

# HWA Survey Protocol

(Adapted from New York State Hemlock Initiative)



*Hemlock woolly adelgid (HWA) is an invasive forest pest that can kill native eastern hemlock trees. Surveying for HWA is vital for finding insects early and for facilitating effective HWA management in the Adirondacks. Thank you for helping us find HWA and protect Adirondack forests, watersheds, and habitats.*

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## SURVEY MATERIALS

- Sturdy shoes or boots, and appropriate outdoor clothing for winter conditions
- Hand lens and/or magnifying glass
- Headlamp or flashlight (used to examine HWA, and also for trail safety)
- GPS enabled smartphone or tablet for entering findings into iMapInvasives (see Part 1 and Part 4 below to learn how to download iMapInvasives to your mobile device)
- Trail map and compass (see Step 8 of Part 2 to find out where to locate local maps and guides)
- Hemlock and HWA ID sheet (Part 5 of this protocol)
- A printed copy of this protocol guide, if needed
- Pack with water, snacks, and safety gear 😊
- Ziplock bag to collect branch samples and, if available, flagging to mark a potentially infected tree

## PART 1: SET UP IMapINVASIVES MOBILE APP

**(This step requires use of a computer – laptop or desktop – as well as a smart phone or a tablet.)**

Step by step instructions on how to create an iMap account, download the app to your mobile device, and get started entering citizen science data are found in Part 4 of this HWA protocol.

1. When creating your account online, set your “**JURISDICTION**” to “**NEW YORK**”
2. Please do **NOT** select an “**ORGANIZATION**”
3. Under “**PROJECT**,” select “**APIPP VOLUNTEER FOREST PEST MONITORING (Project ID Number: 1108)**”

The screenshot shows the iMapInvasives website with two main sections: 'Step 1: Create an iMapInvasives account' and 'Step 2: Joining Organizations and Projects (optional)'. Step 1 includes instructions for creating an account, with a 'Sign Up' button highlighted. Step 2 includes instructions for joining organizations and projects, with a 'Join' button highlighted. A red circle highlights the 'Join' button in the 'Joining Organizations' section.

## PART 2: SELECT SURVEY SITES

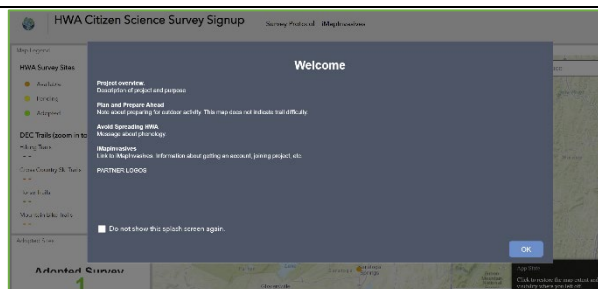
OPTION A: Adopt a Trail on Public Lands.

**(This step requires use of a computer – laptop, desktop, or tablet)**

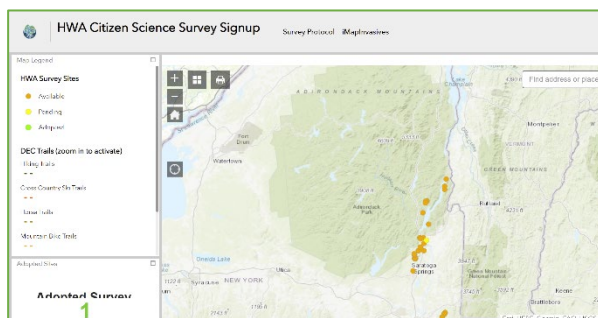
1. Go to: [bit.ly/adkhwahunt](https://bit.ly/adkhwahunt) to adopt an Adirondack trail needing to be surveyed for HWA

