Beaver Brook Reservations Trail Stewardship Handbook

For volunteer Stewardship Projects of the Waltham Land Trust
Waltham, MA
Trainings: Spring 2012, 2014, 2015, 2016, 2017, 2018, 2019, 2020

I. About This Document

The purpose of this Handbook is to:

1. Define the Beaver Brook Reservations (North and Historic) Stewardship Program.
2. Outline the responsibilities of the Stewards.

We wish to acknowledge that most of this instruction has been adapted from the *Lexington Conservation Stewards Handbook*, 2005, written by Ery Largay, Lexington Conservation Assistant, Keith Ohmart, Lexington Stewards, Mike Tabaczynski, Lexington Stewards, and Tom Whelan, Lexington Stewards.

Adaptations were made by Sonja Wadman, Waltham Land Trust Executive Director, for the first training of volunteer stewards in Spring 2012. Adaptions were revised for subsequent trainings. Background has been provided by the Massachusetts Department of Conservation and Recreation (DCR) website http://www.mass.gov/eea/agencies/dcr/massparks/region-boston/beaver-brook-reservation.html. Comments and suggestions for improving this Handbook can emailed to Ms. Wadman at swadman@walthamlandtrust.org.

II. Introduction

Beaver Brook Historic (BBH) Reservation is the first reservation established by the Metropolitan Parks Commission, later the MDC, which is now the Department of Conservation and Recreation (DCR) in 1893. It is still managed by the DCR and is 59 acres of open fields, wetlands and woodlands. Ponds, fields, marsh, and a cascading waterfall make the park's north section along Mill Street in Belmont a delightful place to walk or picnic. The more developed south section along Trapelo Road features ballfields, a wading pool, and a tot lot. Beaver Brook's historic significance includes reminders of its past; the remains of a 19th century fulling mill, the historic Robert Morris Copeland House (c.1835) and a monument to the Waverly Oaks, perhaps the most famous trees of the 1890's.

Beaver Brook North (BBN) Reservation represents a 254-acre transfer of a portion of the former Metropolitan State Hospital (MSH) property and former Middlesex County Hospital to the DCR. The MSH property acquisition also includes a 54-acre parcel under a conservation easement. The expanded reservation is strategically located amidst a series of open space parcels including Belmont's Rock Meadow Conservation Land, Massachusetts Audubon Society's Highland Farm, Waltham's Waltham Woods, Middlesex County Hospital open space, and Lexington's Concord Avenue Conservation Land. In combination with the open space resources of BBN, these properties provide an important network of wildlife habitat and public recreation opportunities within the metropolitan region, with extensive wetlands and woodlands that provide prime wildlife habitat.

III. Waltham Land Trust

The Waltham Land Trust's mission is "to create a legacy of land conservation in Waltham by promoting, protecting, restoring, and acquiring open space. We envision growth in public appreciation of natural resources, preservation and restoration of native habitat, and increased biodiversity to foster a healthier environment."

The Waltham Land Trust has several committees comprised of Directors and WLT supporters that help get the work done. The Land Committee is "responsible for planning projects and policies related to the preservation of open space assets" in Waltham, including trails that take outdoor enthusiasts to, from, and through these open spaces. **Volunteer Stewards are encouraged to attend the WLT's Stewards Subcommittee meetings every second Wednesday of the month from 6:30 – 7:30 pm at the UMASS Field Station.** The WLT Executive Director reports to the WLT Land Committee and WLT Board of Directors on the work of the Stewards Subcommittee.

IV. Volunteer Stewardship Projects

WLT's volunteer Stewardship Projects are small semi-independent teams of trained people responsible for monitoring and maintaining open spaces and trails in our community. The first team to be established is the Chester Brook Greenway Stewards (CBGS), in spring 2012. In March 2014, the WLT trained volunteers interested in maintaining paths along the Charles River, as well as "ambassadors" wanting to assist the City of Waltham with Prospect Hill Park. Stewardships teams working with DCR in the Beaver Brook reservations and along the Mass Central Rail Trail were established in April 2015. Stewards volunteering at Smith Point and the shoreline and wetlands of Hardy Pond are being trained in 2017.

