all federal and state endangered and threatened species that occur or may occur on the site.*
		2. *Describe all rare species and species of special concern such as MDIFW/MNAP mapped species and community occurrences that occur or may occur on the site.*
		3. *Provide a map showing locations, if appropriate.*
		4. *Provide an Official Species List from the US Fish and Wildlife Service’s Information for Planning and Consultation (IPaC) website, available at* <http://ecos.fws.gov/ipac>. *If threatened or endangered species are identified in your project area, consultation with USFWS may be required.* *If an Official Species List was included in your MNRCP application, you may use that same list.*

## Soils & Geology

*Describe soils & geology on the site*. *A soils scientist or other professional may also be used. Include a Soils and Geology map. This map may be combined with the Hydrology and Topography map; see section below.*

*NRCS has information on soils data online:* [*http://soils.usda.gov/*](http://soils.usda.gov/)*;*

 *NRCS online soil survey web application:*[*http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm*](http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm)

 *An informational brochure about the soil data can be found at:*[*http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_050731.pdf*](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_050731.pdf)

 *The Maine Office of GIS has geological data layers (*[*http://www.maine.gov/megis/catalog/*](http://www.maine.gov/megis/catalog/)*).*

## Hydrology and Topography

*Describe hydrology and topography of the site. Indicate the general topography of the site and describe surface flows onto and off of the site.*

*USGS has online data for topographic maps, the national hydrography data set and hillshade.*

[*http://nationalmap.gov/*](http://nationalmap.gov/)

*Map viewer:* [*http://viewer.nationalmap.gov/viewer/*](http://viewer.nationalmap.gov/viewer/)

*Indicate whether wetlands are driven by surface flows (i.e., fluvial systems) or groundwater flows from offsite sources.*

*Include a Hydrology and Topography map.*

## Summary of Restored or Enhanced Resources

*If MNRCP-funded restoration/enhancement has taken place (or will take place) on the property, describe all restored or enhanced resources, including acreages and/or lengths. Include final, as-built plans and a map showing the locations. A brief summary is all that is needed. The Restoration/Enhancement Work Plan should be included by reference, and may be attached as an Appendix.*

## Threats (existing or potential)

*Identify areas that may be of management concern or items that may compromise biological integrity over time. Include any known or potential issues such as:*

1. ***Motorized Vehicle Use****Including issues with ATVs or other vehicles that are causing, or may cause damage to resources on the site*
2. ***Waste Disposal***  *(such as dumping of trash or debris)*
3. ***Invasive Species, Pests and Pathogens***

*Invasive species threaten the diversity or abundance of native species through competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat. Describe any current invasive species infestations on the site or in adjacent areas and include a map showing locations.*

*If your Management Plan includes a full Invasive Plant Control Plan, you may simply refer to that Appendix.*

*In addition to plants, MNRCP encourages you to consider invasive insects and diseases (e.g., Emerald Ash Borer, Beech Scale Disease, Browntail Moth, Hemlock Woolly Adelgid, etc.) and describe any known infestations, and/or known locations of stands of host plants. Nuisance neonative species such as Southern Pine Beetle may also be addressed here.*

1. **Vandalism and Encroachment** *(such as destruction of signs or other property, boundary encroachments, etc.)*

# Management Vision & Goals

*Describe the overall vision and goals for management of the site as a whole into the future.*

*The overall goal of long-term management is to foster the long term viability of the resources, and any listed species/habitat. Routine monitoring and minor maintenance tasks are intended to assure the viability of the site in perpetuity. Those who are chosen to carry out monitoring activities will have the knowledge, training, and experience to accomplish monitoring responsibilities. An objective of this long-term management plan is to conduct regular monitoring to identify any issues that arise, and use adaptive management to determine what actions might be appropriate. Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, or other natural events. Before considering any adaptive management changes to the long-term management plan, the Long Term Steward will consider whether such actions will help ensure the continued viability of site’s biological resources and conservation values.*

*The Long Term Steward recognizes that the property is likely to include natural and cultural resources that are of importance to the Wabanaki people for medicinal, craft, and ceremonial uses. Cultural use agreements with Indigenous Peoples that do not impair the protected resources of the site may be considered.*

*Sample goals:*

*The primary management goal is to preserve the ecological integrity of the various wetlands and other natural resources located on the property while simultaneously providing limited human access to this unique ecological area through a network of pedestrian trails.*

