|  |
| --- |
| ***Maine Natural Resource Conservation Program******Management Plan Template 2015*****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 deleted and replaced with the pertinent information for the project site.*

***Note: Maps are required.*** *Maps may be put into an Appendix or interspersed throughout the document. Maps showing the following are required, as outlined in the text that follows: General vicinity of the parcel showing other conservation lands; Parcel boundaries, on a topo or aerial photo; Road map showing how to get to property, with parking and trailhead information, if applicable; Man-made features on the property including structures, trails, roads, etc.; Aquatic resources including wetlands, streams and other resources related to the aquatic environment; Biological and other natural resources and communities of note; Soils and Geology; Hydrology and Topography; Threats such as locations of invasive species infestations and trash or trespass locations.* ***Maps of similar content may be combined as long as the information they are to convey is clear and well-defined.***

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**APPENDICES**

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

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

**Apprendix D. other . . . .**

# Geographic Information

**Site Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Township/County:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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 as compensation for unavoidable impacts to resources under the Maine Natural Resources Protection 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.

## 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), 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 MNRCP and the US Army Corp of Engineers district engineer.

## 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 revisions other than edits that change the management actions beyond standard maintenance activities will be reviewed with MNRCP, MDEP and U.S. Army Corps of Engineers.

# 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, 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.*

## 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

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

### 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)

*An article about archaeology in Maine can be found at:* [*http://maineanencyclopedia.com/archaeology/*](http://maineanencyclopedia.com/archaeology/)

*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, Notice of Grant Agreements, 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.***

*Include maps showing all aquatic resources on the site.*

## 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.*

## 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/>*

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

*To the extent possible, include a Hydrology and Topography map.*

## Summary of Restored or Enhanced Resources

*If 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 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.*

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.*

*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.*

*A bulleted list of goals may be included.*

***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.*
* *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*
* *Facilitate educational opportunities relating to natural resources, natural resource management, and conservation.*

## Permitted Uses: *(examples)*

* 1. *Passive Recreation (hiking/walking, snowshoeing, cross-country skiing)*
	2. *Hunting & fishing – may be allowed on the site but are not specifically funded or a part of this long-term management plan.*

## Prohibited Uses: *(examples)*

1. *Off-road/motorized vehicles*
2. *Camping or overnight use*
3. *Fires*
4. *Cutting or removal of vegetation*

## 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 occurrences of erosion, structure failure, or invasive or non-native species establishment.*
* *Action: Establish reference sites for photographs and prepare a site map showing the reference sites for the file. Reference photographs will be taken of the overall site at least every f --- year(s) (no less than five) from the beginning of the long-term management plan, with selected reference photos taken on the ground more frequently, \_\_\_\_\_ times per year (if applicable).*

*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****: Monitor population status and trends. Manage to maintain habitat for* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****.*

* *Action: Monitor status every year by conducting population assessment surveys. The annual survey dates will be selected during the appropriate period as identified by the applicable agencies and will generally occur from \_\_\_\_\_ through \_\_\_\_\_ each year. Occupied habitat will be mapped and numbered to allow repeatable data collection over subsequent survey years.*
* *Action: Visually observe for changes to occupied habitat, such as changed hydrology or vegetation composition. Record any observed changes. Size of population (1 acre, etc).*
* *Action: Implement other actions that enhance or monitor habitat characteristics 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 invasives are found, development of an Invasive Species Control Plan (ISCP) is highly recommended.* ***If MNRCP funds have been allocated for management of invasives, a separate ISCP is required. See the Invasive Species Management Plan Template in Appendix A of this document. Specific objectives and actions will need to be developed for each species in consultation with the appropriate agencies, as needed.***

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

 *Action: Mapping of presence of invasive species, 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. Note: Invasives are easier to control if they are located and a control plan is undertaken before they become established. It is 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 (e.g., visual estimate of cover) of invasive species and actions taken, in accordance with an Invasive Species Control Plan.*
* *Action: Actions shall be taken to control invasive species in accordance with the Invasive Species Control Plan in Appendix A.*
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, agricultural 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 the MRNCP.*
* *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 OPDMD assessment. 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.*
1. *Trash and Trespass*

***Objectives****: Monitor sources of trash and trespass. Collect and remove trash, repair vandalized structures, 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:*

*Invasive Species Control Plan*

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

*Legal Documents Appendix;*

*Species lists,*

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

*Restoration plan (if a restoration project),*

*Historical documents,*

*etc***.**

**Appendix A**

MNRCP Invasive Species Control Plan (ISCP) Template

**General Notes on this template**: Invasive species are an ever-increasing issue all across Maine. Removal of invasive species when there are very few plants is critical and should be given the highest priority. Most light infestations can be controlled by pulling or digging and this should be done when invasives are found, or immediately after. Larger infestations may require the use of a licensed herbicide applicator.