Basically speaking, each Steward "adopts" a section of the reservation and monitors it on a regular basis, to be determined as appropriate for that particular trail stretch according to level of its of use, time of year, etc. The Steward is asked to complete a Field Report after each visit, particularly when there are issues to report or resolve, and submit it to the WLT Executive Director and to the DCR Beaver Brook Reservation Supervisor via **the online Field Report, found on the WLT website. WLT homepage>Projects>Trail Stewards>Beaver Brook Reservations Trails.**

V. Steward Responsibilities

A. Basic Do's and Don'ts

Do

1. Visit your designated path section on a regular basis.
2. Visually inspect and ensure trails, benches, bridges and other structures are in good order.
3. Note any irregularities, cleaning, or maintenance issues. Remove minor trash and debris.
4. Identify and note areas of invasive plants. Remove if possible.
5. Keep pedestrian areas clear of small tree branches and debris.
6. Welcome all park visitors. Create an atmosphere of friendliness and stewardship.
7. Maintain a pleasant demeanor at all times. Act professionally.
8. When available, plan to participate in trail activities and scheduled clean up days.

9. If in Waltham, call Waltham Police or 911 for any safety or health concerns. Belmont's Police Department can be reached at 650-595-7400.
10. Complete a Field Report to record your hours and report maintenance and other issues.
11. HAVE FUN, and enjoy the paths. Your help is making it a better place for all.

Don't

1. Don't perform maintenance that can cause you or anyone else risk or harm.
2. Don't rake trails; leaves and pine needles build soil, absorb water, and prevent erosion.
3. Don't try to open up an overgrown or blocked trail. Simply report this on the Field Report.
4. Don't build new trails, however small.
5. Don't mark or blaze trails inappropriately.
6. Don't alter the trails in any way. Note any maintenance on your report.
7. Don't apply herbicides/pesticides. Note irregularities on your report.
8. Don't scold or reprimand bad behavior. Simply note the event in your field report.

B. Monitoring

People who join Stewardship Projects are generally regular users of our trails, either through casual walking or jogging. This is great! Monitoring combines outdoor recreation with practical public service. **Stewards are the eyes and ears of natural open space management because the DCR, WLT and the City of Waltham and Belmont have limited resources.**

What to Bring

Whenever possible, carry a wireless cell phone with you and the contact information of other Stewards, **WLT (781-893-3355), Waltham Police non-emergency (781-893-3700), Waltham Fire non-emergency (781-893-4105), and Belmont Police (650-595-7400).**

Bring a notebook, BBN or BBH trail guides, **WLT Steward business cards personalized with your name**, digital camera, sunglasses, a hat, insect repellent, sunscreen, water, sanitizer, etc.

What to Look For and Take Note Of

- Any unusual changes in natural or manmade features.
- Presence of unusual wildlife (you are not looking for just *problems*).
- Illegal activities, or evidence of such, particularly underage drinking, fires, operation of motor vehicles, hunting/trapping, shooting, and disposal of hazardous materials/pollutants.
- Evidence of trees and brush being cut in ways that are not proper trail trimming.
- Large deposits of trash or junk.
- Vandalism.
- Digging of holes.
- Any type of construction.
- Overgrown trails.
- Trails that are becoming progressively eroded or unsafe.
- Trails that are very wet or muddy outside of the spring wet season (roughly March - April).

Dealing with Hazardous Materials (Hazmats)

Examples of familiar hazmats:
Household pesticides, fertilizers, paint, batteries, oil filters, oil tanks and containers, refrigerators, air conditioners, etc.

These can generally be removed by Stewards if done carefully to prevent spillage. Otherwise, email rene.morin2@state.ma.us.

If fresh leakage is evident, you are in doubt about what to do, or you encounter any unfamiliar materials or containers, mark and record the location of the item and contact the DCR.

Meeting Others

Stewards are the "front line" of the parks public outreach. You are very likely to encounter other visitors when walking your stretch of the trail. **Be as welcoming as possible.** This type of face-to-face outreach is one of the best ways to encourage responsible behavior and reinforce public support of natural open space preservation.