*OR The preserve shall be forever used, operated and maintained in its current undeveloped and open space condition for the long-term protection of wetlands, conservation of wildlife and other natural resources. Low-impact recreation and nature observation will be allowed.*

*OR The future condition of the property will be high value, forested wetlands with associated, upland buffers. Long-Term Steward will manage the property as habitat for wildlife and as a recreational/educational resource for the public. No forestry or active wildlife management is planned. The existing woods roads/trails on the property will be maintained for low impact recreation and nature observation.*

*Add additional goals as needed.*

***To reach these goals, the Long-Term Steward will: (examples)***

* *Maintain the property in its undeveloped state.*
* *Maintain the quality of the existing natural resources.*
* *Seek to reduce impact of invasive species through Early Detection and Rapid Response.*
* *Maintain and expand Best Management Practices that limit soil erosion and protect local water quality;*
* *Provide regulated, passive recreational opportunities where appropriate;*
* *Protect, maintain, and enhance existing cultural (aesthetic) resources; and*
* *Work with Wabanaki people to allow the non-commercial collection and gathering of culturally important species (e.g., brown ash, white birch, nut trees, sweetgrass) with hand-held equipment, for medicinal, craft, and ceremonial uses.*
* *Facilitate educational opportunities relating to natural resources, natural resource management, and conservation.*

## Allowed Uses: *(examples)*

* 1. *Passive Recreation (hiking/walking, snowshoeing, cross-country skiing)*
	2. *Hunting & fishing in accordance with all state and local laws*
	3. *Indigenous Peoples’ cultural uses e.g., collection of culturally important species.*

## Prohibited Uses: *(examples)*

1. *Camping or overnight use (MNRCP does not allow camping on properties acquired with MNRCP funds)*
2. *Off-road/motorized vehicles*
3. *Fires*
4. *Cutting or removal of vegetation (except for allowed Indigenous uses, the removal of dead or danger trees, disease/pest control, or for the control of invasive species)*

## Public Use Guidelines: *(i.e., general guidelines Long-Term Steward has developed for its holdings – if* *desired and applicable*)

* *Carry in, carry out*
* *Day-use only*
* *Keep dogs on leash at all times*
* *Stay on the trails*
* *Respect abutting private property*
* *Avoid disturbing plants and wildlife*

# Management Actions

 *This section includes the actions that need to be taken over time to maintain the site. Subsections may include:*

## Natural Resources

1. *Management of wetlands, streams and other natural resources*

***Objectives:*** *Monitor, conserve and maintain the site’s natural resources. Limit any impacts to resources from human use, vehicular travel, invasive species, or other adverse impacts*

* *Action: At least one annual walk-through survey will be conducted to qualitatively monitor the general condition of these habitats. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, erosion, will be noted, evaluated, and mapped during a site examination. Notes to be made will include observations of species encountered, water quality, general extent of wetlands and streams (and any changes), and any occurrences of erosion, structure failure, or invasive or non-native species establishment. Photographs will be taken throughout the survey to document issues or concerns. (if desired, established photo locations may be used to track changes over time)*

*Special attention should be paid to any area adjacent to or draining into the property from off-site lands. Streams and wetlands should be observed near bank boundaries to observe if increased sediment deposition has occurred. The monitoring report should provide a discussion of any recent changes in the watershed (i.e., subdivision being developed upstream of stream bank).*

1. *Ecological Monitoring for Threatened/Endangered/Rare/Special Concern Species If applicable. The methodology used may vary for different plant and animal species as determined in consultation with the appropriate agencies, such as consulting with the Maine Department of Inland Fisheries and Wildlife on managing a site for Blandings turtles.*

***Objectives****: Manage property to maintain habitat for* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****.*

* *Action: Visually observe for changes to occupied habitat, such as changed hydrology or vegetation composition. Record any observed changes.*
* *Action: Consult with MNAP, MDIFW, USFWS or other appropriate agency on specific monitoring or management strategies for \_\_\_\_\_\_\_\_\_\_\_\_.*
1. *Invasive Species, Pests and Pathogens*

