

NATURAL AREAS CONSERVANCY

TRAIL MAINTAINER HANDBOOK

The logo consists of a white square outline with a smaller white square outline inside it, centered on the page. The text "Natural Areas Conservancy" is placed between these two squares.

Natural Areas
Conservancy



Trail Maintainers in Marine Park, Brooklyn

ABOUT THIS HANDBOOK

Thank you for becoming a Super Steward: Trail Maintainer! This handbook is designed to assist your work on New York City nature trails with guidelines and tips about trail safety and awareness.

We encourage you to read the entire handbook before heading out onto the trails. Have fun!

CITYWIDE TRAILS PROGRAM

New York City is home to more than 20,000 acres of natural areas — forests, wetlands, and grasslands — and 10,000 of those acres are in city parks. These natural resources are vast and vary in typology, health, and condition. They provide many environmental and social benefits to New Yorkers, including space to experience wild nature within the city. Within NYC Parks' natural areas, there are over 350 miles of formal and informal nature trails. This trail system is spread across approximately 75 parks, and provides unique trail experiences within each park.



The red trail in Alley Pond Park, Queens

In 2017, NYC Parks and the Natural Areas Conservancy (NAC) formed the Citywide Trails team to formalize the vast network of nature trails in all five boroughs. Formalization efforts ensure that trails are navigable, accessible, and that they contribute to the overall health of the forests and wetlands. The team also works to engage the public through programming and volunteer opportunities. The NAC is building the Trail Maintainer program in close partnership with NYC Parks as a part of their Super Steward Program.

TIPS FOR THE TRAIL

BEFORE YOU GO:

- Make sure someone always knows where you are. Check out with someone before you leave and check in again when you return from the field.
- Complete an Emergency Response Plan (ERP) to familiarize yourself with hazards you may encounter and to note emergency contacts (toward the back of this booklet).
- Bring necessary safety materials: work gloves, first-aid kit, water, food/snacks, bug spray, IVY-X and Tecnu, and orange vest (full checklist on page 7).

ON THE TRAIL:

- Monitor and maintain the trail to ensure it is safe and accessible.
- Wear Trail Maintainer gear so you can be identified by the public and parks staff.
- Report work accomplished or conditions assessed while on the trail.

WHEN YOU RETURN:

- Ensure all accomplished work is recorded.
- Check in with who you checked out with before leaving.

RESOURCES:

- Remember to fill out the Contact Lists form (toward the back of this booklet).
- Call 311 to report items such as brush fires, homeless encampments, loose needles, vandalism etc. (Please, be sure to also notify Citywide Trails team and NYC Parks staff.)

SAFETY & RISK MITIGATION

Trail Maintainers aim to promote a safe and healthy environment while stewarding natural areas. But hazards may be present while working in parks. While we can't eliminate all hazards, we can assess, identify, and manage them through risk mitigation.

HAZARDS VS. RISKS

Hazards are anything that can be a source of damage or injury (for example, a steep slope). **Risks** occur when we choose to expose ourselves to that hazard (for example, working on a steep slope). Simultaneously contending with multiple hazards may result in compounding risk to each of the hazards (for example, being tired while working on a steep slope with sharp tools).

Common Field Hazards:

1. Poison ivy
2. Stinging insects
3. Heat/humid weather
4. Ticks
5. Dumping
6. Needles
7. Steep slopes or terrain
8. Hanging branches overhead



Poison ivy



Hanging branches

SAFETY & RISK MITIGATION

Here are some steps you can take to mitigate risk:

- Always be aware of your surroundings.
- Stay hydrated and stop working when you're tired.
- Do not confront people involved in unauthorized/illegal activity.
- Do not handle items like needles and other items or hazards you do not feel comfortable with.
- If a site is inaccessible or unsafe (e.g. >50% poison ivy or poison ivy is growing >4-feet tall; a large encampment), do not work there. Please record why the site was inaccessible.