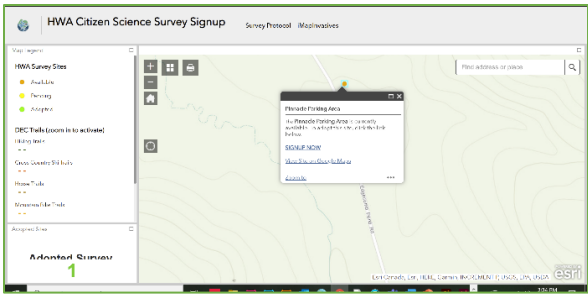
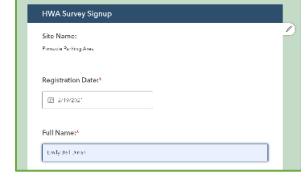
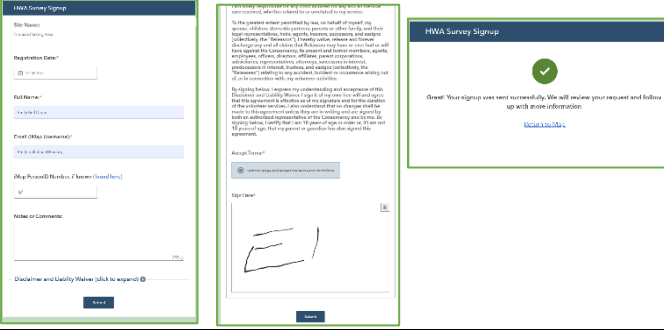
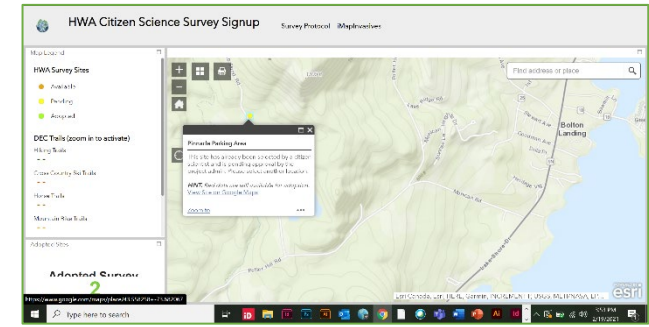

[bit.ly/adkhwahunt](https://bit.ly/adkhwahunt) (hint, do not use capital letters, enter the URL as it is written above)

2. You'll be greeted by the **welcome screen** displaying information about HWA, links to this protocol, and partner organizations working together to protect the Adirondacks. **After reading, leave the welcome screen by clicking “OK” in the bottom right of the window.**



3. Visit the map and zoom into where priority trails are available for **adoption**. **Orange** dots are available to adopt and **green dots** represent locations that have been claimed by other community scientists.



|   |   |
|---|---|
| <p>4. Explore the map to find a trail of interest to you. <b>Zoom in</b> until it is easy to click on an individual orange dot, symbolizing available trailheads ready to be scouted. <b>Click</b> on the orange dot to open an <b>Info Box</b> displaying the <b>trailhead's name</b>, link to <b>Google driving directions</b>, and a <b>SIGN UP NOW</b> link.</p>  |                                       |
| <p>5. Click on the <b>SIGN UP NOW</b> link to be brought to the “HWA Survey Sign-Up” page.</p>  |                                       |
| <p>6. Once you’ve filled in today’s <b>date</b>, your <b>name</b>, and <b>email</b>, move your mouse over the small <b>arrow</b> to the right to <b>expand the Disclaimer and Liability Waiver</b>. Read and click the “<b>acknowledgement</b>” button. Click <b>Submit</b>!</p>  |                                       |
| <p>7. After seeing the <b>successful sign-up</b> window appear, <b>click</b> on the link to <b>return to map</b>. This will help you see that your selected trailhead color changed from <b>Orange to Green</b>. Hover your mouse over the, now <b>Green</b>, trailhead symbol to re-open the info box. Click on “<b>View Site on Google Maps</b>” to find driving directions to the trail head parking area.</p> |                                     |
| <p>8. For additional trail details (hiking route, conditions, trail length, or points of interest) use your preferred local hiking guide, trail map, or website such as <a href="http://www.AllTrails.com">www.AllTrails.com</a>. <b>HIKING TIP:</b> Always carry a hardcopy map and a compass while hiking or surveying – and know how to use it!</p>  | <p><b>You're ready to go!</b></p>  |

#### OPTION B: Survey on your own private property (or private land you have permission to access)!

- Follow all the steps in Parts 1-4, excluding use of the trail adoption map (Part 2-Option A). Scouting for HWA (presence or absence) on private properties is just as important as looking for it on public lands. Please enter your survey results into iMapInvasives – see step 4 below.