The New England District of the US Army Corps of Engineers has information on Invasive Species and control: <http://www.nae.usace.army.mil/Missions/Regulatory/InvasiveSpecies.aspx>. The Invasive Species Plant Atlas of New England (available at: <http://www.eddmaps.org/ipane/Species/>) includes descriptions, as well as links to management information on other sites. It may also be useful to consult with appropriate state or federal agencies for guidance on what species may threaten the site and or management of those species.

The Maine Natural Areas Program (MNAP) is the lead partner in Maine for the iMapInvasives data management system. iMapInvasives is a free on-line GIS-based invasives management system that can be used by MNRCP project sponsors to manage their work to control invasive species on their lands.

Maine Natural Areas Program iMapInvasives page: <http://www.maine.gov/dacf/mnap/features/invasive_plants/imap.htm>

iMapInvasives website: <http://www.imapinvasives.org/>

iMapInvasives Invasive plant Management Decision Analysis tool: <http://www.imapinvasives.org/IPMDAT_v1.1_06-30-11.pdf>

The template that follows is designed to help project sponsors create a plan of action when invasives are found on their property. It also includes forms that can be used to track inventory, actions taken and progress over time. Information in the template and form is based on information collected by a number of other organizations and agencies. The level of detail needed will depend on the level and type of infestation.

There are many sources of information about invasives species and their control online. Starting with Maine sources will give you an idea of what is considered invasive in Maine. Below is a sample of websites:

Maine Board of Pesticides Control information on the legal use of pesticides in Maine: http://www.maine.gov/dacf/php/pesticides/applicators/licensing.html

Links to Invasive Plant Information and Fact Sheets to include with your plan:

Maine Natural Areas Program maintains lists of plants that are invasive, or probably invasive, in Maine and those that are likely to be invasive but not yet in Maine. There are also links to fact sheets on the UMaine Cooperative Extension website with identifying information and control methods. <http://www.maine.gov/dacf/mnap/features/invasive_plants/invsheets.htm>

The Plant Conservation Alliance Alien Plant Working Group Fact Sheets. Includes management information. <http://www.nps.gov/plants/alien/fact.htm>

Invasive Plant Fact Sheets from the State of Michigan have good detailed information, particularly on control. [http://www.michigan.gov/dnr/0,4570,7-153-10370\_59996\_61470---,00.html](http://www.michigan.gov/dnr/0%2C4570%2C7-153-10370_59996_61470---%2C00.html)

Vermont Invasives “Gallery of Invaders.” Includes description, control measures and videos on website, with links to fact sheets. <http://www.vtinvasives.org/invaders/imagesall>

Additional information:

<http://www.nae.usace.army.mil/Portals/74/docs/regulatory/InvasiveSpecies/ISCPGuidance.pdf>

<http://www.maine.gov/dacf/mnap/features/invasive_plants/invasives.htm>

<http://umaine.edu/invasivespecies/>

<http://umaine.edu/invasivespecies/home/id_resources/>

<http://www.mainevolunteerlakemonitors.org/mciap/FieldGuide.pdf>

<http://www.invasivespeciesinfo.gov/index.shtml>

<http://www.vtinvasives.org/invaders/imagesall>

<http://www.fws.gov/contaminants/Documents/GuidanceIPMPlan.pdf>

<http://www.fws.gov/invasives/staffTrainingModule/planning/plans.html>

<http://www.blm.gov/pgdata/etc/medialib/blm/wy/programs/invasiveplants/docs.Par.42434.File.dat/IWMhandbook.pdf>