HEAT-RELATED ILLNESSES

WHAT TO LOOK FOR

WHAT TO DO

HEAT STROKE

- | | |
|---|---|
| <ul style="list-style-type: none">• High body temperature (103°F or higher)• Hot, red, dry, or damp skin• Fast, strong pulse• Headache• Dizziness• Nausea• Confusion• Losing consciousness (passing out) | <ul style="list-style-type: none">• Call 911 right away - heat stroke is a medical emergency• Move the person to a cooler place• Help lower the person's temperature with cool cloths or a cool bath• Do not give the person anything to drink |
|---|---|

HEAT EXHAUSTION

- | | |
|--|--|
| <ul style="list-style-type: none">• Heavy sweating• Cold, pale, and clammy skin• Fast, weak pulse• Nausea or vomiting• Muscle cramps• Tiredness or weakness | <ul style="list-style-type: none">• Move to a cool place• Loosen your clothes• Put cool, wet cloths on your body or take a cool bath• Sip water |
|--|--|

WHAT TO BRING

Safety Items:

- ✓ Work gloves
- ✓ First-aid kit
- ✓ Mobile phone
- ✓ Bug spray
- ✓ IVY-X and Tecnu
- ✓ Water
- ✓ Food/snacks
- ✓ Trail Maintainer gear
- ✓ Trail map

Tools:

- ✓ Hand saw
- ✓ Hand pruners/loppers
- ✓ Hammer (for blazing)
- ✓ 2" galvanized nails (for blazing)
- ✓ Official NYC Parks trail markers (for blazing)



Example of Tecnu



Example of trail tools

MAINTENANCE & REPORTING

Trail maintenance tasks and/or reporting of trail concerns should occur at least once every season, with a minimum of 12 total hours of work reported per year. Trail maintenance activities include corridor pruning, debris removal, desire line closure maintenance, and invasive species management.

TRAIL CONCERNS AND REPORTING

Any trail concerns noted in the field and/or trail maintenance tasks accomplished should be entered into Survey123, or by previously discussed alternative reporting method.

LIST OF TRAIL CONCERNS:

- Erosion concerns
- Trail infrastructure in need of maintenance
- Missing trail markers
- Rogue markers painted on trees
- Vandalized markers
- Confusing or missing signage
- Hazards
- Desire lines/trails not already on trails map
- Obstacles
- Invasive removal/corridor clearance concerns not already on trails map



Example of trail erosion

Reporting on trail concerns and work accomplished is integral to the program's success. The work you do matters and we want to ensure it is documented as part of our collective stewardship efforts across New York City.

STRUCTURES & TERMINOLOGY

TRAIL TERMINOLOGY

Cross Slope: The percentage of rise to length (“run”) when measuring the trail tread from edge to edge perpendicular to the direction of travel.

Trail Grade: The ascent or descent of a trail segment expressed as a percentage of its length.

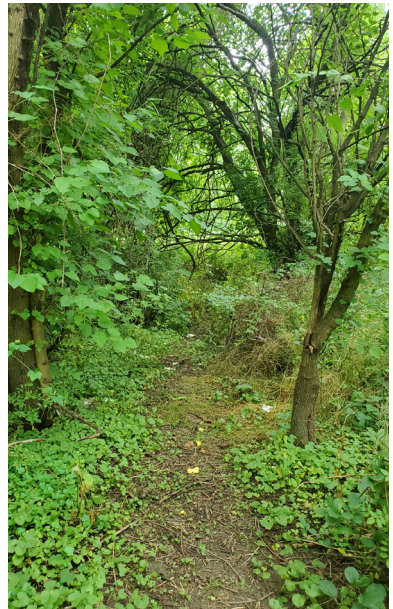
Informal Trail or Desire Line: An unofficial trail within the trail network that is either redundant, causes confusion when navigating the network, and/or causes ecological fragmentation.

Linear Grade: The trail grade that is determined to be appropriate to accommodate the managed uses of a trail.