"Irresponsible" Visitors

- Visitors acting irresponsibly usually respond positively if politely reminded that their actions adversely affect natural open space and its visitors. However, be aware of your own safety at all times.
- DO NOT ARGUE OR ANTAGONIZE ANYONE. Simply refer them to the DCR.
- **Don't approach anyone you feel might be threatening or dangerous.** If in Waltham, move to a safe distance and discreetly contact Waltham Police (911 or 781-893-3700 nonemergency). The Belmont Police can be reached at 650-595-7400.

C. Removing Invasive Plants

Eradication efforts to control and eliminate invasive species requires careful planning in order to be successful. All efforts are labor intensive and time consuming. Some require repeated efforts over two or more growing seasons in order to be successful. Nevertheless, progress is possible and the work important in order to retain and expand the potential for native species to thrive. What follows is a brief overview of recommended procedures for a few of the most prevalent invasive species.

Offsite Disposal

Species that cannot be left to decompose cannot be sent to public landfills or compost stations where they would regenerate and spread. To dispose of these plants:

1. Use thick black plastic bags.
2. If a reasonable number of bags of plants are collected, they can usually be distributed to volunteers to be left at the curb for weekly TRASH pickup one bag at a time.
3. If an impractical number of bags are collected, contact the DCR to arrange for the bags to be picked up *as trash, not compost* at the site.

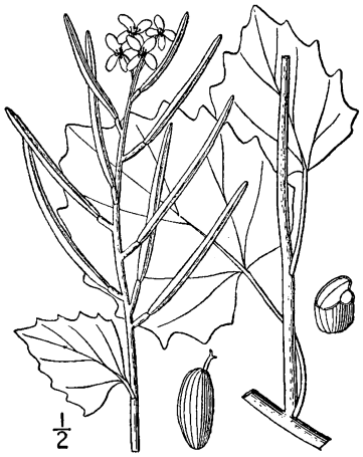
Oriental Bittersweet (*Celastrus orbiculatus*)

Oriental Bittersweet vine is the familiar vine with the attractive fall berries that open from orange to red as they ripen and are a sometimes favorite for creating eye-catching fall wreath displays. The vine itself, if left unchecked can eventually bring down trees and blanket an area with vigorous growth that covers everything in its path.

Young vines can be uprooted by hand with care to pull out as much of the root as possible. The uprooted vines can be dispersed in the surrounding underbrush to decompose. Return visits to the cleared area later in the season and for the following 2-3 years are necessary to determine if all rootstock has been eradicated.

Older, woody plants that have succeeded in climbing nearby trees should be cut at the base. Cut the climbing vines up as high as you can reach, but leave the remaining vines that have climbed into the tree canopy in place as pulling them down will likely cause damage to the trees themselves. Disperse the cut vines in the adjacent undergrowth for decomposition. The rootstock will re-sprout, often in the same season if cut before late summer/early fall. If cut in the fall, they will re-sprout the following season. Repeat visits are necessary to continue cutting back the new growth and eventually depriving the main rootstock of any remaining ability to regenerate.

Garlic Mustard (*Alliaria petiolata*)



Garlic mustard is a biennial with first year plants setting small rosettes of leaves that lie close to the ground and are often unnoticed until much later in the season or over the winter when snow cover is light. It is the second year plants that raise their flower stalks to set seed and are most recognizable. While perhaps the easiest of our common invasive species to physically remove by hand, it can be one of the most frustrating to control in that its seeds remain viable for up to five years in the soil. The absolute key in tackling this species is to adopt a multi-year plan, returning each year to the same treatment areas for continued removal until all evidence of the plant is gone. Once a program of eradication of garlic mustard is begun in a given area, a commitment should be made to return to this area on an annual basis until there is no further sign of this species returning.

The best method to remove this plant is by hand removal in the spring from mid to late April until mid to late May. This is the time of year when pulling the plant by the roots is easiest as the soil is typically moist from spring rains. Once the plant has finished flowering and set seed, it is best to not disturb it as the seeds disperse very easily and can cling to clothes, shoes, etc, which will spread the seeds over a far wider area than if left alone.