***Note:*** *Given the growing problem with invasive species, an invasive species inventory should be carried out at regular intervals on all sites. If significant invasive plants are found, development of an Invasive Plant Control Plan (IPCP) is highly recommended.* ***If MNRCP funds have been allocated for management of invasive plants, a separate IPCP is required. See the Invasive Plant Control Plan template in Appendix A of this document. Specific objectives and actions will need to be developed for each species or infested area in consultation with the appropriate agencies, as needed.*** *Invasive insects, diseases, and pathogens are more complex to manage, and in some cases no known controls exist at the landscape scale. Nevertheless, understanding the presence of these species is critical for adaptive management.*

***Objectives****: Monitor and maintain control over invasive species, pests, and pathogens that diminish native natural resources on the site. If significant invasive plants are present, an Invasive Plant Control Plan (IPCP) shall be developed and attached to this management plan as an Appendix (see IPCP Template in Appendix).*

* *Action: Mapping of presence of invasive plants, pests, and pathogens presence shall occur during the first two years of site management, to establish a baseline. Mapping shall be accomplished through use of available technologies, such as GIS, GPS, and aerial photography. Invasive species are easier to control if they are located and a control plan is undertaken before they become well-established. It is strongly recommended that all properties be evaluated for the presence of invasive species, even if none are known to occur on the site.*
* *Action: Each year’s annual walk-through survey (or a supplemental survey) will include a qualitative assessment of invasive species (e.g., visual estimate of plant percent cover, or percent of host trees infested). If an Invasive Plant Control Plan exists, actions taken for the year will be documented.*
* *Action: Actions shall be taken to control invasive plants in accordance with any Invasive Plant Control Plan (Appendix A).*
* *Action: Where feasible, actions may be taken to control invasive insects, pathogens, etc., e.g., release of biocontrol agents. Any release of biocontrol agents should be done in coordination with appropriate agencies (permits likely required). Where feasible, actions may be taken to promote host plant resilience, e.g.,* [*Monitoring and Managing Ash*](http://www.monitoringash.org/)*.*
1. *Forest/Vegetation Management (if approved as part of MNRCP award)*

***Objectives****: Adaptively manage vegetation based on site conditions and data acquired through monitoring to maintain biological values. Analyze effects of any authorized forestry or field maintenance activities on the wetland, streams, and buffers on the site. If determined appropriate, develop and implement specific vegetation management techniques (e.g., selective thinning) in coordination with MNRCP. [Site specific targets for vegetation may be specified here and actions revised or added to achieve those targets].*

* *Action: If determined to be in accordance with MNRCP requirements, develop a forest, or other vegetation, management plan for review and approval by MNRCP. Consult with USFWS regarding actions needed to address federally Threatened or Endangered species for which habitat may exist within the project area (e.g., small whorled pogonia, northern long-eared bat, Atlantic salmon, etc.).*
* *Action: Implement forest/vegetation management techniques, as approved by MNRCP.*

## Infrastructure and Facilities, Security, and Public Access

1. *Gates, Parking, Fences, Signage, and Property Boundaries*

***Objective****: Monitor and maintain condition of gates, parking areas, fences, signage, and property boundaries to prevent casual trespass, allow necessary access, and facilitate management.*

* *Action: During each site visit, record condition of parking areas, gates, fencing, signs, crossings, and property boundaries. Record location and type of any maintenance issues, with actions to be taken for resolution, if applicable. Action: Maintain gates, fences, signs, crossings and property boundary markers as necessary. Repair or replace as necessary, and as funding allows.*
1. *Roads, Trails, and Structures*

***Objectives****: Create/maintain trails to allow public access as necessary and in accordance with the MNRCP Project Agreement. Any construction or maintenance of trails shall be conducted in such a manner as to avoid any disturbance to wetland habitat and buffers or habitat for sensitive species. Include a summary of Other Power Driven Mobility Device assessment, if applicable. Monitor and maintain condition of roads, trails and structures to facilitate management, public use, and prevent adverse impacts to wetlands, streams and other resources. Retire unnecessary sections of existing road.*

* *Action: During each site visit, record condition of roads, trails, and structures. Record location and type of any maintenance issues, with actions to be taken for resolution.*
* *Action: Maintain roads, trails and structures as necessary. Replace as necessary, and as funding allows.*
* *Action: For new trails, obtain appropriate permits from MDEP and the Corps, if necessary, and consult with USFWS regarding any potential Threatened or Endangered species habitat.*
1. *Trash and Trespass*