Trail Corridor: The tread and area above and to the sides of it, customarily 2ft wide and 8ft high for nature trails. Corridor dimensions range depending upon intended usage.

Trail Restoration: Naturalization of informal trails through decompaction of tread and invasive management along edges. These efforts sometimes culminate in planting of native trees and shrubs to restore the forest.

Tread: Trail walking surface.



Example of a desire line

STRUCTURES & TERMINOLOGY

TRAIL STRUCTURES

Check Step: Check steps function to stabilize the trail tread from erosion while offering support for hikers on an incline. To prevent erosion, they are intended to slow and hold surface water long enough to deposit transported sediment.

Drainage Dip: Earthen barrier consisting of a rolling grade and apron or drainage ditch that diverts water onto the adjacent forest floor.

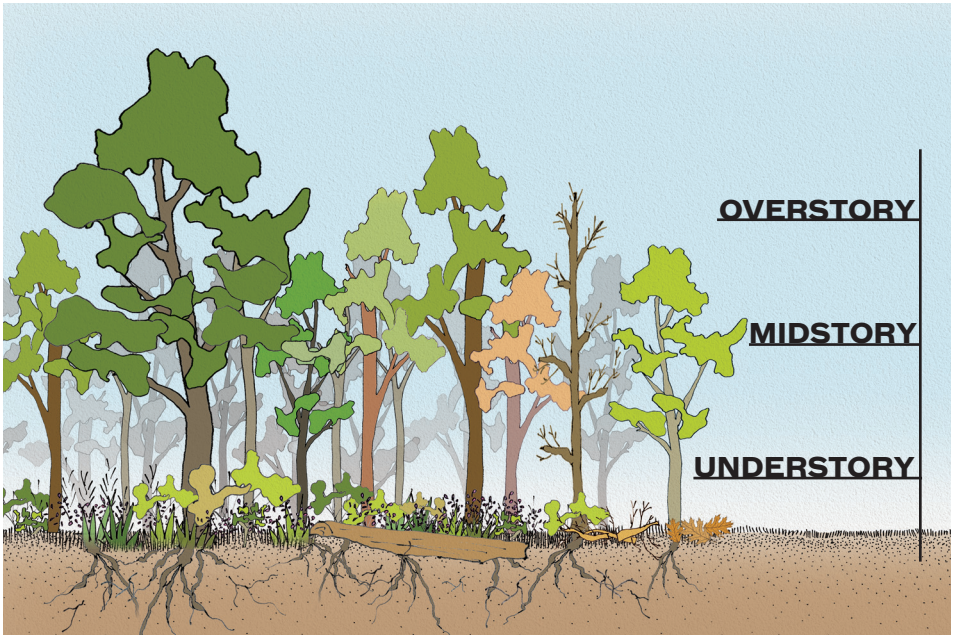
Puncheon: In areas that are difficult to drain, puncheons can be used to elevate the walking surface to provide crossings over wet areas. Puncheons typically consist of lumber constructed in the form of low lying footbridges for muddy/partially flooded areas or larger footbridges that allow access through stream crossings/heavily flooded areas.

Water Bar: Water bars are barriers embedded in the trail to divert water onto the adjacent forest floor. The barriers can be large rocks, logs, or treated timber.

Turnpike: In areas with poor drainage, turnpikes can be utilized to raise the tread surface material and provide an even, dry walking surface. Turnpikes typically consist of lumber that is spaced the length of the trail then filled with earthen materials, such as gravel or crushed stone, then capped with mineral soil. In some cases, trenches are dug alongside the structure to improve drainage.