The best method for hand removal is to grasp the plant at the base of the stalk and gently pull the roots from the ground. With practice, the whole root is easy to remove in most soils. Do try and pull the root even if the flower stalk breaks off, as the plant is often able to generate new growth from imbedded roots and finish its flowering and seed production cycle either later in the year or the following season.

When clearing an area, make every effort to remove every specimen visible. Leaving only a few plants will generate enough seed to repopulate a cleared area the following season. If first year growth plants are noticed during removal of the second year plants, it is often best to leave them until the following season. The root structure of the first year plants is not as robust, often resulting in removal of the leaf rosettes only, leaving the roots in the ground. Second year plants are far easier to remove in their entirety, roots and all.

Discard the entire plant, roots and all, in plastic garbage bags which should be sealed and disposed of either with your curbside trash pickup or if in large quantities, contact WLT to arrange for DCR disposal. Do not attempt to compost this plant, or any invasive plant.

Japanese Knotweed (*Polygonum cuspidatum*)


Japanese knotweed is the familiar, bamboo-like perennial, often growing to heights in excess of 6' or more in dense stands. It spreads via rhizomes making it particularly hard to eradicate.

As a general rule, all knotweed eradication efforts should be done in close coordination with Land Trust and DCR staff. Here are some pointers that will give you an idea of what to expect with this especially challenging plant.

Cutting the above-ground stems of knotweed once has no long-term benefit, since the plant can readily re-sprout. Similarly, digging up knotweed roots only once is futile, since even small pieces of the rhizomes are capable of regeneration. The only short-time-frame solution to knotweed infestation is to apply herbicide, and this is not a control method available to Land Trust stewards. Even this method requires a year or two of observation to ensure the plants have been thoroughly eradicated.

One well-established stand in Newton was controlled without chemicals through repeated visits. Since the site was not near water and was on level ground, the large root masses were dug up in year one, then the site was visited during the growing season and new shoots were pulled gently to remove as much of the root fragments as possible. This procedure was repeated for five (5!) years. There is now some regeneration of native plants at the site. This experience proves that ridding a site of knotweed is possible, but plan for years of effort. There is a quicker reward during this time, however, since the work at least puts a stop to the spread of knotweed, and allows other plant species to get a roothold.

Sites near water or on sloping ground are probably best treated by herbicide, and some formulations are relatively water safe. Again, herbicide applications are only possible by licensed applicators.

D. Trimming and Pruning

The Beaver Brook Reservations Stewards are empowered to use loppers, pruners and small non-powered hand saws to trim when needed. Contact DCR when a chainsaw is required.

The most important rule of thumb to observe in performing routine trail maintenance involving trimming or cutting of branches, etc., is to leave as little evidence in the form of visible cuts as possible. The end result of your endeavors should ideally be a trail that is free of protruding branches

and looks as natural as possible. This is not always achievable, especially in areas with heavy brambles that must be sheared, but the overall goal should be to make the evidence of trimming as unobtrusive as possible.

The most often forgotten part of the trimming job is the removal of excess cuttings from the trail.

Why Pruning Technique Matters

The pruning of limbs of woody plants must be done properly so that the cuts made heal correctly. Improper cuts, especially where limbs meet the trunk of the plant can lead to disease and the eventual weakening and death of the plant.

The area of the plant where the limb meets the trunk is called the branch collar. This is the zone where branch collar tissue develops from the branch ends towards the trunk, turning abruptly downward at the branch base. Trunk collar tissue develops later in the life of the branch, growing up and over the branch collar tissue. The branch collar is the zone where these two types of tissue overlap. The branch bark ridge is the raised bark that develops in the branch crotch where the branch meets the trunk.

Proper pruning allows the trunk collar tissue to grow over the cut made, eventually walling off the living trunk tissue with a protective layer of bark. Cuts into either the branch collar tissue or the branch bark ridge tissue will not heal properly, allowing for disease organisms to enter the plant's trunk tissue leading to disease and premature death of the plant.