***Objectives****: Monitor sources of trash and trespass. Collect and remove trash and rectify trespass impacts. Specifically address any ATV issues, existing or potential.*

* *Action: During each site visit, record occurrences of trash and/or trespass. Record location and type of any trespass issues, with actions to be taken to avoid, minimize, or rectify trash and/or trespass impacts.*
* *Action: At least once yearly collect and remove as much trash as possible and repair and rectify vandalism and trespass impacts.*
* *Action: Take appropriate action to address issues of vandalism, trespass, or ATV violations including but not limited to:*
	+ *Outreach to violators*
	+ *Placement of boulders, gates or other obstructions to prevent access*
	+ *Contacting local law enforcement*

# Funding and Task Prioritization

## Funding

*Long-Term Steward will oversee implementation of the management plan, monitoring activities, and long-term stewardship of the property. With assistance from stewardship volunteers, the Long-Term Steward will maintain and monitor the property in perpetuity.*

Table 1 summarizes the anticipated start-up/development costs for the site. Table 2 summarizes the anticipated annual costs for long- term management for the site After initial start-up costs, annual costs associated with the long-term maintenance of the property are estimated to be $\_\_\_\_\_ . $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be/has been placed into a stewardship endowment to be maintained by \_\_\_\_\_\_\_\_ and distributions from the endowment will cover costs associated with stewardship of the property, if applicable. With the current annual estimated capitalization rate of \_\_\_\_ the total endowment amount required will be $**\_\_\_\_\_\_\_\_\_\_\_\_\_**.

[*The sample lists of tasks in Tables 1 and 2 are not meant to be exhaustive. Some sites may have more elements to consider and some may have fewer depending on the attributes of the site.* ]

## Task Prioritization and Cost Estimates

**Table 1: Schedule of Start-up Activities** *(examples)*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goal** | **Action** | **Priority** | **Target Date** | **Completed By** | **MNRCP Cost** | **Other Cost** | **Notes** |
| *Natural Resources* | *Establish baseline for monitoring* | *2* | *Summer 2013* | *Steward & volunteers* | *$200* |  |  |
| *Natural Resources* | *Invasive species baseline* | *1* | *Summer/Fall 2013* | *Steward & volunteers* | *$200* |  |  |
| *Infrastructure* | *Boundary Line Marking* | *1* | *Summer 2013* | *Steward* | *$200* |  |  |
| *Infrastructure* | *Install Gates and locks* | *1* | *Summer 2013* | *Contractor* | *$1,000* |  |  |
| *Infrastructure* | *Install Boulders/ Barricades* | *1* | *Spring 2013* | *Contractor* | *$4,000* |  |  |
| *Infrastructure* | *Parking lot development* | *2* | *Fall 2013* | *Contractor* |  | *$5,000* | *Gravel and equipment costs* |
| *Infrastructure* | *Trail Planning & Development* | *3* | *Spring-Fall 2014* | *Steward & volunteers* |  | *$1,000* | *Mileage & equipment* |
| *Infrastructure* | *Signs& Installation* | *2* | *Summer 2014* | *Steward & volunteers* | *$500* |  | *Mileage & equipment* |
| *Infrastructure* | *Garbage Dump Cleanup* | *2* | *Summer 2013* | *Contractor* | *$5,000* |  |  |

 **Total Start-up Costs: \_\_\_\_\_\_\_\_**

**Table 2 Estimated Annual Costs** *(examples)*

|  |  |  |
| --- | --- | --- |
| **Cost** | **Cost per year\*** | **Notes** |
| *Staff Time*  | *$2,000* |  |
| *Trail Maintenance* | *$500* |  |
| *Property Taxes* | *$5.000* |  |
| *Boulder/Road Barricade Maintenance* | *$400* |  |
| *Sign Maintenance/replacement* | *$100* |  |
| *Trash Removal* | *$500* |  |
| *Brochures, Information* | *$100* |  |
| *Mileage* | *$200* |  |
| *Monitoring*  | *$500* |  |
| *Boundary Marking (every 5 years)* | *$100* | *5 year cost/5 for cost per year* |
| *Management Plan Update (every 5 years)* | *$50* | *5 year cost/5 for cost per year* |

 **Total Annual Costs:\_\_\_\_\_\_\_\_\_\_\_\_**

\*These costs are examples only and don't necessarily represent expected costs.