<http://www.invasive.org/gist/products.html>

<http://www.weedcenter.org/management/planning.html>

<http://clean-water.uwex.edu/pubs/pdf/InvasivePlants.pdf>

<https://extension.unh.edu/resources/files/Resource000988_Rep1135.pdf>

Maine Natural Resource Conservation Program

Invasive Species Control Plan Template

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

Organization

Author(s) and Title(s)

Date

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1. Introduction

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

1. Baseline Invasive Species Inventory

# Survey the property and nearby areas and make a list of the invasive/nuisance species found. Attach information (such as fact sheets) for all invasive/non-native species known to be present on the site and those that might pose a danger of infestation from other locations nearby. (see links to sources of fact sheets at the beginning of the template). Specifically locate each site where invasive species are found, preferably with GPS coordinates. Label each site with a unique ID for reference and tracking purposes. See the survey form in the Appendix for an example of the kinds of data to collect. Nearby data may also be available through iMap Invasives.

# Describe each area where invasives were found noting species, size of area infested and level of infestation (percent cover) for each area. Note the type of infestation, such as single plant or small patch, large patch; linear patch such as along road or stream, and whether it is increasing, decreasing or staying the same at each location, if this can be determined.

# Identify the threats and/or issues posed by specific invasive species and how they are interfering, or could interfere in the future, with your site management objectives.

1. Within the project area
2. From adjacent properties and/or the surrounding area, watershed and/or region. (To the extent possible. Surveying the surrounding areas helps to determine potential sources of re-infestation)

# Create baseline maps showing extent of the invasive species on and/or around the project area and identify photo reference points for use in monitoring. Show boundary of project site and, if the entire site has not been searched for invasives, indicate on the map which areas have been searched.

# Prioritize species and/or infestation areas to be controlled. Include a rationale for the level of priority assigned. Priorities may be numbered or categorized as "High", "Medium", or "Low". In the long run, it is usually most efficient to devote resources to preventing new problems and immediately addressing recently established infestations. The following may be useful in determining which areas to focus on first:

1. current extent of the species on or near the site;
2. value of the habitats/areas that the species infests or may infest; and
3. current and potential impacts on the management goals for the project site;
4. ability to manage a particular species/difficulty of control
5. Plan Objectives/Goals
6. Goals and Anticipated Results of Control Plan. Outline the goals for management of invasive species on the site. Include measures for success, such as reduction of % cover or size of area impacted by the invasive species and the timeframe in which you hope to achieve this.

*Establish* ***measurable*** *objectives for the planned control activities. Include:*

* *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* ***period*** *in which you hope to achieve it.*
1. Summary of Actions Planned: Identify the control / management method(s) selected for each species. Different invasives may need different control methods so be sure to research each species, particularly what not to do, so you avoid spreading the problem further. Some methods of control may require permits or professional applicators. Indicate which of the available control options are preferred for this site and why, and the circumstances under which they may be used. Summarize the techniques, including disposal methods, if applicable. Escalating measures may need to be outlined in case the first measures don’t work.
2. Prevention
3. Mechanical/Physical methods (such as cutting, digging, pulling, mowing, prescribed burning)
4. Chemical Methods (such as herbicides)
5. Biological Control Agents
6. Cultural control (altering the habitat to make the it less suitable to the invasive; such as maintaining a level of forest canopy closure that impedes shade intolerant species, or restoration/re-vegetation of native plants)
7. No Treatment (explain the rationale)
8. Constraints. Identify any constraints such as site conditions or regulatory issues that impact practicable solutions.
9. Required Resources
10. Personnel Qualifications and permits
11. Equipment
12. Sanitation/recontamination considerations
13. Project Partners (government agencies and/or others available for technical, administrative or practical support)
14. Implementation
15. Implementation 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** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** | **Win** | **Spr** | **Sum** | **Fall** |
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Codes: S=survey; P=Planning, T=treatment; M=Monitoring

1. Best Management practices and record-keeping methods to be used.
2. Budget
3. Monitoring Program
4. Describe monitoring plan, frequency of monitoring and outline procedures if re-treatment or alternative methods of control are needed.
5. 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 Species Treatment and Monitoring Form (iMap Invasives 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 Species 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 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):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 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 an aquatic resource a permit is likely needed, as well as a licensed applicator to do the work.