## PART 3: HWA SURVEYS

|   |
|---|
| <p><b>1. Before you hike - see hiking tips below in Part 6 and watch videos on winter recreation from the Adirondack Mountain Club.</b> Make sure your clothing is seasonally appropriate, check local weather and road conditions for safety before heading out. Don't forget to charge your mobile device, download iMapInvasives, and pack plenty of water and snacks. If appropriate, sign into the trail register before setting off.</p>  |
| <p><b>2.</b> As you hike, be on the lookout for eastern hemlock trees along both sides of the trail. <b>(See Part 5 for Hemlock ID Guide).</b> Typically found in groups (or stands), eastern hemlocks <b>often grow in wet areas along streams, drainage ditches, and lake shores – be aware of these potentially icy or hazardous features while you hike.</b> (TIP: The opposite can also be true, and hemlocks might occur in dry, rocky outcrops on south facing, sunny slopes!)</p>   |
| <p><b>3. When you encounter a group of hemlocks, check trees with reachable branches first.</b> Some hemlocks stands will not have low branches, in which case, search for and examine branches that dropped to the ground, or keep moving.</p>   |
| <p><b>4. Focus on the very end of the branch where new growth occurs. Flip the branch over to examine the underside of twigs.</b></p>   |
| <p><b>5. Use a headlamp or flashlight to illuminate the underside of the branch. Closely examine where hemlock needles meet the woody stem – HWA only occurs at the base of the needles on the stem, not on the needles.</b></p> <p><b>Check multiple branches on different sides of the tree. Look at a few more trees in the stand using this same method. Stop scouting after ten minutes or when all hemlocks along the trail have been examined</b> and move onto the next step.</p>   |
| <p><b>6.</b> After searching for HWA in the stand, <b>enter your findings into iMapInvasives</b> (see Part 4). <b>Enter findings into the App EVEN if you did NOT find any HWA!</b> Knowing where HWA has not yet invaded is very important information.</p> <p><b>If you suspect you have found HWA, take a photo and also take a small sample of the twig and place it in a zip lock bag.</b> Record a detailed description of the tree location in the comments section of the iMapInvasives app. If you have flagging with you, you can also put it around the tree. Notify your local PRISM when you return home for instructions on how to submit the sample.</p> <p><i><b>* IF YOU THINK YOU FOUND HWA during the winter – enter findings into iMapInvasives and keep surveying. (If you find HWA between mid-April and July, do not survey additional sites! At this time of year HWA can be transferred on your clothing. Wash clothing and gear—or put them in your dryer—when you get home to avoid inadvertent spread.)</b></i></p> <p>Suspected sightings can also be reported to the New York State Department of Environmental Conservation by emailing a photo and location to <a href="mailto:foresthealth@dec.ny.gov">foresthealth@dec.ny.gov</a> or by calling 1-866-640-0652.</p> |
| <p><b>7.</b> After entering records into iMap, keep hiking! When you come along the next group of hemlocks, stop and repeat steps 3-6. If the trail you're hiking is too densely populated with hemlocks to find separate "stands," keep hiking and stop to repeat HWA surveys every ten to fifteen minutes as you go.</p>  |

## PART 4: ENTER INTO iMAP

Step by step instructions on how to enter your survey into iMapInvasives Mobile App below.

REMEMBER – ENTER FINDINGS INTO IMAP EVEN WHEN YOU DO NOT FIND ANY INVASIVE SPECIES!

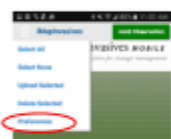
### iMapinvasives Mobile App for Android or Apple

#### Report invasive species locations using your tablet or smartphone

- First you will need to create a free iMapInvasives account online at:  
[www.NYiMapinvasives.org](http://www.NYiMapinvasives.org)
- Download app from Google Play or iOS App Store (search for “imapinvasives”)

#### Preferences

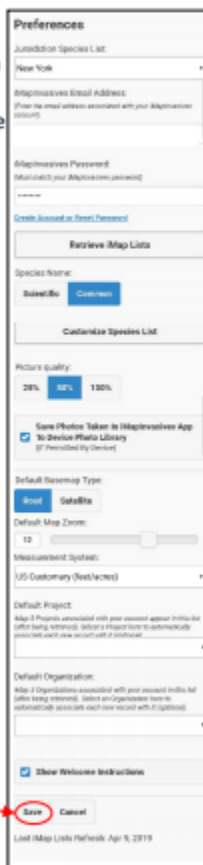
“Preferences” are your customized user settings. You will need to fill in your iMapInvasives account information to upload reports to the database.