**Total stewardship account that will be used to fund these costs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# Literature Cited

# Appendices

*May include (see Table of Contents page):*

*Invasive Species Control Plan*

*Maps (if not incorporated into the main body of the plan)*

*Legal Documents*

*Species lists*

*Other Power Driven Mobility Device (OPDMD) assessment form(s),*

*Restoration or Enhancement plan (if included as part of the project)*

*Historical documents*

**Appendix A**

**MNRCP Invasive Plant Control Plan (IPCP) - Suggested Approach**

Terrestrial and wetland invasive plants are an increasing issue in Maine. The template Invasive Plant Control Plan (IPCP) that follows is designed to help MNRCP awardees create a plan of action when significant invasive plant infestations are found on an MNRCP-funded property. It also includes forms that can be used to track inventory, actions taken, and progress over time. The level of detail needed in the IPCP will depend on the level and type of infestation at your site. Please consult with TNC’s Mitigation Program Manager to determine whether an IPCP is necessary for your MNRCP site.

**How to Conduct a Baseline Inventory**

Survey the property and nearby areas. Search all trails, roads, and disturbed areas, and make forays into less-disturbed areas to check for more dispersed infestations. Specifically locate each site where invasive plants are found, preferably with GPS coordinates. We suggest using the free online mapping tool iMapInvasives (“iMap”). iMap also has an App that can be used to easily map point locations in the field using a smartphone or GPS-enabled tablet. Label each site with a unique ID for reference and tracking purposes (note, iMap will do this automatically). See the survey form attached to the end of the IPCP template for an example of the kinds of data to collect at each infestation site. Nearby data may also be available through iMap.

Learn more about the iMap tool: <http://www.imapinvasives.org/>
Register for an iMap account or Log in: <https://imapinvasives.natureserve.org/imap/login.jsp>

The Maine Natural Areas Program (MNAP) maintains an iMap website describing the tool and answering frequently asked questions: <http://www.maine.gov/dacf/mnap/features/invasive_plants/imap.htm>

MNAP is the lead partner for iMap in Maine. Questions about iMap can be directed to: invasives.mnap@maine.gov.

**How to Prioritize and Set Goals for Invasive Plant Management**

Invasive plants are not all equally threatening. It is not usually possible to control every invasive plant on every acre. Therefore, prioritization is needed in most cases. Usually, prioritization starts with prevention, then focuses on Early Detection and Rapid Response to brand new infestations, then addresses more widespread infestations depending on the threat they pose to the site, as resources allow. Eradication is not the only good goal when managing invasive plants. Reducing the percent cover of a species in a particular area or shrinking the overall size of the area impacted by an invasive plant, can be a good goal. The following may be useful in determining which species or areas to focus on first, and what are practicable, achievable goals:

1. Current extent of the species on or near the site;

2. Value of the habitats/areas that the species infests or may infest;

3. Current and potential impacts on the management goals for the site; and

4. Ability to manage a particular species/difficulty of control.

The University of Minnesota Cooperative Extension has a useful prioritization handout: <https://www.minnesotamasternaturalist.org/docs/invasive_blitz/prioritizing_invasive_plant_control.pdf>

It may be helpful to consult with MNRCP staff, land stewardship professionals, and/or state or federal agencies for guidance on what species are top threats to the site, and what are reasonable and achievable goals for invasive plant management. Please do not hesitate to reach out to MNRCP staff.

**How to Select Control Methods**

Different invasive plants may need different control methods, and infestations in or near wetlands or waterbodies may require different approaches. Research each species, particularly what not to do, so you avoid spreading the problem. Most light infestations can be controlled by mechanical means such as pulling. Larger infestations may require the use of herbicides. Herbicide applications on land open to the public must be performed by a licensed herbicide applicator. Some methods of control (including physical controls in or near wetlands or waterbodies) may require permits. Potential methods include:

1. Mechanical/physical (cutting, digging, pulling, mowing, prescribed burning)

2. Herbicide

3. Biological control agents

4. Cultural control (altering the habitat to make it less suitable, such as maintaining forest canopy closure that impedes shade intolerant species, or restoration/re-vegetation with native plants)