PLANT IDENTIFICATION

Where plants can be found in forest composition:



10 COMMON NATIVE SPECIES

1. Eastern poison ivy (*Toxicodendron radicans*)
2. Virginia creeper (*Parthenocissus quinquefolia*)
3. White wood aster (*Eurybia divaricata*)
4. Northern spicebush (*Lindera benzoin*)
5. Sugar maple (*Acer saccharum*)
6. Red maple (*Acer rubrum*)
7. Sweetgum (*Liquidambar styraciflua*)
8. Tulip poplar (*Liriodendron tulipifera*)
9. Northern red oak (*Quercus rubra*)
10. Black oak (*Quercus velutina*)



Red maple

PLANT IDENTIFICATION

10 COMMON NON-NATIVE SPECIES

1. Mugwort (*Artemisia vulgaris*)
2. Japanese honeysuckle (*Lonicera japonica*)
3. Multiflora rose (*Rosa multiflora*)
4. Oriental bittersweet (*Celastrus orbiculatus*)
5. Garlic mustard (*Alliaria petiolata*)
6. Japanese knotweed (*Polygonum cuspidatum*)
7. Wineberry (*Rubus phoenicolasius*)
8. Norway maple (*Acer platanoides*)
9. Tree of heaven (*Ailanthus altissima*)
10. Black locust (*Robinia pseudoacacia*)



Wineberry



Japanese honeysuckle



Garlic mustard



Mugwort

LEVELS & REQUIREMENTS

Trail Maintainers must complete the metric-based goals outlined below in accordance with their tier level. If a Trail Maintainer is at any level above Corridor Keeper, they are still expected to keep the corridor accessible and maintain trail edges. All Trail Maintainers must commit to a minimum of 12 hours of volunteering per year. The amount of hours will stack, ie. Level 2: 12 hours, Level 3: 24 hours, and so on. Hours will correlate with tier specific metric-based goals. Hours reported will be documented through Survey123 and reviewed when possible via on the ground inspection to ensure both quality and integrity of reporting. Below are annual metric goals for each tier, which may vary depending on specific trail segments and will be discussed individually.

CORRIDOR KEEPERS

Corridor Keeper volunteers maintain trail corridors, ensure informal trails remain closed, keep trails free of debris, report on trail conditions, and manage invasive species along trail edges. Corridor Keepers must complete the following:

- 1 mile of invasive species removed along trail edges and/or
- .5 miles of corridor pruned and/or
- .5 miles of desire line reclosed/closed
- 6 bags of debris removed from trail/natural area and/or
- Report trail conditions at least 4 times a year



Marine Park, Brooklyn

LEVELS & REQUIREMENTS

STRUCTURE MAINTAINERS

Structure Maintainers will maintain water bars, check steps, puncheons, turnpikes, drainage dips, and other structures present on trail. They also actively close desire lines as part of restoration efforts. Volunteers can advance to Structure Maintainer after reporting at least 12 total hours of trail improvement activities. There are two levels of Structure Maintainers: Structure Builder I and Structure Builder II.

Structure Builder I volunteers will install check steps, water bars, and rustic check steps on the trail. Advance to Structure Builder I after reporting at least 24 total hours of trail improvement activities. Structure Builder I volunteers must also:

- Maintain 5 structures (less can be maintained dependent on amount of structures present on adopted trail)
- Close at least 2 desire lines within a trail network (including desire lines closed during training)
- Prep materials for at least 1 locally sourced structure

Structure Builder II volunteers will install puncheons and rock steps along the trail. To enter the level of Structure Builder II you must:

- Report at least 36 total hours of trail improvement activities
- Install 2 trail structures (including a structure installed during training)
- Build 2 puncheons (including a structure built during training)
- Build 2 rock structures (including a structure built during training)

LEADERSHIP OPPORTUNITIES

These opportunities are available to all Trail Maintainers who are interested in project and event coordination, training other volunteers, and advocating for natural areas. Some opportunities require technical skills associated with different Trail Maintainer tiers, which can be acquired through the program's advanced trails skills training. All leadership opportunities require training or related experience. The leadership opportunities outlined below will be facilitated by the Natural Areas Conservancy and NYC Parks, and guided by volunteers.