1. Select State
2. User ID (email) and Password (must match online account!)
3. Select species name and create a custom list (optional).
4. Save your picture to your devices photo library (optional)
5. Select map preference and zoom
6. Select project (optional)

Project = APIPP  
Volunteer Forest  
Pest Monitoring  
  
ID#1108

Save changes!



The Preferences screen contains the following fields and options:

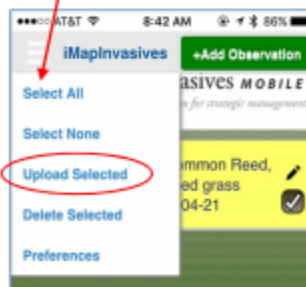
- Jurisdiction Species List:** New York
- iMapInvasives Email Address:** (From the email address associated with your iMapInvasives account)
- iMapInvasives Password:** (Must match your iMapInvasives account)
- Save Photos Taken in iMapInvasives App To Device Photo Library:** (Checked)
- Default Resemap Type:** Root
- Default Map Zoom:** 12
- Measurement System:** US Customary (Feet/Inches)
- Default Project:** iMap 3 Projects associated with your account appear in this list (after being reviewed). Select an Organization from the informationally associated with each record with it (optional).
- Default Organization:** iMap 3 Organizations associated with your account appear in this list (after being reviewed). Select an Organization from the informationally associated with each record with it (optional).
- Show Welcome Instructions:** (Checked)
- Buttons:** Save, Cancel
- Footer:** Load iMap Links Refreshed: Apr 9, 2019

#### Home Page

From the home page users can add a new observation record, view records already collected and access all other functionality via the Menu.



Manually select box or choose Select All from the menu



Questions? Contact:

[imapinvasives@nynhp.org](mailto:imapinvasives@nynhp.org)

[www.NYiMapinvasives.org](http://www.NYiMapinvasives.org)

## Observation Record

Make new reports of invasive species and edit existing records here!

The screenshot shows a mobile application interface for recording invasive species observations. The form includes the following fields and buttons:

- Take Photo:** A callout pointing to the "Take Photo Using Camera" and "Select Photo From Library" buttons.
- Select Species:** A callout pointing to the "Species:" dropdown menu.
- Select Detected or Not Detected:** A callout pointing to the "Species Detected" and "Species Not Detected" radio buttons.
- Uncheck to manually enter location:** A callout pointing to the "GPS: Uncheck to manually enter location" checkbox.
- Zoom In or Out:** A callout pointing to the map area.
- Select Date:** A callout pointing to the "Date:" field.
- To manually edit location, uncheck the GPS box, touch and hold the map push pin. Drag it to the location of the invasive.** A callout pointing to the map push pin.
- If 0,0 is displaying in the Location box, please make sure your GPS is enabled on your device.** A callout pointing to the "Location (Longitude, Latitude):" field.
- Select your project:** A callout pointing to the "iMap 3 Project: (Optional)" dropdown menu.
- Save new observation or updates:** A callout pointing to the "Save" button.
- Enable your custom species list:** A callout pointing to the "Custom List" checkbox.

The form also includes a "Cancel" button and an "Observation Comments:" text area.

[www.imapinvasives.org](http://www.imapinvasives.org)



New York  
Natural Heritage  
Program

Supported by the New York State Environmental Protection Fund  
through a contract with NYS Department of Environmental Conservation

NatureServe



## PART 5: IDENTIFICATION TIPS

### Hemlock Tree Identification (from New York State Hemlock Initiative)



**Silhouette:** Hemlocks have a vaguely pyramidal shape with a drooping leader at the top and feathery branching texture. Hemlocks can grow to be up to 175 ft tall. As they grow there may be fewer lower branches present.

**Branches:** Hemlocks are a conifer tree with single needles growing in rows away from the central woody stem. Needles along a stem are not even lengths, making them unique from many other evergreens in the forest. The feel of each branch of needles is somewhat soft and feathery—not spikey or rough to the touch.

**Needles:** Needles are flat with a shiny, deep-green top, two parallel white stripes on the underside, and a rounded tip at the end. Needles are typically ~1/2" to 3/4" in length arranged opposite one another on the twig (not whorled around the twig as on a spruce or fir tree).