For species-specific control methods for the most common invasive plants in Maine (and some less widespread but very harmful species), see the detailed Web Gallery pages maintained by MNAP: <https://www.maine.gov/dacf/mnap/features/invasive_plants/invasives_gallery.htm>

For control method recommendations for other invasive plants, see the fact sheets linked from the Advisory List of invasive plants in Maine (click on the plant name to go to the factsheet): <https://www.maine.gov/dacf/mnap/features/invasive_plants/invsheets.htm>

For a list of regulations for invasive plant control in or near wetlands or waterbodies, see the [Maine Invasive Plants Field Guide](https://www.maine.gov/dacf/mnap/publications/mipfg.html), the section in the back titled “Managing Invasive Plants.”

The Maine Board of Pesticides Control oversees herbicide use in Maine: <https://www.maine.gov/dacf/php/pesticides/index.shtml> (207) 287-2731; pesticides@maine.gov

**Other Resources**

The Maine Forest Service has a program to assist landowners with invasive plant management: <https://www.maine.gov/dacf/mfs/projects/invasive_plant_mgmt/index.html>

Maine Natural Resource Conservation Program

Invasive Plant Control Plan Template

**For\_[Project name]\_\_\_\_\_\_\_\_\_**

[*if needed*]

Organization

Author(s) and Title(s)

Date

Table of Contents Page

|  |  |
| --- | --- |
| 1. Introduction
 |  |
| II. Baseline Invasive Plant Inventory |  |
| III. Plan Objectives/Goals |  |
| IV. Implementation |  |
| V. Monitoring |  |
| VI. Evaluation |  |

1. **Introduction**

Write a brief discussion of the context of the invasive plant problem within the MNRCP project, project site management objectives, and conservation targets*.*

1. **Baseline Invasive Plant Inventory**

# Description of Survey Effort: Describe the survey – dates, length of time dedicated (# total people hours), the people who surveyed, their qualifications, etc. Show the survey routes (e.g., GPS tracks) on a map and reference that map in this section.

# Description of Invasive Plants Found: Provide a list or table of invasive plant species found, with basic information about the extent and severity of infestation for each species. See the example table below for one way to do this.:

# If useful, separately describe particular areas of infestation, noting species, size of area infested, and level of infestation (e.g., percent cover or density class). This may be useful if there are certain areas of the site with particularly dense or important infestations, e.g., “Area Surrounding Old Cellar Hole” or “Edge of Rare Plant Habitat.”

# Include a list of species to watch out for, that might pose a danger to the habitats on site (not currently known to be present, but suitable habitat exists). Note if any are known from nearby locations.

# Provide maps showing the extent of the invasive plants on and/or around the site and identify photo reference points for use in monitoring. Show the boundary of the site and, if the entire site has not been searched, indicate on the map which areas have been searched (showing GPS tracks of survey routes is a good way to do this).

1. **Plan Objectives/Goals**
2. Explanation of Prioritization Strategy: Describe how you developed the goals/priorities for invasive plant control at this site. What factors were important (e.g., Early Detection/Rapid Response to small infestations, protection of rare habitat, etc.)? Were some species prioritized over others due to specific habitat or wildlife impacts, or due to recreational use?
3. Prioritized Goals (WHAT you hope to achieve): List the prioritized goals for the site. Goals can be for control of individual *species* and/or infestation *areas* (could include multiple species). Include a brief rationale for the level of priority assigned. Priorities may be numbered or categorized as High, Medium, or Low. Include measures of success, such as reduction of % cover or size of area impacted, and the timeframe in which you hope to achieve this.

*For each goal be sure to include* ***measurable*** *objectives:*

* *the* ***impact*** *on numbers, density, cover, etc. that you want to achieve;*
* *the* ***size*** *of the area in which you hope to achieve this;*
* *the* ***time period*** *in which you hope to achieve it.*
1. Summary of Actions Planned (HOW you hope to achieve the above goals): For each of the goals listed above, identify the control / management method(s) selected for each species or area. *Note, this could be combined with section B into one list or table.*
2. Constraints. Identify any constraints such as site conditions or regulatory issues that impact practicable solutions. *Note, this could be combined with section B into one list or table.*
3. Required Resources
4. Personnel Qualifications and permits
5. Equipment
6. Sanitation/recontamination considerations
7. Project Partners (government agencies and/or others available for technical, administrative or practical support)
8. **Implementation**
9. Schedule. A table is one way of outlining the schedule, or text format may be used:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Year 1** | **Year 2** | **Year 3** | **Year 4 etc.** |
| **ID** | **Target Species/Area** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |   |
|  |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Codes: S=survey; P=Planning, T=treatment; M=Monitoring

1. Best Management practices and record-keeping methods to be used.
2. Budget
3. **Monitoring**

Describe monitoring plan, frequency of monitoring, methods (e.g., foot survey, photo points, % cover and density estimation), and outline procedures if re-treatment or alternative methods of control are needed.