TRAIN OTHER TRAIL MAINTAINERS:

Become a Trail Maintainer trainer for your park. Teach new skills to prospective Trail Maintainers and provide ongoing support to advanced volunteers. Trail Maintainer trainers must have accomplished a minimum of 12 hours of work at the skill level that they are teaching.

LEAD A TRAIL WORK EVENT:

Lead on the ground trail work events in your park alongside other Trail Maintainers and volunteers. Trail Maintainers must be within the skill level of the work event being led and have co-led at least one trail event with the Trails Community Engagement Manager.



Trails team in Alley Pond Park, Queens

LEADERSHIP OPPORTUNITIES

ORGANIZE A TRAIL EVENT:

Organize trail work events and/or educational events for the Trail Maintainer network, other volunteers, and the general public. Manage attendee registration, share important event information with the community, and assist the trail event lead in coordinating day-of logistics. Trail event organizers can either lead the event on the ground, or co-organize an event to be led by another Trail Maintainer.

BECOME AN AMBASSADOR:

Spread the word about natural area trails in your community, and encourage others to become Trail Maintainers. Ambassadors represent and promote the Trail Maintainer program or engage in advocacy efforts, such as contacting elected officials to give testimony in support of natural areas. We also encourage ambassadors to photograph trail events and trails throughout the seasons to capture the experiences New York City's nature trails have to offer.

BECOME A BOROUGH REPRESENTATIVE:

Organize and be a voice for Trail Maintainers at the boroughwide level. Trail Maintainer borough representatives will work with the Citywide Trails team on boroughwide events, occasionally represent Trail Maintainers in their borough at meetings with NYC Parks, and keep Trail Maintainers in their borough up to date on news, events, and activities. Eligibility to become a Trail Maintainer borough representative requires a minimum of 6 months participation in the Trail Maintainer program.

COMMONLY USED FORMS:

Contact Lists, Emergency Response
Plans, and Trail Maintenance Goals



CONTACT LISTS

NAC Trails Community Engagement Coordinator: _____

Phone: _____

Email: _____

NYC Parks Advanced Volunteer Coordinator: _____

Phone: _____

Email: _____

NAC Parks Administrator or Manager: _____

Phone: _____

Email: _____

Other NYC Parks Staff: _____

Phone: _____

Email: _____

311 (Handles all requests for government and non-emergency services in NYC)

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311 (Handles all requests for government and non-emergency services in NYC)

EMERGENCY RESPONSE PLAN

GENERAL INFORMATION

Park name:

Location (include landmarks, trail segment IDs, etc.):

NEAREST HOSPITAL

Name:

Address:

Phone:

Distance from park/worksite (miles):

Note how ambulance could travel to your location:

NEAREST BATHROOM

Location (include landmarks, trail segment IDs, etc.):

EMERGENCY RESPONSE PLAN

GENERAL INFORMATION

Park name:

Location (include landmarks, trail segment IDs, etc.):

NEAREST HOSPITAL

Name:

Address:

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Distance from park/worksite (miles):

Note how ambulance could travel to your location:

NEAREST BATHROOM

Location (include landmarks, trail segment IDs, etc.):

TRAIL MAINTENANCE GOALS

Trail segments to be prioritized for invasive management:

Invasive species present: _____

Trail segments to be prioritized for pruning: _____

Trail segments where erosion concerns identified: _____

Type of erosion identified on the trail: _____

TRAIL MAINTENANCE GOALS

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Invasive species present: _____

Trail segments to be prioritized for pruning: _____

Trail segments where erosion concerns identified: _____

Type of erosion identified on the trail: _____



CONTACT US

For further information about our organization, visit: naturalareasnyc.org. To read the *New York City Strategic Trails Plan* and learn more about the vision and goals of the Citywide Trails program visit: naturalareasnyc.org/trails

We are grateful to our partners and funders for their support of the trails program: *New York City Department of Parks and Recreation, The Leona M. and Harry B. Helmsley Charitable Trust, REI, and Student Conservation Association.*