**Bark:** Younger hemlocks will have rough greyish-brownish bark. Mature hemlock bark is rough, scaled, and fissured. It is typically a rich brown in color with a reddish tinge.

**Cones:** Hemlocks have small, brown cones that grow to be ~3/4" to 1" in length. They have rounded scales and mature in the fall.

### HEMLOCK WOOLLY ADELGID IDENTIFICATION from New York State Hemlock Initiative



**Late Fall-Early Spring:** HWA goes through four development stages or “instars” as it secretes its wool then lays its eggs as an adult. During this time an infestation will be characterized by white, waxy masses that are secreted around the bodies of the insect, always clumped directly on twigs near the base of the hemlock needles. Tips: Sometimes the infestation is best seen while looking at the underside of a hemlock twig. In the case of a lighter infestation you may only see one or two woolly masses present.

## PART 6: ADIRONDACK WINTER HIKING:

|   |   |
|---|---|
| <b>Watch</b> ADK's "Planning for Winter Hikes" Video  | <a href="https://bit.ly/adkwinterhiking">bit.ly/adkwinterhiking</a> (HINT do not use capital letters, enter URL in all lowercase) |
| <b>Watch</b> ADK's "Know Before You Go" Winter Series   | <a href="https://bit.ly/akdbeforeyougo">bit.ly/akdbeforeyougo</a> (HINT do not use capital letters, enter URL in all lowercase)   |
| <b>CONSIDERATIONS FOR YOUR WINTER HIKE:</b>   |   |
| 1. Check <b>weather</b> and <b>trail conditions</b> before your trip. Check the <b>day of</b> and <b>days before</b> in case warmer weather has caused <b>melting</b> and swollen or flooding streams.  |   |
| 2. Check <b>sunrise</b> and <b>sunset</b> to be sure to be on the trail during daylight hours and absolutely <b>bring one or more headlamps</b> .   |   |
| 3. <b>Choose a trail</b> that matches your <b>experience</b> and <b>fitness</b> level and that of <b>your group</b> . It is best to start with a <b>familiar trail</b> and plan your hike to be $\frac{1}{2}$ <b>the distance</b> you would feel comfortable doing in the summer (and then work your way to longer distances or more difficult trails).   |   |
| 4. Check the <b>rules</b> and <b>regulations</b> for the land where you will be hiking (or ask for permission if it is private land). In some areas of the Adirondacks (such as the High Peaks Wilderness) NYSDEC requires snowshoes or skis when the off-trail snow depth is 8 inches or deeper.   |   |
| <b>5. Pack the 10 essentials:</b> <ul style="list-style-type: none"> <li>a. Navigation (map and compass)</li> <li>b. Sun protection (sunglasses and sunscreen)</li> <li>c. Insulation (extra clothing)</li> <li>d. Illumination (headlamp/flashlight)</li> <li>e. First-aid supplies</li> <li>f. Fire (waterproof matches/lighter/candle)</li> <li>g. Repair kit and tools (knife, cordage, duct tape, etc.)</li> <li>h. Nutrition (extra food)</li> <li>i. Hydration (extra water)</li> <li>j. Emergency shelter (tent/emergency blanket)</li> <li>k. For winter, make sure you also bring: <ul style="list-style-type: none"> <li>i. A sleeping bag and sleeping pad, or other insulation</li> <li>ii. A stove for hot drinks</li> <li>iii. Hand warmers (against neck or armpits)</li> <li>iv. Traction (microspikes and snowshoes)<br/>[snowshoes or skis may be required in the High Peaks region]</li> <li>v. Multiple layers of clothing, but no cotton</li> </ul> </li> </ul> |   |
| <b>6. Follow Leave No Trace Principles:</b> <ul style="list-style-type: none"> <li>i. <a href="https://www.adk.org/leave-no-trace">https://www.adk.org/leave-no-trace</a></li> <li>ii. <a href="https://lnt.org/the-7-principles-of-leave-no-trace-winter-recreation/">https://lnt.org/the-7-principles-of-leave-no-trace-winter-recreation/</a></li> </ul>   |   |
| For more <b>information</b> or <b>questions</b> about how to prepare for your winter outing please contact the ADK High Peaks Information Center 518-523-3441, ext. 121 or email at <a href="mailto:hpic@adk.org">hpic@adk.org</a> , and/or <a href="mailto:cathy@adk.org">cathy@adk.org</a> .  |   |