1. **Evaluation**

This section is to be filled in later, after treatment and evaluation of preliminary monitoring results. The evaluation should be used to determine whether any of the sections above should be modified.

**Invasive Plant Treatment and Monitoring Form**

(iMapInvasives can be used as an alternative to this treatment and monitoring form)

MNRCP Project Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

Personnel Names and roles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity Type: (circle one) initial evaluation, pre-treatment evaluation, post–treatment monitoring, other

Infestation site ID: \_\_\_\_\_\_\_\_ Location Lat/Long (center point) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Invasive Plant Scientific and Common Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Attach photos of invasive species.*

Estimated Infested Area size with unit of measure (i.e. sq. ft.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*An infested area is defined by drawing a line around the actual perimeter of the infestation. If multiple invasive species exist in an area, a separate form should be filled out for each one.*

Estimated Gross Area size with unit of measure: \_\_\_\_\_\_\_\_\_\_\_\_\_

*Like Infested Area, Gross Area is the area occupied by an invasive species. Unlike Infested Area, the area is defined by drawing a line around the general perimeter of the infestations, not the area covered by individual or groups of invasive species. Gross area may contain significant parcels of land that are not occupied by invasives. Gross area is used in describing large infestations. When a value is entered for gross area, the assumption is that the area within the perimeter of the invasive population (area perimeter) is an estimate, or the product of calculating the area within a described perimeter. It is not a measured value. If a value for Gross Area is entered, a value for Infested Area must still be entered. Infested Area is derived from estimating the actual or percentage of area occupied by invasives.*

(Helpful Gross Area and Infested Area article with diagram:
 <http://www.se-eppc.org/wildlandweeds/pdf/Spring2009-Price-pp4-6.pdf>)

Total Area Surveyed with unit of measure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Total area surveyed is the entire land area surveyed for invasive species, whether invasives were found or not. This provides a general understanding of the locations that may be resistant to invasion, provides an estimation of the extent of invasions, and allows examination of areas searched so gaps in searched area and habitats can be assessed.*

Abundance: 🞏 Single plant or clump 🞏 Scattered individuals or clumps 🞏 Scattered dense patches or clumps 🞏 Linear patches (e.g. along stream, trail, road) 🞏 Dominant cover/Dense throughout 🞏 Monoculture,
🞏 Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Life stage at time of observation: 🞏 Seedling 🞏 Vegetative 🞏 Flowering 🞏 Fruit 🞏 Seeds 🞏 Sapling 🞏 Mature >4” dbh 🞏 Dead

Percent of area covered by invasive plant: 🞏 Trace (less than 1%) 🞏 Low (1 - 5%) 🞏 5-25% 🞏 26-50% 🞏 51-75% 🞏 75-100%

Habitat in which invasive plant is located:

Habitat description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (such as community type, wetland, lakeshore, forest edge or interior, field, disturbed ground, roadside, etc.)

Disturbance factors(*logging, grazing, mowing, erosion / sedimentation, etc*.)\_\_\_\_\_\_\_\_\_\_\_\_\_

Control method(s) used / planned (circle all that apply)

* None
* Herbicide\*: Pre-emergent Foliar Basal bark Cut stump
* Mechanical: Clip Pull Mow
* Fire: Controlled burn Torch
* Soil: Bulldoze / Soil removal Disk Till
* Other: Flooding Plastic / Shade cloth Biological

 Herbicide Formulation(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Surfactant used (if applicable):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Herbicide application method:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Herbicide rates used:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Acres treated: \_\_\_\_\_\_\_

Is this a re-treatment, if so, how many previous visits? \_\_\_\_\_\_\_\_

\*\*If area to be treated is within or near to an aquatic resource, a permit may be needed, and a licensed applicator may be required.