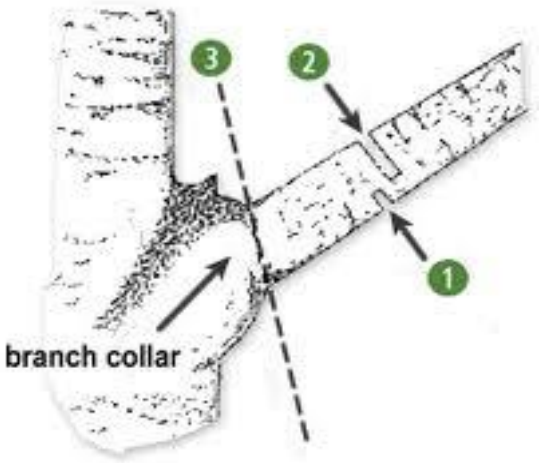
Proper Cuts

Cuts must be made *outside* of the branch bark ridge and branch collar area angling away from the trunk, but as close as possible to the collar.

There is no set or standard angle for a proper collar cut. Whether a branch collar is obvious or not, the final cut should:

1. Minimize the branch stub.
2. Leave the branch bark ridge and branch collar intact.
3. Minimize the overall size of the pruning wound.

Always stub cut the branch first. This technique uses a minimum of three cuts, the first two cutting off most of the branch but leaving a portion of 1-2' feet remaining for the final finish cut. This minimizes the chance of the bark tearing down the trunk, creating a wound that is difficult to heal.



1. The first cut undercuts the branch 1-2’ out from the parent branch or trunk. A properly mad undercut will eliminate the chance of the branch’s peeling or tearing bark as it is removed.
2. The second cut is the Top Cut, which is usually made slightly further out on the branch than the under cut. This allows the branch to drop smoothly when the weight is released.
3. The third or finish cut is to remove the stub.

Each finish cut should be made carefully, outside of the branch bark ridge and branch collar areas, leaving a smooth surface with no jagged edges or torn bark.

Proper Timing

The ideal or optimal times to prune most woody plants are either late in the dormant season or well into the growing season, after leaves are fully formed and expanded. Cuts or wounds in certain species during the growing season may attract insects that carry diseases or allow fungus invasion. Avoid pruning woody plants undergoing bud break and early leaf expansion.

Tools

- Minimum: folding hand saw and a pocket sized pruner, preferably one with increased leverage to cut thicker branches.
- Heavy duty loppers with long handles are generally the most productive trimming tool.
- Garden rake to remove non-woody cut stems from the trail.
- Old hand saw to cut saplings close to the ground without dulling a new one with sand.
- Pole pruner to for cut overhead braches.

E. Follow Up

Carry a notebook to take the contact information of people you talk to and **give personalized WLT Steward cards to folks you meet**. Try to always follow up with them and ask if they are interested in joining the Beaver Brook Reservations Stewards, the WLT, or the stewardship effort in general.

F. HAVE FUN!

Enjoy your time in the park; **others will feel the pleasure it brings you and join the movement!!!**

BEAVER BROOK RESERVATIONS STEWARDS

Important Phone Numbers:

Waltham Police non-emergency	781-893-3700
Waltham Fire non-emergency	781-893-4105
Belmont Police	650-595-7400
Waltham Land Trust	781-893-3355
Waltham Public Works	781-314-3800
Waltham Recycling	781-314-3390

Important Addresses:

Waltham Land Trust office	240 Beaver St, Waltham, 02452
Waltham Land Trust mailing	PO Box 541120, Waltham, 02454

DCR Beaver Brook Reservation website
www.mass.gov/eea/agencies/dcr/massparks/region-boston/beaver-brook-reservation.html

Waltham Land Trust website	walthamlandtrust.org
Online field report	**bbstewardreport.walthamlandtrust.org**
Waltham Police/Fire Department (main)	175 Lexington St, Waltham
Waltham Public Works	167 Lexington St, Waltham
Hazardous Waste Facility	60 Hartwell Ave, Lexington